

Pertanika Journal of SOCIAL SCIENCES & HUMANITIES

VOL. 32 (2) JUN. 2024



A scientific journal published by Universiti Putra Malaysia Press

PERTANIKA JOURNAL OF SOCIAL SCIENCES & HUMANITIES

About the Journal

Overview

Pertanika Journal of Social Sciences & Humanities is the official journal of Universiti Putra Malaysia. It is an open-access online scientific journal. It publishes original scientific outputs. It neither accepts nor commissions third party content.

Recognised internationally as the leading peer-reviewed interdisciplinary journal devoted to the publication of original papers, it serves as a forum for practical approaches to improve quality in issues pertaining to social and behavioural sciences as well as the humanities.

Pertanika Journal of Social Sciences & Humanities is a **quarterly** (*March, June, September, and December*) periodical that considers for publication original articles as per its scope. The journal publishes in **English** as well as in **Bahasa Malaysia** and it is open for submission by authors from all over the world.

The journal is available world-wide.

Aims and scope

Pertanika Journal of Social Sciences & Humanities aims to develop as a pioneer journal for the social sciences with a focus on emerging issues pertaining to the social and behavioural sciences as well as the humanities. Areas relevant to the scope of the journal include Social Sciences—architecture and habitat, consumer and family economics, consumer law, education, media and communication studies, political sciences and public policy, population studies, psychology, sociology, and tourism; Humanities—arts and culture, dance, language and linguistics, literature, music, philosophy, and sports.

History

Pertanika Journal of Social Sciences & Humanities was founded in 1993 and focuses on research in social and behavioural sciences as well as the humanities and its related fields.

Vision

To publish journal of international repute.

Mission

Our goal is to bring the highest quality research to the widest possible audience.

Quality

We aim for excellence, sustained by a responsible and professional approach to journal publishing. Submissions can expect to receive a decision within 120 days. The elapsed time from submission to publication for the articles averages 180 days. We are working towards decreasing the processing time with the help of our editors and the reviewers.

Abstracting and indexing of Pertanika

Pertanika Journal of Social Sciences & Humanities is now over 27 years old; this accumulated knowledge and experience has resulted the journal being abstracted and indexed in SCOPUS (Elsevier), Clarivate Web of Science (ESCI), EBSCO, DOAJ, Agricola, ASEAN CITATION INDEX, ISC, Microsoft Academic, Google Scholar, and MyCite.

Dertanika Journal of Social Sciences & Humanities

Citing journal articles

The abbreviation for Pertanika Journal of Social Sciences & Humanities is Pertanika J. Soc. Sci. & Hum.

Publication policy

Pertanika policy prohibits an author from submitting the same manuscript for concurrent consideration by two or more publications. It prohibits as well publication of any manuscript that has already been published either in whole or substantial part elsewhere. It also does not permit publication of manuscript that has been published in full in proceedings.

Code of ethics

The *Pertanika* journals and Universiti Putra Malaysia take seriously the responsibility of all of its journal publications to reflect the highest publication ethics. Thus, all journals and journal editors are expected to abide by the journal's codes of ethics. Refer to *Pertanika*'s **Code of Ethics** for full details, or visit the journal's web link at: <u>http://www.pertanika.upm.edu.my/code of ethics.php</u>

Originality

The author must ensure that when a manuscript is submitted to *Pertanika*, the manuscript must be an original work. The author should check the manuscript for any possible plagiarism using any program such as Turn-It-In or any other software before submitting the manuscripts to the *Pertanika* Editorial Office, Journal Division.

All submitted manuscripts must be in the journal's acceptable similarity index range: ≤ 20% – PASS; > 20% – REJECT.

International Standard Serial Number (ISSN)

An ISSN is an 8-digit code used to identify periodicals such as journals of all kinds and on all media-print and electronic.

Pertanika Journal of Social Sciences and Humanities: e-ISSN 2231-8534 (Online).

Lag time

A decision on acceptance or rejection of a manuscript is reached in 120 days (average). The elapsed time from submission to publication for the articles averages 180 days.

Authorship

Authors are not permitted to add or remove any names from the authorship provided at the time of initial submission without the consent of the journal's Chief Executive Editor.

Manuscript preparation

Most scientific papers are prepared according to a format called IMRAD. The term represents the first letters of the words *Introduction, Materials and Methods, Results, And Discussion*. IMRAD is simply a more 'defined' version of the "IBC" (*Introduction, Body, Conclusion*) format used for all academic writing. IMRAD indicates a pattern or format rather than a complete list of headings or components of research papers; the missing parts of a paper are: *Title, Authors, Keywords, Abstract, Conclusions, References,* and *Acknowledgement*. Additionally, some papers include *Appendices*. For manuscripts in **Bahasa Malaysia**, the title, abstract and keywords should be written in both **English** and **Bahasa Malaysia**.

The Introduction explains the scope and objective of the study in the light of current knowledge on the subject; the Materials and Methods describes how the study was conducted; the Results section reports what was found in the study; and the Discussion section explains meaning and significance of the results and provides suggestions for future directions of research. The manuscript must be prepared according to the journal's Instruction to Authors (http://www.pertanika.upm.edu.my/Resources/regular_issues/ Regular_Issues_Instructions_to_Authors.pdf).

Editorial process

Authors who complete any submission are notified with an acknowledgement containing a manuscript ID on receipt of a manuscript, and upon the editorial decision regarding publication.

Pertanika follows a **double-blind peer -review process**. Manuscripts deemed suitable for publication are sent to reviewers. Authors are encouraged to suggest names of at least 3 potential reviewers at the time of submission of their manuscripts to *Pertanika*, but the editors will make the final selection and are not, however, bound by these suggestions.

Notification of the editorial decision is usually provided within 120 days from the receipt of manuscript. Publication of solicited manuscripts is not guaranteed. In most cases, manuscripts are accepted conditionally, pending an author's revision of the material.

As articles are double-blind reviewed, material that may identify authorship of the paper should be placed only on page 2 as described in the first-4-page format in Pertanika's Instruction to Authors (http://www.pertanika.upm.edu.my/Resources/regular_issues/Regular_Issues_Instructions_to_Authors.pdf).

The journal's peer review

In the peer review process, 2 or 3 referees independently evaluate the scientific quality of the submitted manuscripts. At least 2 referee reports are required to help make a decision.

Peer reviewers are experts chosen by journal editors to provide written assessment of the **strengths** and **weaknesses** of written research, with the aim of improving the reporting of research and identifying the most appropriate and highest quality material for the journal.

Operating and review process

What happens to a manuscript once it is submitted to *Pertanika*? Typically, there are 7 steps to the editorial review process:

- 1. The journal's Chief Executive Editor and the Editor-in-Chief examine the paper to determine whether it is relevance to journal needs in terms of novelty, impact, design, procedure, language as well as presentation and allow it to proceed to the reviewing process. If not appropriate, the manuscript is rejected outright and the author is informed.
- 2. The Chief Executive Editor sends the article-identifying information having been removed, to 2 to 3 reviewers. They are specialists in the subject matter of the article. The Chief Executive Editor requests that they complete the review within 3 weeks.

Comments to authors are about the appropriateness and adequacy of the theoretical or conceptual framework, literature review, method, results and discussion, and conclusions. Reviewers often include suggestions for strengthening of the manuscript. Comments to the editor are in the nature of the significance of the work and its potential contribution to the research field.

3. The Editor-in-Chief examines the review reports and decides whether to accept or reject the manuscript, invite the authors to revise and resubmit the manuscript, or seek additional review reports. In rare instances, the manuscript is accepted with almost no revision. Almost

Pertanika Journal of Social Sciences & Humanities

Pertanika Journal of Social Sciences & Humanities

without exception, reviewers' comments (to the authors) are forwarded to the authors. If a revision is indicated, the editor provides guidelines to the authors for attending to the reviewers' suggestions and perhaps additional advice about revising the manuscript.

- 4. The authors decide whether and how to address the reviewers' comments and criticisms and the editor's concerns. The authors return a revised version of the paper to the Chief Executive Editor along with specific information describing how they have addressed the concerns of the reviewers and the editor, usually in a tabular form. The authors may also submit a rebuttal if there is a need especially when the authors disagree with certain comments provided by reviewers.
- 5. The Chief Executive Editor sends the revised manuscript out for re-review. Typically, at least 1 of the original reviewers will be asked to examine the article.
- 6. When the reviewers have completed their work, the Editor-in-Chief examines their comments and decides whether the manuscript is ready to be published, needs another round of revisions, or should be rejected. If the decision is to accept, the Chief Executive Editor is notified.
- 7. The Chief Executive Editor reserves the final right to accept or reject any material for publication, if the processing of a particular manuscript is deemed not to be in compliance with the S.O.P. of *Pertanika*. An acceptance notification is sent to all the authors.
- 9. The editorial office ensures that the manuscript adheres to the correct style (in-text citations, the reference list, and tables are typical areas of concern, clarity, and grammar). The authors are asked to respond to any minor queries by the editorial office. Following these corrections, page proofs are mailed to the corresponding authors for their final approval. At this point, **only essential changes are accepted**. Finally, the manuscript appears in the pages of the journal and is posted on-line.

Pertanika Journal of SOCIAL SCIENCES & HUMANITIES

Vol. 32 (2) Jun. 2024



A scientific journal published by Universiti Putra Malaysia Press

P.ISS Pertanika Journal of Social Sciences & Humanities

AN INTERNATIONAL PEER-REVIEWED JOURNAL

ASSOCIATE EDITORS 2021-2024

EDITORIAL BOARD 2021-2024

Human Resource Development

EDITOR-IN-CHIEF

Roziah Mohd Rasdi

CHIEF EXECUTIVE EDITOR Mohd Sapuan Salit

UNIVERSITY PUBLICATIONS COMMITTEE

CHAIR Zamberi Sekawi

EDITORIAL STAFF Journal Officers: Ellyianur Puteri Zainal Kanagamalar Silvarajoo Siti Zuhaila Abd Wahid Tee Syin Ying

Editorial Assistants: Ku Ida Mastura Ku Baharom Siti Juridah Mat Arip Zulinaardawati Kamarudin

English Editor: Norhanizah Ismail

PRODUCTION STAFF Pre-press Officers: Nur Farrah Dila Ismail Wong Lih Jiun

WEBMASTER IT Officer: Illi Najwa Mohamad Sakri

EDITORIAL OFFICE JOURNAL DIVISION Putra Science Park 1st Eloor IDEA Tower II UPM-MTDC Technology Centre Universiti Putra Malaysia 43400 Serdang, Selangor Malaysia. General Enquiry Tel: +603 9769 1622 | 1616 E-mail executive editor.pertanika@upm.edu.mv URL: www.journals-jd.upm.edu.my

PUBLISHER UPM PRESS

Universiti Putra Malaysia 43400 UPM, Serdang, Selangor, Malaysia. Tel: +603 9769 8855 | 8854 Fax: +603 9679 6172 E-mail: penerbit@upm.edu.my URL: http://penerbit.upm.edu.my



Gabriele Santoro Innovation Management Knowledge Management University of Turin, Italy

Ricardo Rodrigues Health Economics, Health and Care Inequalities, Long-Term Care, Ageing Universidade de Lisboa, Portugal

Md Abdur Rahman

Education Economics, Education Policy, Development Economics, and Applied Econometrics Dhaka University of Engineering and Technology, Bangladesh

Melanie Carol Brooks School leadership, management, and Administration Edith Cowan University

Melissa Ng Lee Yen

Psychology Universiti Sains Malaysia, Malaysia

Mohamad Fazli Sabri

Mohd Faizal Kasmani

Political Communication, Social Media and Communication

Universiti Sains Islam Malaysia,

Moussa Pourya Asl

Migration and Diaspora Studies, Literary Studies, Gender and Race Studies, Memoir, Life Writing University of Oulu, Finland

Consumer Finance, Consur Behavior Universiti Putra Malaysia, Malaysia

Abdullah Personality, Abilities and Assessment, Educational

Forhad

Vahid Jafari-Sadeghi International Entrepreneurship, In Innovation and Technology Aston University, United Kingdom hip. Internationalisation. Entrepreneurship.

Vijayalethcumy Subramaniam Language Acquisition and Learning Universiti Putra Malaysia, Malaysia

Noritah Omar Literary and Cultural Studies, Gender Studies

Novel Lyndon

Malaysia

Yusoff

Universiti Putra Malaysia, Malaysia

Community Development, Boundary Studies, Indigenous Studies, Ethnicity and Identity, Medical Sociology Universiti Kebangsaan Malaysia,

Nurahimah Mohd

Curriculum Development, Teacher Education, Professional Teacher Development Universiti Utara Malaysia

Puvaneswaran Kunasekaran Community-Based Tourism, Indigenous Tourism, Sustainability Universiti Putra Malaysia, Malaysia

Raihanah Mohd Mydin Literary Studies, Minority Fiction, Muslim Diaspora Universiti Kebangsaan Malaysia, Malaysia

Rumaya Juhari Family and Child Ecology Universiti Putra Malaysia, Malaysia

Salinah Ja'afar Linguistics structure, Malay Language, Lexicography Universiti Malaya, Malaysia

Economics, Entrepreneurs

Banking SEGi University, Malaysia

Shafique Ur Rehman Structural Equation Modeling, Knowledge Management,

Ilma University, Pakistan

Syste

Technology Adoption, Tourism and Hospitality, Management Control

Sanmugam Annamalah

Sharifah Azizah Haron Consumer Empowerment, Family Economics Behavior, Well-Being, Ageing, Silver Consumer Universiti Putra Malaysia, Malaysia

S. M. Mostafa Kamal Demography and Public Health, Socioeconomic Inequalities Islamic University, Bangladesh

Suhardi Maulan Environmental Behavior, Visual Quality, Landscape Theory and History, Green Infrastructure, Landscape Governance Universiti Putra Malaysia, Malaysia

Tey Nai Peng Social Sciences, Population and Demographic Studies University of Malaya, Malaysia

Ting Su Hie Sociolinguistics, Academic writing, Strategic competence, Applied linguistics Universiti Malaysia Sarawak, Malaysia

Wan Amizah Wan Mahmud Film Censorship, Communication Policy, Media System, Subtitling, Translation Universiti Kebangsaan Malaysia, Malaysia

Yothin Sawangdee Population and Social Research Mahidol University, Thailand

Victor T. King Anthropology/Southeast Asian Studies White Rose East Asia Center, University of Leeds, United Kingdom

Zalina Shari Architecture, Sustainable Building Rating System Universiti Putra Malaysia, Malaysia

INTERNATIONAL ADVISORY BOARD 2024-2027

Barbara Weinert Political Sociologist: Gender Studies, Macro Political and Social Changes University at Buffalo, SUNY, USA

Gary Neil McLean Organization Development, National and International Human Resource Development National Institute of Development Administration, Thailand

Handoyo Puji Widodo English Language Teaching, ESP, Language Curriculum-Materials Design and Development, and Language Methodology English Language Center, Shantou University, China

Pal Ahluwalia African Studies, Social and Cultural Theory, Post-colonial Theory University of Portsmouth, UK

ABSTRACTING AND INDEXING OF PERTANIKA JOURNALS

The journal is indexed in SCOPUS (Elsevier), Clarivate-Emerging Sources Citation Index (ESCI), BIOSIS, National Agricultural Science (NAL), Google Scholar, MyCite, ISC. In addition, Pertanika JSSH is recipient of "CREAM" Award conferred by Ministry of Higher Education (MoHE), Malaysia.

The publisher of Pertanika will not be responsible for the statements made by the authors in any articles published in the journal. Under no circumstances will the publisher of this publication be liable for any loss or damage caused by your reliance on the advice, opinion or information obtained either explicitly or implied through the contents of this publication. All rights of regredued to a preserve all appears, articles, illustrations, etc., published in Pertanika. Pertanika provides free access to the full text of research articles for anyone, web-wide. It does not charge either its authors or author-institution for referencing/publishing outgoing articles or user-institution for accessing incoming articles.

No material published in Pertanika may be reproduced or stored on microfilm or in electronic, optical or magnetic form without the written authorization of the publisher Copyright © 2023 Universiti Putra Malaysia Press. All Rights Reserved

Ahmad Fauzi Mohd Ayob Ayob Information Technology, Multimedia in Education Universiti Putra Malaysia, Malaysia

Abdul Halim Abdullah

Thinking Universiti Teknologi Malaysia,

Malavsia

Mathematics Education, Higher Order Thinking Skills, Geometrical

Ashutosh Muduli Human Resource Management Pandit Deendayal Energy University, India

Chan Mei Yuit Applied Linguistics, English Languages for Specific Purposes, Discourse Studies Universiti Putra Malaysia, Malaysia

Corina Debora Riantoputra Industrial and Organizational Psychology Universitas Indonesia, Indonesia

Society/Nature relations, Sociology of Environment, Environmental Health, Urban Nature **Diogo Guedes Vidal** University of Coimbra, Portugal

Elistina Abu Bakar Consumer Law Universiti Putra Malaysia, Malaysia

Lee Yok Fee Ethnicity and Identity Studies Universiti Putra Malaysia, Malaysia

Li Fengliang The Economics of Education, The Economics of Open and Distance Education, Graduate Education, The Relationship Between Education and The Labor Market Tsinghua University, China

Muhammad Danial Azman Conflict resolution, Political theory and political philosophy, International Relations Universiti Malaya, Malaysia

Malaysia

Muzafar Shah Habibullah Economics, Monetary Economics, Banking, Macroeconomics Universiti Putra Malaysia, Malaysia

Noor Syamilah Zakaria Counselor Education and Supervision Universiti Putra Malavsia, Malavsia

Pertanika Journal of Social Sciences & Humanities Vol. 32 (2) Jun. 2024

Contents

Foreword Mohd Sapuan Salit	i
The Effects of Brain-based Learning Strategies on Low Ability Malaysian English as a Second Language Learners' Writing Performance Albert Wilson, Joseph Ramanair and Souba Rethinasamy	345
Examination of Teachers' Views on Erasmus+ Projects in Schools Serap Çimşir	365
Case Study The Application of an Unplugged and Low-Cost Children's Coding Education Tool in a Gamification Context Lei Wang, Miao Huang and Julina Ismail@Kamal	387
Post-COVID-19 Spatial Resilience in Community-based Tourism: A Case Study on Ayutthaya Patiphol Yodsurang, Unyaporn Suthutvoravut and Wandee Pinijvarasin	409
Review Article Work Outcomes and Well-being Among Working Women: A Systematic Literature Review Syara Shazanna Zulkifli and Hazalizah Hamzah	437
Review Article A Review of Chinese as a Second Language Journal Publication Trends: The Case of Universiti Teknologi MARA Min Hui Leow, Foo Terng Hoe and Chin Shuang Goh	465
Review Article Issues and Challenges of Primary Education Toward Implementing Technical and Vocational Education Training to Meet the Fourth Industrial Revolution Demand: A Systematic Literature Review Latifah Mohd Ali, Mohd Fauzi Kamarudin, Shajahan Maidin and Shafinaz Ismail	487
Gender Vulnerability and Resistance in Selected Malayalam Movies The Great Indian Kitchen and Jaya Jaya Jaya Jaya Hey	519

Sumathra Subramani and Rashmi Rekha Borah

Predictability Effect of Arabic Stress Pattern in English Lexical Stress Production by Arab EFL Undergraduates Samah Yaslam Saleh Baagbah and Paramaswari Jaganathan	535
Review Article Mainstreaming Flood Mitigation in Building Code: A Bibliometric Analysis Nurin Mansoor, Aznah Nor Anuar, Akbariah Mohd Mahdzir and Nurul Huda Md. Adnan	563
Review Article The Effect of Trust in Food Safety, Perception, Product Features and Consumers' Characteristics on Consumers' Purchase Decision for Safe Food: A Systematic Literature Review Aishah Suhaimi, Akmal Aini Othman, Ahmad Faiz Ghazali and Veera Pandiyan Kaliani Sundram	583
Unveiling the Influence of Subjective Norms on Flood Preparedness Among Household Renters: The Moderating Effect of Trust in Public Protection Mohd Rozaimy Ridzuan, Jamal Rizal Razali, Soon-Yew Ju, Noor Amira Syazwani Abd Rahman and Lai-Kuan Kong	605
Developing a Framework for Assessing Transformative Competencies of Junior High School Students Through Construct Modelling Approach Chalunda Podjana, Putcharee Junpeng, Nuchwana Luanganggoon, Chatchawan Nongna and Keow Ngang Tang	629
The Federal Character Principle and Political Exclusion of Southeast Nigeria, 2015–2019 Emmanuel Onyebuchi Ezeani, Kingsley Ekene Okoye and Emmanuel Terkimbi Akov	651
Retirement Village Design Features: Generation X's Expectation Asmah Alia Mohamad Bohari, Farah Ajlaa Julaihi, Kuryati Kipli, Mohd Azrai Azman, Sharifah Rahama Amirul and Xin Hu	675
Pemaknaan Semula Cerita Rakyat Melayu dalam Filem Animasi Upin & Ipin: Keris Siamang Tunggal (2019) Steven Alezender and Jacquelina Karimon	703
Infectious Disease Epidemics in Kazakhstan in the 1900–1930s and Their Impact on Healthcare Development Gulzhaukhar Kokebayeva, Sabit Shildebai and Aigul Smanova	721

The Dialectics of Nigeria's Opaque Downstream Oil Sector and the Agency of Fuel Subsidy Agaptus Nwozor, Oladiran Afolabi, Chukwudi Godwin Chidume,	735
Onjefu Okidu and Solomon Adebayo Adedire	
Needs Analysis for The Development of Financial Literacy Model in Mathematics Education for B40 Malaysia Secondary School Students Husaina Banu Kenayathulla, Nor Huda Ahmad Puad and Muhammad Faizal A. Ghani	761
Internet Use and Social Participation of Young Adults: Evidence from Rights Safeguard Online in China	783

Yang Zhang and Yeqin Song

Foreword

Welcome to the second issue of 2024 for the Pertanika Journal of Social Sciences and Humanities (PJSSH)!

PJSSH is an open-access journal for studies in the field of Social Sciences and Humianities published by Universiti Putra Malaysia Press. It is independently owned and managed by the university for the benefit of the world-wide science community.

This issue contains 20 articles; five review article; one case study; and the rest are regular articles. The authors of these articles come from different countries namely Australia, China, India, Kazakhstan, Malaysia, Nigeria, Thailand and United Kingdom.

An article entitled "The Application of an Unplugged and Low-Cost Children's Coding Education Tool in a Gamification Context" explores how teaching coding to children has become necessary for fostering their computational skills. Integrating gamification into coding tools can significantly boost children's engagement in learning. The study confirmed the positive impact of gamification, unplugged learning, and affordability on the perceived usefulness and ease of use of coding education tools, as per the Technology Acceptance Model theory framework. These studentcentered design concepts offer valuable insights for the future development of unplugged coding education tools. The detailed information of this article is presented on page 387.

The article, 'Post-COVID-19 Spatial Resilience in Community-Based Tourism: A Case Study on Ayutthaya', stands out for its unique approach to identifying the major spatial management attributes that influence the operation of tourism communities during a crisis. The study, based on 19 tourism community cases, found that multi-center tourism communities with multiple activity bases were more resilient and could quickly return to tourism. The availability of space emerged as a key factor in promoting resilience in the tourism community during and after the pandemic. For more detailed information, please refer to page 409.

Syara Shazanna Zulkifli and Hazalizah Hamzah provide a critical review in their article "Work Outcomes and Well-Being Among Working Women: A Systematic Literature Review," from 13 quantitative and ten qualitative studies. This review reported moderate links between work stress and workplace bullying to the worker's well-being, weak to strong links between worklife balance and well-being, and weak to moderate links between support and well-being. Furthermore, the review revealed that the most thoroughly researched constructs were work-life balance, workplace bullying, and well-being, while qualitative studies on work stress and support experience are lacking. Further details of the study can be found on page 437. We anticipate that you will find the evidence presented in this issue to be intriguing, thoughtprovoking and useful in reaching new milestones in your own research. Please recommend the journal to your colleagues and students to make this endeavour meaningful.

All the papers published in this edition underwent Pertanika's stringent peer-review process involving a minimum of two reviewers comprising internal as well as external referees. This was to ensure that the quality of the papers justified the high ranking of the journal, which is renowned as a heavily-cited journal not only by authors and researchers in Malaysia but by those in other countries around the world as well.

We would also like to express our gratitude to all the contributors, namely the authors, reviewers, Editor-in-Chief and Editorial Board Members of PJSSH, who have made this issue possible.

PJSSH is currently accepting manuscripts for upcoming issues based on original qualitative or quantitative research that opens new areas of inquiry and investigation.

Chief Executive Editor Mohd Sapuan Salit <u>executive_editor.pertanika@upm.edu.my</u>



SOCIAL SCIENCES & HUMANITIES

Journal homepage: http://www.pertanika.upm.edu.my/

The Effects of Brain-based Learning Strategies on Low Ability Malaysian English as a Second Language Learners' Writing Performance

Albert Wilson*, Joseph Ramanair and Souba Rethinasamy

Faculty of Education, Language and Communication, University of Malaysia Sarawak, 94300, Kota Samarahan, Sarawak, Malaysia

ABSTRACT

The main goal of Brain-based Learning (BBL) is to create effective learning conditions that allow the brain to naturally learn. A plethora of studies on BBL learner performance and perceptions have been conducted in a variety of contexts. However, BBL studies on low-ability ESL learners are still in their infancy. Therefore, this study investigated low-ability ESL Malaysian learners' BBL performance and perceptions in the classroom. A purposive sampling technique is used to collect quantitative data from 150 learners. A quasi-experimental design compares the learners' pretest and post-test scores. The descriptive analysis indicated a favorable outcome when the post-test mean score was higher than the pretest scores in the literature critical response writing test. A paired sample t-test was also conducted, and results showed that there is a statistically significant improvement in the scores from the pretest (M = 2.45, SD = 1.50) to the post-test (M = 5.35, SD = 2.40), t(149) = -15.48, p<.05. A qualitative design is also used to investigate three learner-focus groups' (five in each group) responses after BBL intervention. Findings revealed that there are generally positive responses related to the BBL theoretical framework of this study. However, there are some negative responses pertaining to two components of the

ARTICLE INFO

Article history: Received: 02 August 2023 Accepted: 26 January 2024 Published: 28 June 2024

DOI: https://doi.org/10.47836/pjssh.32.2.01

E-mail addresses: awmundai@gmail.com (Albert Wilson) rjoseph@unimas.my (Joseph Ramanair) rsouba@unimas.my (Souba Rethinasamy) *Corresponding author framework. This study indicates that BBL can enhance low-ability ESL learners' writing performance and active learning engagement.

Keywords: Brain-based learning, learner literature critical response writing, low ability ESL learner performance, meaningful learning, retention and recall, social interaction

ISSN: 0128-7702 e-ISSN: 2231-8534

INTRODUCTION

Since the 1990s, educators have had a growing interest and awareness in exploring how the brain functions in an educational setting and how it would benefit learners (Howard-Jones et al., 2016). Caine and Caine (1994) define BBL as the recognition of the brain's codes for meaningful learning and adjusting the teaching process in relation to those codes. Jensen (2008) defines BBL as learning that is "aligned with how the brain naturally learns, and it is learning with the brain in mind" (p. 4). Both BBL researchers agree that it is seen as a way of thinking about learning and not a solution to problems faced by educationists. The focus is to provide and explain the best or appropriate conditions in which effective learning occurs in relation to how the brain functions.

In English language learning, brainbased learning (BBL) equips teachers with an array of brain-compatible teaching and learning approaches to reach learners (Lombardi, 2008). Previous BBL studies on English language learning had concluded an improvement in the learners' overall academic performance (Duman, 2010; Salem, 2017), speaking skills (Syahbandi, 2018), reading skills (Kohar, 2020; Valipour & Araghi, 2014) and writing skills performance (Khalil, 2019; Zuhriyah & Augustina, 2020). BBL also enhanced the learners' ability to retain and recall English vocabulary items taught in the classroom (Kandasamy et al., 2021; Kosar & Bedir, 2018).

In the Malaysian English as a Second Language (ESL) teaching and learning curriculum, English literature with a small 'l' has been incorporated into the syllabus since 2000 (Malaysian Ministry of Education [MOE], 2013). The main reason for the inclusion is to enable learners to enjoy literary texts at a level suited to their language proficiency and develop their ability to express themselves critically and creatively. However, previous studies revealed that the teaching and learning practices were mainly teacher-centered, uninteresting, and did not sufficiently engage the learners. (Govindasamy & Jan, 2017; Omar, 2017). In addition, there was too much focus on the content and preparing learners for public examinations (Choo et al., 2017; Ismail et al., 2008). One of the literature components, the prescribed English novel, is assessed in the Malaysian Certificate of Education public examination. Learners are required to write a critical response essay based on the literary elements found in the novel. Therefore, the focus of the present study was on ESL writing performance.

Problem Statement

First, previous BBL studies conducted in Malaysia are currently limited. Research documenting the effectiveness of BBL in the classroom is largely focused on Malay Language (Baba & Aziz, 2009), Physics (Saleh, 2012) and Additional Maths (Yatim et al., 2022). In ESL, Kandasamy et al. (2021) revealed that BBL-compatible strategies strengthened intermediate L2 proficiency learners' vocabulary learning and retention. Therefore, there is a need to investigate BBL in relation to low-ability ESL learners. Moreover, ESL learners' views on BBL have yet to be explored extensively in Malaysia. Second, studies have shown that ESL Malaysian learners could not write a critical response essay well (Singh et al., 2018), resulting in their inability to answer questions in public examinations (Malini & Kaur, 2014) due to their limited ability to provide adequate reasoning in the language (Alagozlu, 2007). Hence, this study examines the effects of BBL strategies employed in the context of the ESL literature component among lowability Malaysian secondary school learners' writing performance.

Research Questions

RQ1: How do Malaysian ESL low-ability learners perform in a literature component critical response writing test after BBL strategies were applied in the classroom?

RQ2: What are the learners' responses to using BBL strategies in an ESL literature component in a Malaysian classroom?

LITERATURE REVIEW

BBL and English Language Learning Performance

Recent BBL studies have provided learning gains in English language proficiency and learning retention among learners. Kandasamy et al. (2021) showed that BBL had a positive effect on Malaysian learners' ESL vocabulary acquisition and retention. There was a significant difference between the post-test and delayed posttest (three weeks after BBL intervention) compared to the pretest between the control and experimental groups. Similar results were also revealed among young Turkish adults (Kosar & Bedir, 2018). Therefore, establishing a learning environment compatible with BBL principles enables knowledge retention among English language learners (Haghighi, 2013; Salem, 2017).

Since this study involved ESL learners' critical writing response performance, it has been argued that non-native English language learners' critical thinking writing skills were limited because they could not express themselves critically in the language (Alagozlu, 2007; Stapleton, 2002). Critical thinking skills require learners to be able to justify and state their arguments logically in problem-solving situations (Ahangari & Sepehran, 2014). However, studies have shown that BBL positively affects English language critical writing skills among Egyptian secondary school learners (Khalil, 2019) and adult Indonesian learners (Zuhriyah & Agustina, 2020).

English Language Learner Perceptions Towards BBL

English language learners' perceptions of BBL were generally positive. Weimer (2007) surveyed middle school learners' perceptions of learning engagement and BBL in Chicago. Results showed active learner engagements related to fun learning, cooperative learning, role play, telling stories, debates and other interactive activities that required them to move physically in class. Similarly, eighth-grade English language learners in the United States revealed that active engagement in BBL was related to frequent use of physical movements, active social interaction, the supportive physical aspects of the classroom and school environment, positive emotions, and meaningful repetition of the items learned (Wlodek, 2018).

Other BBL studies also revealed that learners' positive emotions were important in creating a conducive atmosphere for effective learning. Ali et al. (2019) investigated secondary public school Pakistani ESL learners' perceptions of BBL. Findings from the questionnaires indicated that 98.4% of the respondents agreed that stress had a negative impact on learning, and 60% responded that emotion was critical to effective decision-making. The study also showed that the learners were equally divided between learning challenges and threats. In addition, Runganurak et al. (2022) revealed that tenth-grade EFL Thai learners who were taught employing educational neuroscience instruction (BBL compatible strategies) had less learning stress than students taught using the conventional approach. In another BBL study, Oghyanous (2017) found a generally positive feeling with less emotional disturbance toward learning achievement among 90 young EFL Iranian learners as they were more confident in their abilities.

Kosar and Bedir (2018) interviewed 27 EFL young adult Turkish learners and concluded that BBL had facilitated knowledge retention. These learners also perceived that BBL was more effective than the traditional way of teaching because learning was engaging and enjoyable. The studies being reviewed have indicated that BBL has the potential to improve learners' academic achievement, retention and recall, active learning engagement, and positive emotional state of being.

THEORETICAL FRAMEWORK

As the study examined the use of BBL in an ESL instructional context, the principles of BBL adapted from Caine and Caine (1994) and Kapur's (2018) Second Language (L2) Constructivism classroom principles formed the theoretical basis. Constructivism is recommended as one of the guidelines for instructional practices in the national curriculum (MOE, 2013). The rationale for incorporating both theories was that they share overlapping principles that focus on creating an optimum condition for effective learning (Gulpinar, 2005; Kahveci & Ay, 2008). The theoretical framework is shown in Table 1 as follows.

Experiential Learning

This study investigates the ESL low-ability learners' performance in an English literature component test after BBL strategies were applied in the classroom. The performance depended on the learners' recall of what was taught in the lessons. In BBL, Caine and Caine (1994) suggest experiential learning because the brain remembers best when facts and skills are embedded Table 1

A theoretical framework based on the overlapping principles between BBL and L2 Constructivist Classroom

L2 Constructivist Classroom Learning is action-oriented. Individual differences in learning
Individual differences in learning
Coping with problem-solving activities.
Learning is mediated through social interaction.
New Learning is based on previous knowledge.
eaningful and functional use in language practice.

Caine and Caine (1994), Kapur (2018)

in natural spatial memory. Jensen (2005) states that this type of memory is "loci, spatial, event-related, or a contextual recall process with learning and memory are being prompted by a particular location or circumstance" (p.133). It has an unlimited capacity, requires less effort as compared to rote learning and occurs naturally. Learners must be immersed in classroom activities, actively engaged in the learning process through hands-on experiences, and not static in one location (Aziz & Aziz, 2019; Roberts, 2002). The activities suggested are role-play, content mapping, reflective portfolios, and simulation sessions (Kolb, 1984).

Individual Differences in Learning

In BBL, each brain is unique because the integration of senses and emotions is different, even though everyone has the same set of systems in their brain (Caine & Caine, 1994; Suarez et al., 2019). Nevertheless, BBL strategies allow different learners to recognize how they learn and immerse themselves positively in the learning process (Duman, 2010). Therefore, BBL supports differentiation as a learner instructional model to maximize learning, focusing on learner differences and similarities in learning styles and abilities (Jensen, 2005; Sousa & Tomlinson, 2011). For example, Tomlinson (2014) suggests that information in the lesson content should be reduced and should come from various sources to accommodate low-ability learners' learning needs. In this study, the researcher investigated how the teaching and learning context was differentiated to reflect the low-ability L2 learners' L2 proficiency and learning styles.

Low in Threat but High in Challenge

Optimal learning occurs when the brain is challenged appropriately. However, on the other hand, its performance decreases when it is under perceived threat, and therefore, it is not an easy task to achieve this delicate balance (Caine & Caine, 1994). The brain is forced and, at the same time, motivated to try to learn (Given, 2002). In addition, threats are perceived when the learner experiences fear, anxiety, stress, or helplessness in the learning process (Caine et al., 2005). In this study, the researcher investigated whether the learners had experienced negative emotions after using BBL strategies. In BBL, ESL learners view threats as a form of stress that has a negative impact on learning (Ali et al., 2019). Learning should capitalize on the learners' previous knowledge and sense of novelty or curiosity and provide opportunities for their willingness to participate in challenging activities (Jensen, 2005).

Positive Social Interaction

The brain is a social entity, and effective learning results from the learner's need to have a satisfying and engaging relationship with others (Caine & Caine, 1994). A brain scan study by Li and Jeong (2020) indicated that positive social interaction facilitated L2 learning when brain activity increased in a stimulated partner-based learning environment compared to individualbased learning of word meanings. Positive social interaction promotes active learner engagement and depends on the learner's emotions (Chowdhury, 2020; Glick, 2012; Kayalar & Ari, 2016). Jensen (2005) suggested that learners should be given opportunities to work in pairs or groups, such as those found in Cooperative learning strategies. However, the type of group, pair, or team they join could be a source of depression if they are not part of that specific group. Therefore, it is suggested that they should be involved in activities that create strong emotional connections, such as small debates or doing plays and drama.

Search for Meaning through Patterning

The brain has the inborn tendency to attempt to recognize and understand certain familiar patterns and create new ones (Pan et al., 2020). When learners can relate new information to their previous knowledge, which is accepted and integrated, patterning occurs (Bayer, 2022). Patterning refers to the meaningful organization and categorization of information or making sense of life experiences (Caine & Caine, 1994; Dekker & Jolles, 2015; Wolfe, 2001). On the other hand, the brain is also designed to resist having meaningless patterns imposed by others. It suggests that BBL is meaningful and effective when the new information is integrated into the learners' previous knowledge or life experiences. Jensen (2005) suggests that problem-solving and critical-thinking activities help the brain create meaningful patterns.

The Brain Processes the Whole and Parts Simultaneously

Learners learn more effectively when their experiences give them a sense of the whole

that links the details to facts and information (Caine & Caine, 1994). These experiences are dependent on the interaction between the left and right brain hemispheres. The right brain tends to see the whole, while the left perceives the parts of the learning process (Corballis, 2003). The left brain is also more logical, analytical, and objective. However, the right brain is more visual, intuitive, and artistic. The two hemispheres are inextricably interactive and designed to work together naturally (Lombardi, 2008). For example, Genesee (2000) states that the left brain sees words and numbers in the text, but the right brain may see them as images and patterns, respectively. Therefore, it is suggested that learners should integrate information from many different sources. Among the techniques suggested by BBL researchers are supplementing graphics with verbal descriptions or backed up with printed materials, providing role models to illustrate written concepts, such as in role-play, and using posters or graphics to communicate concepts that are difficult to visualize (Chowdhury, 2020; Wolfe, 2001).

METHOD

The current study employed both quantitative and qualitative research designs. First, the quantitative design was quasi-experimental because many studies in L2 tend to be quasiexperimental rather than true experiments (Brown & Rodgers, 2002). The aim was to investigate the causal relationship between the BBL strategies implemented in the classroom (interdependent variable) and their effect on the learners' critical response writing test scores (dependent variable). The purpose was to gauge the learners' ESL performance. Bryman (2012) added that a quasi-experimental design would only have a single group followed throughout treatment, with the pretest and post-test administered in between. Second, the qualitative design involved semi-structured interviews to investigate what these learners had experienced during the BBL lessons. Three learner-focus groups were chosen by their respective teachers from the three schools and were interviewed once.

Participants

Three schools in one of the education districts in East Malaysia were chosen because they underperformed in English language subjects in public examinations. Data from the Sarawak State Education Department (2019) show that from 2016 to 2018, the passing rate for the three schools was 58 to 64%, and on average, the learners scored a D grade (40 to 49 marks out of 100).

The 150 seventeen-year-old ESL learners selected from these three schools were low-ability ESL learners because they underperformed in their English language tests compared to other learners of the same age. ESL low-ability learners are referred to as struggling learners who do not meet the required subject area proficiency levels or who have difficulty keeping up with classmates of the same age and are constantly struggling to meet the English language proficiency goals (Malaysian English Language Training Centre [ELTC], 2015). In this study, they were selected through purposeful sampling because they have characteristics that the researcher needed as a sample to address the research question (Bryman, 2012). The selection was based on two criteria. Firstly, they scored an E grade (did not achieve a minimum pass) for the English Language subject in the Malaysian PT3 standardized school-based assessment while in Form Three (15 years). Secondly, they achieved marks within the range of 0 to 5 out of the total 15 marks for writing a literature critical response essay to a prescribed English novel.

Five learners from the BBL intervention classes were chosen by their respective teachers for the focus group interview through convenience sampling in each school. They had indicated their willingness to participate in the interview. In these schools, there were two BBL intervention classes with 25 learners in each class. While they attended scheduled classes during the normal school session, their respective teachers held the BBL classroom sessions in the afternoon. The teachers were all Teaching English as a Second Language (TESL) graduates with teaching experiences ranging from 10 to 28 years. They had undergone an extensive in-service course on BBL strategies prior to the six-week intervention class. In the intervention classes. these teachers employed a variety of BBLcompatible teaching and learning strategies incorporating visual aids and novelty to grab learner attention, cooperative learning, simulations, role plays, problem-solving tasks, group presentations with learner

feedback, and reflective practices. They also demonstrated or scaffolded difficult tasks, provided constant encouragement, and celebrated learner success.

Data Analysis

Quantitative data was analyzed to investigate any significant difference in the participants' L2 performance on two occasions: before (pretest) and after the BBL classroom intervention (post-test). For this purpose, a paired sample t-test from the SPSS statistical procedure was employed. According to Brown and Rodgers (2002), the *t*-test is the most frequently used measure in L2 research, and it can be used to compare the mean scores of just one group between a pretest and a post-test to find out if the group had acquired some skill during training.

As for the qualitative data, the interview responses in Malay were audio recorded, transcribed, and later translated to English by a native Malay teacher who is also an English language teacher in the district. The data were analyzed through an inductive approach employing Braun and Clarke's (2006) six-step thematic analysis - becoming familiar with the data, generating codes, generating themes, reviewing themes, defining and naming themes, and locating exemplars. To minimize the issue of trustworthiness, the researcher strictly followed the research procedures and interpreted and analyzed the data to find out whether they were semantically related to the theoretical framework, as Brown and Rodgers (2002) suggested. The researcher

also did not exert personal values or a theoretical inclination while conducting the research and interpreting the data.

Research Instruments

The research instrument used in this study was the literature response essay question item. Learners were expected to respond critically based on their understanding of the literary elements in the prescribed English novel. The two questions from the pretest and post-test were not the same but similar in context, justifying their choice of events in relation to a specific theme from the novel. Both questions were designed by experienced English language teachers and vetted by the district education officer. They had met the test specification requirements the state education office set and, therefore, had the same difficulty level.

The teachers employed the state education standardized holistic marking scheme. The total marks for the test item were 15: 10 marks for content and five marks for language use. The content focused on whether the main supporting ideas were relevant to the task specified, and the discussions were supported with evidence from the text. The language criteria focused on the accuracy and organization of ideas. A mark moderation session was conducted by an experienced assessor and the participating teachers in each school after every test.

As for the semi-structured interview, the research instrument contained four predetermined questions in Malay, the Malaysian schools' instruction medium. These questions (translated into English) were as follows:

1. What was your overall experience in the English novel intervention class?

(Apakah secara keseluruhan pengalaman anda dalam kelas intervensi Bahasa Inggeris?)

2. What do you like about learning the English novel in the intervention class? Please describe your experience.

(Apakah yang anda suka apabila mempelajari novel Bahasa Inggeris dalam kelas intervensi anda? Ceritakan pengalaman anda.)

3. What do you dislike about learning the English novel in your intervention class? Please describe your experience.

(Apakah yang anda tidak suka apabila mempelajari novel Bahasa Inggeris dalam kelas intervensi anda? Ceritakan pengalaman anda.)

4. Do you think this English novel intervention class is useful? Explain.

(Adakah anda berpendapat bahawa kelas intervensi untuk novel Bahasa Inggeris ini berguna untuk anda? Terangkan dengan lebih lanjut.)

According to Bryman (2012), a semi-structured interview allows the interviewer to change the words used in the predetermined questions and offer explanations for inappropriate questions for a particular interviewee or omit and add additional questions.

RESULTS

Learner ESL Writing Performance

A descriptive analysis of the pretest and post-test scores was conducted for the 150 learners, as follows (Table 2):

Descriptive analysi	s of pretest and	post-test scores
---------------------	------------------	------------------

Test	Range of Marks	Mode	Mean
Pretest	0–6	2	2.45
Post Test	0-11	6	5.35

Source: Authors' work

In the pretest, the learners scored within the range of zero to six marks out of the maximum of fifteen. The most frequent score was two marks. The overall mean score was 2.45. It showed that these learners underperformed in the test. In the post-test, the overall mean score was 5.35. The marks ranged from zero to eleven, with the most frequent score of six. Results showed some improvement in the learners' performance because the mean score in the post-test was higher than the pretest. A comparison between the pretest and post-test mean scores for the three participating schools (schools A, B, and C), as follows (Figure 1):

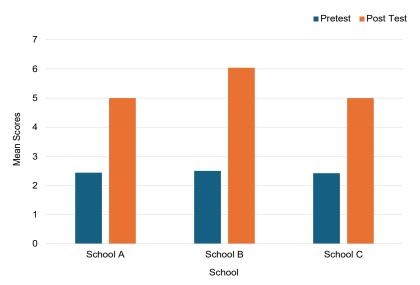


Figure 1. Comparison of pretest and post-test learners' mean score *Source*: Authors' work

School A's pretest and post-test mean scores were 2.44 and 5.0, school B was 2.5 and 6.04, and school C was 2.42 and 5.0. A paired sample t-test was conducted to investigate the difference between the learners' pretest and post-test scores after BBL intervention. There was a statistically significant improvement in the scores from the pretest (M= 2.45, SD = 1.50) to the posttest (M = 5.35, SD = 2.40), t (149) = -15.48, p< .05), as shown in Table 3 as follows:

	Number of Participants	SD	Correlation	Т	df	Sig. (2-tailed)
Pretest						
and	150	2.29	.387	-15.5	149	.000
Post-test						
scores						

Table 3 Paired samples t-test results

Results showed that the probability value Sig. (2-tailed) .000 is less than the traditional specified alpha value of .05. Therefore, the difference between the two sets of scores indicated a significant improvement in performance since the post-test mean score was higher than the pretest score. The correlation value of .387 indicated that quite a high percentage (85.1%) of the pretest and post-test scores were not similar. In addition, the analysis also explored the magnitude of the BBL intervention by calculating the effect of size. Even though the paired sample t-test showed a significant difference in the learners' test scores, it did not indicate how important the difference was. One of the most commonly used effect size statistics is eta squared (Pallant, 2007). The value of eta squared for this study was 0.617. This value was more than .14, indicating that the effect on the size was large (Cohen, 1988). It showed that the BBL strategies employed greatly affected the differences between the learners' test scores. There was a substantial and significant difference in improving the learners' test scores after **BBL** implementation.

Learners' Responses to BBL Strategies

Three main themes emerged from the thematic analysis of the data: L2 written test performance, teaching and learning techniques, and learner-group interaction.

In the learners' L2 written test performance, many responded that there was an improvement in their L2 writing test. For example, it was revealed that the BBL intervention class had "helped students to improve," enabled them to "learn how to answer the question easily," and "elaborate much better." The improvement resulted from their ability to recall what they had learned in the intervention classes. For example, learners explained that "it helped me to recall the overall story in the test" and "through acting (in role-play), we could recall what happened in each chapter of the novel." These findings were related to two components of the theoretical framework. First, experiential learning enhances learning retention. Second, the learners' ability to answer and elaborate more on the test showed their critical thinking capabilities, consistent with meaningful patterning.

Learner performance was also related to the use of the simplified plot text. It contains a summary of the main events in the novel, and the L2 used was appropriate to the learners' proficiency. Learners remarked that "the language suits our level of understanding... very simple words, phrases, or sentences," "we could apply it to our writing," and "we could memorize a lot more events and facts in the story. It helped us to write well in the essay question." Hence, the use of the text was consistent with aspects of tailoring learning to cater to individual differences. These learners were low-ability learners, and the reduced content in the text was aligned with their L2 proficiency.

As for the teaching and learning techniques, they responded that the BBL techniques in the classes were effective. Among the techniques mentioned frequently were role-play, gallery walks, and the use of slide shows. For example, they concurred that "our most effective learning experience was when we acted out a scene in the novel in our groups" and "the teacher's use of the various teaching and learning techniques was very effective." The effectiveness was also due to physical movements. One responded, "There was a lot of movement, and I could walk around to exercise my muscles. It was interesting and effective." These responses were interpreted as being consistent with this study's theoretical framework. First, the teaching and learning techniques mentioned required the learners' hands-on application of what they had learned in the previous lessons and were closely related to experiential learning. Second, these interactive techniques engaged both the left and the right brain,

thus conforming to the brain's tendency to process the whole and parts simultaneously. Third, their learning preference for physical movements was aligned with the individual differences component in BBL.

The effectiveness of the teaching and learning techniques was also related to meaningful learning. Learners described that "it (the BBL intervention class) was a meaningful learning experience" and that meaningful learning occurred when "my friends and I could exchange ideas and opinions and... I could learn something from my friends." These responses were consistent with the search for meaning through the patterning component. Learning was meaningful when learners could connect or integrate their prior knowledge (ideas) in a new context (other people's ideas). In addition, learners also perceived that these techniques were effective because they enjoyed the lessons. When learning was viewed as "enjoyable" and "fun," it was interpreted as being low in threat but high in challenge. Even though they had limited L2 proficiency, they had fun in challenging activities such as role plays or Gallery Walk sessions.

However, some learners also expressed concern about the effectiveness of the BBL techniques. They experienced difficulties comprehending unfamiliar L2 words. For example, learners were uncomfortable when they "disliked that they could not identify the words" because they "found it difficult to understand the meaning of unfamiliar words." One admitted, "I am still weak, so ... I was quite slow." Hence, learning was viewed as high-threat instead of low-threat because they expressed dissatisfaction with being unable to comprehend L2 words.

The third main theme was learners' interaction when working in groups. It also registered mixed responses. Positive responses were related to the benefits of working in groups. For example, they revealed that group work strategies "inculcate the value of cooperating with one another," while others agreed that it "could strengthen their relationship with their friends." A few of them commented that they "could communicate better in English" and that it "strengthened their self-confidence to use the language." They also opined that group work strategies were useful because they were not "afraid" anymore if they encountered "problems" in the lesson. Hence, group work strategies enhanced the learners' social interaction to facilitate learning. It was consistent with the theoretical framework to establish a conducive learning atmosphere through positive classroom social interaction.

Despite the favorable outcome in learners' social interaction, some learners complained that there were also uncooperative group members. They expressed their dissatisfaction when these learners "did not try to give any ideas," "were not interested and they got fed up easily (so) they did not play an active role in the group," while others disliked that "when my friends in the group disturbed me." These responses were interpreted as inconsistent in creating positive classroom social interaction. In addressing RQ2, the findings on learners' responses to using BBL strategies in the ESL classroom were generally positive, despite registering a few mixed responses to two components of this study's BBL theoretical framework.

DISCUSSION

Low-ability ESL Learner Performance

This study investigated BBL strategies employed in ESL literature component classrooms among low-ability learners. It was found that the learners' ESL writing performance improved significantly after BBL implementation. Previous research also showed that BBL can significantly positively change the learners' overall English language performance (Salem, 2017; Valipour & Araghi, 2014). This improvement was attributed to the learners' ability to recall and retain what was taught previously in the BBL lessons. Similarly, other BBL studies, such as Kosar and Bedir (2018) and Kandasamy et al. (2021), concluded that BBL enhanced English language learners' recall and retention of learned items. Furthermore, this improvement also indicated that the learners could write a literary critical response essay. It is consistent with earlier BBL studies that significantly improved English language learners' critical writing performance (Khalil, 2019; Zuhriyah & Agustina, 2020). However, it was also argued that non-native English language learners cannot express themselves critically in the language (Alagozlu, 2007; Stapleton, 2002). This argument has two perspectives.

On the one hand, this could be true if these learners were asked to write without proper and adequate guidance or were exposed to an ineffective teaching and learning strategy. On the other hand, these arguments would not hold when BBL strategies were employed, as shown in this study. Therefore, BBL could enhance the critical writing performance of low-ability Malaysian ESL learners.

Low Ability ESL Learners' Responses to BBL

The low-ability ESL learners in this study were generally positive towards BBL. First, they responded that the BBL-compatible strategies, such as role-play, had facilitated their learning retention and recall. BBL suggests that retention and recall are best represented by natural spatial memory, which often involves physical movements in learning and can be fully utilized through experiential learning (Caine & Caine, 1994). A previous BBL study by Weimer (2007) also mentioned that physical movements in role plays enhanced learners' ability to recall and retain learned items in the BBL lessons.

Second, the learners opined that they elaborated better on the writing test. It showed that the learners had capitalized on the brain's tendency to search for meaning through patterning (meaningful learning) because it involved critical thinking skills (Jensen, 2005) and connecting learners' previous knowledge to the new items learned (Pan et al., 2020). They could justify their responses and relate them to their life experiences, which further complemented their significant improvement in L2 writing performance.

Third, individual differences were accounted for when learners revealed the appropriateness of the language in the simplified plot text to their L2 proficiency. The text facilitated their ability to understand the lesson content. Sousa and Tomlinson (2011) concurred that effective learning should consider the learners' abilities in the learning process.

Fourth, the variety of interesting lesson activities mentioned supports the brain's tendency to process the wholes and parts simultaneously because these activities involve multiple representations of learning (Connell, 2009; Genesee, 2000). Similar activities were also evident in another study by Khalil (2019).

However, two BBL components yielded mixed responses from the learners: positive social interaction and learning low in threat but high in challenge. In positive social interaction, favorable responses to learners cooperating and helping one another in group work strategies are consistent with other BBL studies (Chowdhury, 2020; Li & Jeong, 2020), but there were also some negative responses. Uncooperative learners are due to the negative emotions of not belonging to the group (Jensen, 2005). Thus, this study revealed that positive social classroom interaction depends on the type of group the learners are involved with.

Findings also showed that even though learning was low in threat but high in challenge when they had fun engaging in difficult tasks, there were also elements of anxiety when learners were unable to comprehend the meanings of unfamiliar L2 words. Therefore, learning was also considered high in threat and challenge. Similar mixed responses were also revealed in a BBL study by Ali et al. (2019), where learners were divided in their perceptions of learning enhanced by challenge but low in threat. Hence, this study further confirms Caine and Caine's (1994) admission that achieving the delicate balance between threat and challenge is not easy.

Within the context of the Malaysian English literature component studies, these findings contrasted with earlier findings where it was found that the teaching and learning were teacher-centered, dull, and focused largely on answering examination questions (Choo et al., 2017; Govindasamy & Jan 2017; Ismail et al., 2008). The findings from this study indicated that the learners were engaged actively in the BBL lessons because learning was meaningful, and consequently, their ability to retain and recall learned items was enhanced.

CONCLUSION

This study investigated the effect of BBL strategies among low-ability ESL learners in a literature component classroom. Findings indicated a significant improvement in the learners'ESL writing performance after using BBL strategies. They were also generally positive towards BBL implementation. Their responses were mainly centered on their ability to recall the learned items in the lessons, meaningful learning experiences, learning by considering their abilities, and the effectiveness of the various teaching and learning interactive techniques. Despite experiencing favorable BBL conditions that were low in threat but high in challenge and promoting positive social interactions, there were also limitations to its effectiveness related to the learner's negative emotions and limited L2 proficiency.

Implications

This study provides opportunities for ESL teachers to adopt or strengthen their understanding and practices related to BBL because it can improve learners' academic performance. Hence, advocates of teachercenteredness and their overemphasis on examination-oriented approaches might want to retreat from test-based practices to those that focus more on a learnercentered and meaningful learning process. Another implication to ESL teachers is the importance of designing BBL lesson activities considered low in threat but high in challenge to low-ability learners. They should consider that differences in language proficiency could still exist among low-ability L2 learners even though they were grouped based on their similar level of L2 academic performance, as shown in this study. Despite the positive outcomes, learning could still be negatively affected. It suggests the importance of learners' emotions in BBL theory and principles and adds to the current body of knowledge as issues in BBL implementation are revealed.

Limitations

This study has limitations. The data were collected through purposive sampling techniques, and findings might yield different results if other sampling techniques, such as cluster or random sampling, were employed. The study also relied only on low-ability ESL learners in East Malaysia, and it cannot be generalized to other learners in different contexts.

Recommendations

It is recommended that future researchers investigate the implementation of BBL with learners across different age groups and at different levels of L2 proficiency in various classroom contexts to get interesting results. Further studies could also examine the learners' and teachers' perspectives to find parallels and differences in responses. In addition, BBL researchers can conduct longitudinal studies to investigate the effectiveness of implementing BBL strategies in ESL classrooms with the same group of participants over an extended period. It is to analyze fully the potential effect of BBL strategies in a formal ESL classroom setting.

ACKNOWLEDGEMENT

The authors acknowledge Universiti Malaysia Sarawak (UNIMAS) for the financial support.

REFERENCES

Ahangari, S., & Sepehran, H. (2014). The effect of intertextuality on Iranian EFL learners' critical writing. *Iranian Journal of Language Teaching* Research, 2(1), 85-98. https:// 10.30466/ ijltr.2014.20425

- Alagozlu, N. (2007). Critical thinking and voice in EFL writing. *Asian EFL Journal*, 9(3), 118-136.
- Ali, M. Q., Kashif, N. U., & Bakht, M. I. (2019). Effect of brain-based learning on Urdu EFL learners' academic achievement in 8th grade English. *Al-Qalam*, 24(2), 68-75. https://doi.org/10.31703/ glr.2020(v-ii).14
- Aziz, N. M. A., & Aziz, A. A. (2019). Experimental learning approach to writing in an ESL classroom: A case study in a Malaysian sub-rural school. Asian Journal of Research in Education and Social Sciences, 1(1), 7-16.
- Baba, S., & Aziz, Z.A. (2009). Smart teaching and learning strategies in pre-writing activities in Bahasa Melayu (Malay Language). UCLA International Institute. https://escholarship.org/ uc/item/45g336rs
- Bayer, D. (2022). Improving vocabulary retention for middle school learners English; How can brainbased methods enhance vocabulary learning and acquisition [Unpublished master's thesis]. University of Graz. https://unipub.uni-graz.at/ obvugrhs/download/pdf/8049049?originalFile name=true
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research* in Psychology, 3(2), 77-101. https://doi. org/10.1191/1478088706qp063oa
- Brown, J. D., & Rodgers, T. S. (2002). Doing second language research: An introduction to the theory and practice of second language research for graduate/master's students in TESOL and applied linguistics, and others. Oxford University Press.
- Bryman, A. (2012). Social research methods (4th ed). Oxford University Press. https://www.academia. edu/97136619/Alan_Bryman_Social_Research_ Methods_4th_Edition_Oxford_University_ Press_2012_
- Caine, R. N., & Caine, G. (1994). *Making connections: Teaching and the human brain*. Addison-Wesle

Publishing Company. https://files.eric.ed.gov/ fulltext/ED335141.pdf

- Caine, R. N., Caine, G., McClintic, C., & Klimek, K. J. (2005). 12 Brain/Mind learning principles in action: The field book for making connections making connections, teaching, and the human brain. Corwin Press.
- Choo, Y. B., Abdullah, T., & Mohd Nawi, A. (2017). Using digital stories to promote students' learning and understanding of poems in secondary school. *Sains Humanika*, 9(4–2), 59–64. https://doi. org/10.11113/ sh.v9n4-2.1360
- Chowdhury, R. B. (2020). Implementing braintargeted teaching model to enhance English language teaching and learning process. *The English Teacher*, 49(3), 89-104. https://melta. org.my/journals/TET/downloads/tet49_03_02. pdf
- Cohen, J. (1988). Statistical power analysis (2nd ed). Erlbaum. https://www.utstat.toronto. edu/~brunner/oldclass/378f16/readings/ CohenPower.pdf
- Connell, J. D. (2009). *The global aspects of brainbased learning*. https://files.eric.ed.gov/fulltext/ EJ868336.pdf
- Corballis, P. M. (2003). Visuospatial processing and the right-hemisphere interpreter. *Brain* and Cognition, 53(2), 171–176. https://doi. org/10.1016/S0278-2626(03)00103-9
- Dekker, S., & Jolles, J. (2015). Teaching about "brain and learning" in high school biology classes: Effects on teachers' knowledge and students' theory of intelligence. *Frontiers in psychology*, *6*, Article 1848. https://doi. org/10.3389/fpsyg.2015.01848
- Duman, B. (2010). The effects of brain-based learning on the academic achievement of students with different learning styles. https://files.eric.ed.gov/ fulltext/EJ919873.pdf
- English Language Training Centre. (2015). *Remedial instruction: Training of trainers*. Ministry of Education Malaysia.

- Genesee, F. (2000). Brain research: Implications for second language learning. https://files.eric. ed.gov/fulltext/ED447727.pdf
- Given, B. K. (2002). *Teaching to the brain's natural learning systems*. ASCD.
- Glick, E. A. (2012). The effects of brain compatible instruction, social emotional development and classroom community structures on students [Unpublished master's thesis]. California State University. https://scholarworks.lib.csusb.edu/ cgi/viewcontent.cgi?article=5260&context=etdproject
- Govindasamy, M., & Jan, M. J. (2017). Effects of academic qualifications on Malaysian English language teachers' subject matter knowledge of literary devices. *Malaysian Journal of Languages and Linguistics*, 6(1), 26–48. https:// doi.org/10.24200/mjll.vol6iss1pp26-48
- Gulpinar, M. A. (2005). The principles of brain-based learning and constructivist models in education. *Educational Sciences: Theory & Practice*, 5(2), 299-306.
- Haghighi, M. (2013). The effect of brain-based learning on Iranian EFL learners' achievement and retention. *Procedia-Social and Behavioral Sciences*, 70, 508-516. https://doi.org/10.1016/j. sbspro.2013.01.088
- Howard-Jones, P. A., Varma, S., Ansari, D., Butterworth, B., De Smedt, B., Goswami, U., Laurillard, D., & Thomas, M. S. C. (2016). The principles and practices of educational neuroscience: Comment on Bowers (2016). *Psychological Review, 123*(5), 620–627. https:// doi.org/10.1037/rev0000036
- Ismail, F., Aziz, M. A., & Abdullah, T. (2008). Literature in English language teaching: A revisit in the Malaysian context. In N. A. M Omar & Z. Zainal (Eds.), *Research in English Language Teaching* (pp. 53-68). Universiti Teknologi Malaysia. https://www.academia. edu/download/3719803/bookchapter_fppsm09. pdf#page=61

- Jensen, E. (2005). Teaching with the brain in mind (2nd ed). ASCD. https://dcps.instructure.com/ courses/68872/files/183852/download?wrap=1
- Jensen, E. (2008). Brain-based learning: The new paradigm of teaching. Corwin Press.
- Kahveci, A., & Ay, S. (2008). Different approachescommon implications: Brain-based and constructivist learning from paradigms and integral model perspective. *Journal of Turkish Science Education*, 5(3), 124-129.
- Kandasamy, K., Ibrahim, N. A., Jaafar, H., & Hanafi Zaid, Y. (2021). Enhancing vocabulary acquisition and retention through the brain-based learning strategies. *Asian Journal of English Language and Pedagogy*, 9(2), 26-42.
- Kapur, V. (2018). Understanding constructivism in the second language learning context. Scholarly Research Journal of for Humanity Science & English Language, 123, 97-105. https://doi. org/10.1016/j.sbspro.2014.01.1402
- Kayalar, F., & Ari, T. G. (2016). The views of language teachers over the strategies of brain based learning and teaching for successful classroom environment. In J. Vopava, V. Douda, R. Kratochvil & D. Konecki (Eds.), *Proceedings* of the 8th Mac 2016. Academic Conferences Association. https://www.researchgate.net/ publication/309286190
- Khalil, A. H. (2019). A program based on brainbased learning and emotional intelligence for developing EFL secondary school students' critical writing skills. *Journal of Faculty of Education, 119*(1), 51–74.
- Kohar, D. (2020). Examining the effectiveness of reading comprehension practice via the brainbased learning model at SMPN Unggulan Indramayu. Advances in Social Science, Education and Humanities Research, 429, 146-149. https://doi.org/10.2991/assehr.k.200402.033
- Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development*. Prentice-Hall.

- Kosar, G., & Bedir, H. (2018). Improving knowledge retention via establishing brain-based learning environment. *European Journal of Education Studies*, 4(9), 208-218. https://doi.org/10.5281/ zenodo.1298918
- Lombardi, J. (2008). Beyond learning styles: Brainbased research and English language learners. *The Clearing House: A Journal of Educational Strategies, Issues and Ideas, 81*(5), 219-222. https://doi.org/10.3200/TCHS.81.5.219-222
- Li, P., & Jeong, H. (2020). The social brain of language: Grounding second language learning in social interaction. *Npj Science of Learning*, 5(1), Article 8. https://doi.org/10.1038/s41539-020-0068-7
- Malini, G., & Kaur, K. (2014). ESL students' perceptions of the use of higher order thinking skills in English language writing. Advances in Language and Literary Studies, 5(5), 80-87.
- Ministry of Education (2013). Malaysia education blueprint 2013–2025. https://www.pmo.gov. my/wp-content/uploads/2019/07/Malaysia-Education-Blueprint-2013-2025.pdf
- Oghyanous, P. A. (2017). The effect of brain-based teaching on young EFL learners' self efficacy. *English Language Teaching*, 10(5), 158-166. https://doi.org/ 10.5539/elt.v10n5p158
- Omar, Y. (2017). Inclusion of literature components in Malaysian English paper: The challenges and pros in teaching and learning. *Al-Ta Lim Journal*, 24(3), 174-186. https://doi.org/10.15548/ jt.v24i3.335
- Pallant, J. (2007). SPSS: A step by step guide to data analysis using SPSS for windows (3rd ed). Open University Press. https://vle.upm.edu.ph/ pluginfile.php/203943/mod_resource/content/1/ spss-survival-manual-a-step-by-step-guideto-data-analysis-using-spss-for-windows-3rdedition-aug-2007-2.pdf
- Pan, Y., Dikker, S., Goldstein, P., Zhu, Y., Yang, C., & Hu, Y. (2020). Instructor-learner brain coupling discriminates between instructional approaches and predicts learning. *NeuroImage*, 211, Article 116657. https//doi.org/10.1101/704239

- Roberts, J. W. (2002). Beyond learning by doing: The brain compatible approach. Journal of Experiential Education, 25(2), 281-285. https// doi.org/10.1177/105382590202500206
- Runganurak, W., Bunterm, T., Suwit Uopasai, S., & Tang, K.N. (2022). The effect of designbased learning integrated with educational neuroscience instructional model on students' learning outcome, executive functions, and learning stress. *Pertanika Journal of Social Science and Humanities*, 30(2). 813-834. https// doi.org/10.47836/pjssh.30.2.21
- Saleh, S. (2012). The effectiveness of brain-based teaching approach in dealing with the problems of students' conceptual understanding and learning motivation towards physics. *Educational Studies*, 38(1). https://doi.org/10.1080/03055698.2011 .570004
- Salem, A. A. M. S. (2017). Engaging ESP students with brain-based learning for improved listening skills, vocabulary retention and motivation. *English Language Teaching*, 10(12), 182-195. https://doi.org/10.5539/elt.v10n12p182
- Sarawak State Education Department (2019). Analisis keputusan SPM [SPM results analysis]. Sektor Penilaian dan Peperiksaan, Jabatan Pendidikan Negeri Sarawak.
- Singh, R. K., Singh, C. K., Tunku, M. T. M., Mostafa, N. A., & Singh, T. S. (2018). A review of research on the use of higher order thinking skills to teach writing. *International Journal of English Linguistics*, 8(1), 86-93. https://doi.org/10.5539/ ijel.v8n1p86
- Sousa, D., & Tomlinson, C. (2011). Differentiation and the brain: How neuroscience supports the learner-friendly classroom. Solution Tree Press.
- Stapleton, P. (2002). Critical thinking in Japanese L2 writing: Rethinking tired constructs. *ELT Journal*, 56(3), 250–257. https://doi.org/10.1093/ elt/56.3.250
- Suarez, A. M. S., Martinez, M. E. M., & Mendoza, L. R. M. (2019). Brain and learning. *International Journal of Social Sciences and Humanities*, 3(2), 128-135. https://doi.org/10.29332/ijssh.v3n2.302

- Syahbandi, L. F. (2018). The effect of Brain-based learning towards students' speaking skills. *Journal of Languages and Language Teaching*, 5(2), Article 52.
- Tomlinson, C. A. (2014). *The differentiated classroom* responding to the needs of all learners (2nd ed). ASCD Publications.
- Valipour, V., & Araghi, S. M. (2014). Brain-based learning strategies and its effects on student outcome in university aged Iranian EFL students. *Indian Journal of Fundamental and Applied Life Sciences*, 4(2), 230-233.
- Weimer, C. (2007). Engaged learning through the use of brain based teaching: A case study of eight middle school classroom [Doctoral dissertation, Northern Illinois University]. NIU Huskie Commons Institional Respository. http://commons.lib.niu.edu/bitstream/ handle/10843/17241/Weimer,%20Carol. pdf?sequence=1
- Wlodek, R. (2018). Neuroscience and education: Teacher and student perceptions of brainbased strategies that engage the brain [Doctoral dissertation, Concordia University]. ProQuest Dissertations & Theses Global. https://search.proquest.com/openview/cda a097e799ac05b715c698b9f0f2c09/1?pqorigsite=gscholar&cbl=18750
- Wolfe, P. (2001). Brain based teaching: Translating research into classroom practice. ASCD Publications. https://www.academia.edu/ download/99399703/Brain_Matters_ Translating_Research_Into_Classroom_ Practice_Patricia_Wolfe_.pdf
- Yatim, S. S. K. M., Saleh, S., Zulnaidi, H., Yew, W. T., & Yatim, S. A. M. (2022). Effects of brain-based teaching approach integrated with GeoGebra (b-geo module) on students' conceptual understanding. *International Journal* of Instruction, 15(1), 327-346. https:/doi. org/10.11591/ijere.v11i4.22873
- Zuhriyah, M., & Agustina, R.K. (2020). Brain-based learning and high order thinking skills effect on students writing ability. *Journal of English Educators Society*, 5(2), 193-198. https://doi. org/10.21070/jees.v5i2.778



SOCIAL SCIENCES & HUMANITIES

Journal homepage: http://www.pertanika.upm.edu.my/

Examination of Teachers' Views on Erasmus+ Projects in Schools

Serap Çimşir

Ministry of National Education, Mehmet Akif Ersoy Primary School, Atatürk, Aras St. No: 13, 34758 Ataşehir/ Istanbul, Türkiye

ABSTRACT

Erasmus+ projects are important in implementing innovative approaches in the educational process. This study is designed as descriptive quantitative research to determine teachers' opinions about Erasmus+ projects in public schools. The study group consisted of 303 teachers who voluntarily participated in the research from the population of teachers working in public schools in Istanbul. The data are collected using a questionnaire prepared by the researcher by taking expert opinions. The first part of the form, which consists of two parts, contains personal information, and the second part contains questions about teachers' views on Erasmus+ projects in schools. ANOVA and t-tests are used to analyse the data. The findings showed that the teachers' opinions on Erasmus+ projects did not differ significantly by gender, institution of duty, professional seniority, and educational status. Also, the teachers had positive opinions about Erasmus+ projects. In addition, the opinions on Erasmus+ projects differed significantly in favour of those who previously participated in an Erasmus+ project, those who had been abroad within the scope of an Erasmus+ project, and those who wanted to participate in Erasmus+ projects.

Keywords: Erasmus+, opinion, school, teacher

ARTICLE INFO

Article history: Received: 22 December 2023 Accepted: 26 January 2024 Published: 10 June 2024

DOI: https://doi.org/10.47836/pjssh.32.2.02

E-mail address: serapcimsir@gmail.com

ISSN: 0128-7702 e-ISSN: 2231-8534

INTRODUCTION

Education is the basis of employability, personal satisfaction, and responsible and active citizenship. The right to inclusive quality education and lifelong learning has been declared in the first principle in the European Social Rights Column. Education is at the heart of the European way of life and strengthens freedom, diversity, human rights, social justice, the social market economy, and democracy (European Commission [EC], 2020). The international dimension of education is becoming increasingly important in the globalising world. Attempting innovative approaches in educational practices, cooperation, and cultural integration are among the basic dynamics of education.

Today, the education system in Türkiye is based on the constructivist approach. In this approach, the student is expected to internalise the content based on his/her knowledge, skills, and attitudes, develop multiple perspectives on events, establish a new learning connection by benefiting from real-life situations, reach various data sources, and take responsibility for learning. In addition, the teacher and the student need to progress together in the learning process for the teacher to be a guide, for the content to be acquired with real-life situations and for the evaluation to be process-based (Peker-Ünal, 2019). However, the content and methods of education in schools are constantly changing. One of the reasons for these changes is the implementation of programs such as the Lifelong Learning Program (LLP) Erasmus+, where the slogan "Learning for life" has gained an increasing number of followers (Kugiejko, 2016). It also aligns with the essence of the constructivist approach adopted today through learning for life.

Erasmus+ Projects

The common point of the models, such as problem-based learning and projectbased learning, allows the constructivist approach to be put into practice. The common feature of these models is that they place a contemporary problem related to the student and their achievements in the centre of the process, with the teacher guiding. In this process, the student must determine what he/she needs to do to solve the problem, create goals, communicate, and gain various skills, such as computer literacy, effective listening, research, taking notes, and time management (Peker-Ünal, 2019). In this context, the school project activities significantly affect the education of individuals suitable for today's education. In particular, Erasmus+ projects allow educators from various countries to meet, exchange ideas, support innovative education practices, and have an important impact on encouraging foreign language learning. In addition, within the project's scope, the cultural development of teachers working together from different countries is reflected in their teaching competencies, and a high level of efficiency is provided in education.

The project can be a task that includes problem identification, problem-solving, decision-making, design creation, collaboration, presentation, or a concrete product (Thomas, 2000). Projects organise people in different parts of the world to collaborate and fuse, bringing together cultures, people, and scientific content. For this reason, project experience is important for teachers and students (Tatlı, 2016). The Erasmus+ programme is instrumental in promoting activities at the European Union (EU) level like supporting the EU

commitment to promoting citizenship, fundamental freedoms, tolerance, and non-discrimination through education, mainstreaming successful practices, and developing cooperation for national reform and supporting implementation financially (EC, 2020). With three million participants since 1987, the Erasmus+ programme is the world's most successful student exchange program, promoting education and intercultural exchange (Ballatore & Ferede, 2013). Erasmus+ projects are becoming increasingly important due to their various contributions to the projects implemented in schools. Erasmus+ Programme contributes to the participants in the following terms (Erasmus+ Programme Guide [EPG], 2017, p.6):

- Reducing the early school leaving rate to below 10% and increasing access to higher education to 40% at least,
- Ensuring sustainable development in the field of higher education,
- Developing the European dimension of sports and
- Promoting European values (the EU is built on freedom, human dignity, equality, democracy, respect for human rights, and the rule of law, including the rights of minorities) following Article 2 of the Treaty on the European Union.

The Erasmus+ programme has benefits such as recognition of multilingualism, skills and competencies, dissemination, and maintenance of the results obtained from the project (Hatırasu, 2017). In addition, Erasmus+ projects implemented in schools have many benefits, such as applying personal, social, communicative, and intercultural interaction and innovative methods. The types of Erasmus+ projects implemented in schools are briefly defined below (EPG, 2017):

Main Action 1-Mobility of Individuals. In this context, the application of "Erasmus+ Graduate Credits" encouraged by the program is supported by the mobility of students and staff to provide a learning experience to teachers, trainers/ trainers, academicians, students, interns, volunteers, educational institutions and nongovernmental institutions/organisations, young people, youth workers in another country, as well as going abroad for a master's degree.

Main Action-Cooperation for Innovation and the Exchange of Good Practices. This program supports transnational strategic partnerships aiming to promote experience and technical expertise sharing and innovation among different institutions/organisations in the field of education, training, and youth; information partnerships between higher education institutions and enterprises aiming to encourage teaching-learning; sectoral skill partnerships gathering findings for the skills needed to deliver activities in one or more fields; capacity building projects supporting cooperation with partner countries in the field of higher education and youth.

Main Action 3-Support for Policy Reform.

This program supports peer learning and peer supervision through open coordination methods in the field of education, training, and youth; initiatives for policy innovation to ensure that innovative policies can test their effectiveness among stakeholders; support for European policy tools to support recognition of competencies and skills, skills management and guidance; and cooperation with international institutions/ organisations with capacity and expertise to strengthen the impact of policies in the field of education, training, and youth.

Erasmus+ projects offer opportunities for participants to develop their personal and professional skills, increase their experience and knowledge, increase their awareness of responsibility, compare their education systems, communicate the innovations seen in their own countries, introduce their culture to other countries, and become a world person (Demirer & Dak, 2019). Furthermore, considering that the educators convey their experiences to their students or that the students are actively involved in the project process, the importance of Erasmus+ projects in the education process is understood.

On the other side, the cross-curricular approach, one of the important principles of modern pedagogy, is a teaching strategy that allows educators to combine concepts and skills from various disciplines and offers advantages to teachers and students. One effective way to implement the crosscurricular approach is to participate in Erasmus+ projects. Positive connections between Erasmus+ project work and intercurricular strategy are listed below (Klajn, 2019):

Motivation. Since the Erasmus+ project activities correspond to a concrete school problem that needs to be solved, teachers from different profiles share the common goal; the possibility of vocational training in another cultural environment also increases the attractiveness of such a project.

System and management. Because the school receives a grant to organise the project and all activities are written in the annual work plan, this can provide teachers with sufficient materials and an appropriate environmental environment over time.

Didactic and pedagogical knowledge. International experience gives participants access to a wide range of teaching methods.

These explanations show that Klajn (2019) emphasises the importance of Erasmus+ projects in motivation, system and management, and didactic and pedagogical knowledge. Research (Erdoğan, 2007; Gültekin, 2007) also shows that students' academic success in secondary and higher education project activities increased. It has been determined that university students also want to study abroad with the Erasmus+ programme to gain new experiences, better access to academic information, and improve their foreign language skills (Marinescu, 2022).

Education is a dynamic phenomenon. For this reason, innovations in education must be reflected in educational practices in the context of developing technology and 21st-century skills, as well as cultural interaction. In order to achieve this, it is important to include Erasmus+ projects that support intercultural interaction and innovative practices in schools. Therefore, project practices in education are very important regarding the quality of education, change of good practices, and 21st-century skills.

Importance of the Research

Erasmus+ projects offer an important educational activity by providing student and teacher mobility and activities, providing great interaction and cooperation opportunities between countries, societies and institutions (Köroğlu & Çoban, 2021). When studies abroad regarding Erasmus+ projects are examined, commission studies, national reports, and research are generally encountered regarding the contributions of these projects to educational institutions. Kugiejko's (2016) case study on the benefits of participation in projects in two primary schools participating in the Erasmus+ project attracted attention. In this study, individual interviews, coordinators and teachers' observations were analysed, and it was determined that teachers and students participating in the projects could cooperate and that all types of schools, regardless of their location (city or rural area), could benefit from participating in the Erasmus+ project. Marinescu et al. (2022) researched to obtain feedback from university students participating in the Erasmus+ programme,

analyse the benefits and difficulties of participating in this program, and determine the reasons that lead students to choose a particular partner university. This research is quantitative in the form of an opinion poll. The research shows that university students want to study abroad with the Erasmus+ programme to gain new experiences, improve their foreign language skills and better access academic information.

Burden and Kearney (2023) conducted a multiple case study investigating the impact of three international universityschool partnership projects to improve the digital pedagogies of teachers and teacher educators with mobile devices. Interview and survey data were used in the study, and as a result, the positive impact of the projects on students' attitudes and peer learning was emphasised. As a result of their case study on environmental education with students between the ages of 6 and 15 in Slovakia, Piscová et al. (2023) stated that teaching materials and teacher training should be improved and that Erasmus+ projects provide the opportunity to practice and do internships abroad. Marron et al. (2023) also conducted an online survey of 1170 primary school teachers in 9 European countries participating in the Erasmus+ project to determine the importance of participation in physical education in primary education. It was determined that most participants thought involvement in physical education was very important and that guidance on children's motor needs and video-based resources were useful in encouraging participation in physical education. It is seen that this research is related to the subject of the project implemented in the relevant institution and was conducted on a specific sample from the schools participating in the projects.

Türkiye's primary, secondary, high school and university studies are part of the Erasmus+ programme. Bakioğlu and Certel (2010) conducted a qualitative study on the programme's contributions with 30 Turkish university students participating in the Erasmus+ exchange programme. These studies emphasise the importance of the Erasmus+ programme and its benefits to students in higher education. Kesik and Balcı (2016) conducted a scale development study to determine the contributions of European Union (EU) Projects called Strategic Partnerships to schools. However, this study collected data from teachers working in 11 schools in a province in Türkiye that actively participated in EU Projects. Similarly, Gözen (2010) developed a scale to obtain participant opinions on finding ideas, work programs, budgeting, European added value, and dissemination during the project proposal preparation process. Başaran et al. (2021) conducted a qualitative study on 12 teachers participating in the projects to examine the impact of Erasmus+ projects carried out by the Directorates of National Education on schools.

Demirer and Dak (2019) tried to determine their views on Erasmus+ projects carried out under the coordination of the Turkish National Agency with visual metaphors. The study was conducted with 47 people who worked as senior managers, school administrators and teachers in institutions affiliated with the Ministry of National Education and participated in the projects. This research is about the participants' involvement in the project, their Erasmus+ project preparation and motivation factors, their future expectations, and how Erasmus+ projects affect their education and training processes. The sample in this study consists of teachers and administrators in schools and institutions participating in the projects. Yavrutürk and Ilhan (2022) examined students' experiences participating in the Erasmus+ student mobility program regarding twenty-firstcentury skills and their views on the skills they gained thanks to Erasmus+ mobility. The research was conducted with ten science high school students who went to Greece within the scope of the Erasmus+ student mobility program, and the data was obtained through a semi-structured interview form.

As a result, students participating in the Erasmus+ student exchange program Have been determined to have intercultural experiences, use digital skills effectively, improve communication skills and projectbased work, engage in intercultural interaction, and improve foreign language skills. Köroğlu and Çoban (2021), in their study examining the thoughts of students participating in Erasmus+ Projects about mobility and the effects of mobility, determined that Erasmus+ mobility has individual, academic, social, language skills and cultural effects on students. In these studies, the sample was limited to a very small number of students participating in the Erasmus+ project.

Kılınç and Korkmaz (2022) examined the opinions of English teachers who participated in the Erasmus+ programme with the theme 'Improving the Proficiency of English Teachers' about teaching English. The data was obtained from 37 English teachers in a province who went to four European countries, Greece, Hungary, Czechia and Austria, within the project's scope. By examining the answers given by the participants as a result of their onthe-job observations, comparisons and evaluations of the systems of the countries under six different headings were included. In this research, the sample was limited to 37 English teachers who participated in projects for English teachers in one province. This situation has made it difficult to make generalisations on the subject. Notably, in these studies, the working group was limited in number, and the data was taken only from a certain group that participated in Erasmus+ projects. These studies focus on the project process rather than the projects' contributions. Regarding the Erasmus+ Programme, we can say that these studies, especially on teachers' opinions, do not examine in detail the purposes of the Erasmus+ Programme goals. It is important to emphasise the cultural, intellectual and communicative contribution of Erasmus+ projects to teachers and students in line with the European Union goals because students' participation in Erasmus+ projects before starting university can affect students' more universal thinking, university and professional preferences, intellectual perspective, and a different perspective on education.

For this reason, it is important to examine the opinions of teachers in educational institutions about Erasmus+ projects within the scope of the targets included in the Erasmus+ Program Guide, their participation in the projects or their positive/negative opinions about their own/students' participation. Moreover, it should be considered that Erasmus+ project activities in preschool, primary school, secondary school and high school education institutions that provide human resources to universities can positively affect the quality of higher education and participation in Erasmus+ projects in universities. It is thought that it is important to determine the contribution level of Erasmus+ projects to teachers and students according to the opinions of teachers who participate and/or do not participate in these projects.

Many studies based on qualitative and quantitative data, including the opinions of teachers and students about Erasmus+ projects, have been examined in the literature. A research gap has been observed to determine teachers' opinions about the goals of Erasmus+ projects according to the Erasmus+ goals in the current EPG (2017). Therefore, this study tried to determine teachers' opinions about the benefits of Erasmus+ projects for themselves and their students by using a measurement tool that includes the goals of the Erasmus+ program. In the process of membership to the European Union, ensuring intercultural sharing through partnerships in education with European Union member countries and recognising European culture and projects related to globalisation are important. These project studies are also important for determining Türkiye's educational practices and economic and technological deficiencies and ensuring cooperation. For this reason, there was a need to determine the opinions of teachers, who are the managers of educational processes, about Erasmus+ projects with a measurement tool that covers the Erasmus+ goals in the Erasmus+ Programme and with a large sample. This need made it necessary to conduct comprehensive research on Erasmus+ projects at the level of schools affiliated with the Ministry of National Education (MoNE), about teachers in-depth, and with a measurement tool developed considering the Erasmus+ programme. Therefore, the findings obtained from this study can greatly contribute to the Erasmus+ programme managers, national agencies, training practitioners, researchers, and the literature. The problem sentence of the present study is: What are the teachers' opinions on Erasmus+ projects conducted in schools?

Purpose and Subgoals of the Research

This study aims to determine teachers' opinions about Erasmus+ projects in schools according to different variables. Accordingly, the subgoals of the study are as follows:

1. What are the opinions of teachers about themselves regarding

Erasmus+ Projects carried out in schools?

- 2. What are the opinions of teachers about their students regarding Erasmus+ Projects carried out in schools?
- 3. Do teachers' opinions about Erasmus+ projects in schools differ according to the descriptive characteristics (gender, professional seniority, educational status, level of education)?
- 4. Do teachers' opinions about Erasmus+ projects in schools differ according to the descriptive characteristics of the projects (whether they participate in Erasmus+ projects, whether they are abroad within the scope of Erasmus+ projects, and whether they want to participate in Erasmus+ projects)?

METHODS

Research Model

This descriptive quantitative research aims to determine teachers' opinions about Erasmus+ projects in schools. Descriptive studies are generally used to reach a general idea about this universe by using a sample selected from the universe. Descriptive studies are generally used to arrive at a general idea about the population using a sample selected from the population (Karasar, 2008). In addition, this study was designed to determine teachers' opinions working at preschool, primary, secondary, and high school levels about Erasmus+ projects in schools in general.

Population-sample

The population of the research is teachers working in public schools in Istanbul, Türkiye. The participants of the research were selected using the simple random sampling method. In this type of sampling, all elements in the population have an equal chance of being selected. This sampling is also termed disproportionate or unbiased (Karasar, 2008). The research participants were teachers who voluntarily participated in the online questionnaire from the population of teachers working in public schools in Istanbul, Türkiye, as

Table 1

Distribution of teachers according to descriptive characteristics

Descriptiv	e Characteristics	n	%
Gender	Female	239	78.9
	Male	64	21.1
	Total	303	100
Type of	Preschool	18	5.9
institution	Primary School	224	73.9
served	Secondary School	43	14.2
	High School	18	5.9
	Total	303	100
Professional	5 years	14	4,6
Seniority	6-10 years	33	10.9
	11-15 years	46	15.2
	16-20 years	79	26.1
	21–25 year	76	25.1
	25 years or more	55	18.2
	Total	303	100
Educational	License	239	78.9
Status	Postgraduate Degree	64	21.1
	Total	303	100

a simple random sampling in the spring semester of the 2021–2022 academic year. The characteristics of the study participants are listed in Tables 1 and 2.

Table 1 shows that among the teachers participating in the study, there are more female participants (78.9%) according to gender; there are more participants from primary schools (73.9%); there are more senior participants with 16–20 years (26.1%) and 21–25 years (25.1%) of professional seniority, and there are more undergraduate graduates (78.9%) according to educational status.

Table 2 shows that most teachers (80.5%) who participated in the study did not participate in Erasmus+ projects before; most of them (87.1%) had not been abroad within the scope of an Erasmus+ project before, and most of them (61.7%) wanted to participate in Erasmus+ projects.

Table 2

Distribution of teachers according to their characteristics related to Erasmus+ projects

	-	_	
Characteristics Related to Erasmus+		n	%
Projects			
Previously	Positive	59	19.5
participated in an	No	244	80.5
Erasmus+ project	Total	303	100
Previously being	Positive	39	12.9
abroad within the	No	264	87.1
scope of an Erasmus+ project	Total	303	100
Willingness to	Positive	187	61.7
participate in	No	39	12.9
Erasmus+ projects	Indecisive	77	25.4
	Total	303	100

Note: %: Percentage *Source*: Author's work

Source: Author's work

Data Collection Tool, Validity, and Reliability

In this study, a questionnaire consisting of multiple-choice questions was used to determine the personal information of the teachers and their views on Erasmus+ projects conducted in schools. First, the literature was reviewed; the contribution of Erasmus+ projects to education, teacher, and student development was evaluated, and an item pool was created for the measurement tool. EPG (2017), which explains the objectives of Erasmus+ projects, was used to create question items. The question items prepared were presented to six experts, including two lecturers, three experts who completed their doctorate in classroom teaching, and one who was a guidance expert. The measurement tool was finalised in line with their views. The questionnaire included 16 questions about the teachers' opinions about Erasmus+ projects, which the experts considered appropriate.

Exploratory factor analysis was applied to reveal the construct validity of the measurement tool. As a result of the Barlett test (p=0.000<0.05), it was determined that there was a relationship between the variables included in the factor analysis (Büyüköztürk et al., 2018). As a result of the test (KMO=0.939>0.60), it was determined that the sample size was sufficient for factor analysis. In the factor analysis application, the varimax method was chosen to ensure that the relationship structure between the factors remained the same. As a result of the factor analysis, the variables were grouped under a single factor with a total explained variance of 64.615%. The factor structure of the measurement tool is shown in Table 3.

Table 3

Factor structure of the measurement instrument

Items	Factor Loadings	Items	Factor Loadings		
q2	.90	q14	.84		
q7	.89	q15	.84		
q4	.88	q12	.83		
q5	.87	q9	.82		
q3	.86	q6	.76		
q1	.86	q16	.70		
q13	.85	q10	.48		
q8	.85	q11	.48		
Total Variance = 64.62%; Overall Reliability (Alpha)=0.95					

Source: Author's work

Sub-factor scores shown in Table 3 were calculated between 1 and 5 points by adding the scores of all items within a sub-factor and dividing by the number of items answered by each respondent within that subscale. The overall reliability of the measurement tool was found to be very high, with alpha=0.95. These results show that the instrument is valid and reliable. Some of the items included in the measurement tool are listed below:

- Participating in Erasmus+ projects contributes to the professional development of teachers.
- Participating in Erasmus+ projects contributes to teachers' communication skills.
- Participating in Erasmus+ projects contributes to the cultural development of students.

• Participating in Erasmus+ projects contributes to students' development of an international perspective in their educational lives.

Data Collection and Data Analysis

The prepared questionnaire was sent to teachers online through teacher networks and official announcements. All guidelines specified within the scope of the "Scientific Research and Publication Ethics Directive for Higher Education Institutions" were implemented throughout this analysis. Ethics Committee Approval was obtained from Maltepe University for this study (Decision date: 13/12/2021, Decision no: 2021-34-01).

Frequency and percentage analyses were used to determine the descriptive characteristics of the teachers who participated in the study. Mean and standard deviation statistics were used to examine the measurement tool. Skewness and kurtosis values were examined to determine whether the research variables showed a normal distribution, and the obtained data are given in Table 4.

Table 4Gaussian distribution

	N	Kurtosis	Skewness
Opinions on Erasmus+ projects	303	-0.004	-0.683
Source: Author's wa	rlz		

Source: Author's work

When Table 4 is examined, it is seen that the research variables show a normal distribution. In the literature, the results related to the kurtosis and skewness values of the variables were accepted as the normal distribution between +1.5 and -1.5 (Tabachnick & Fidell, 2013) and +2.0 and -2.0 (George & Mallery, 2010). In cases where variable variance is unknown, nonparametric tests are used if the distribution of the main mass does not show a normal distribution (Field, 2009). According to the law of large numbers and the central limit theorem, the distribution was assumed normal since it was at a sufficient level as a sample, and the analyses were maintained (Inal & Günay, 1993).

According to the descriptive characteristics of the teachers, t-test, oneway analysis of variance (ANOVA), and post hoc (Tukey, LSD) analyses were used to examine the differences in the measurement tool levels. The independent group t-test determined the significant difference between the two independent samples. Cohen (d)and Eta square (η^2) coefficients were used to calculate the effect size. The effect size indicates whether the difference between the groups is large enough to be considered significant. Cohen value is evaluated as 0.8=large, 0.5=medium, 0.2=small, and Eta square value as 0.14=large, 0.06=medium, 0.01=small (Büyüköztürk et al., 2018).

RESULTS

The distribution of the answers given by the teachers to the statements about their views on Erasmus+ projects is shown in Table 5.

According to the answers given by the teachers in Table 5, it is seen that teachers think that Erasmus+ projects contribute to their professional development (x=4.33),

	Str dis	Strongly disagree	Dis	Disagree	Neither agree nor disagree	her e nor gree	Agree	ee	Strongly agree	trongly agree		
•	f	%	f	%	f	%	f	%	f	%	Mean	SD
Participating in Erasmus+ projects contributes to the professional development of teachers	-	0.3	4	1.3	38	12.5	112	37.0	148	48.8	4.33	0.77
Participating in Erasmus+ projects contributes to teachers' communication skills		0.3	7	0.7	33	10.9	115	38.0	152	50.2	4.37	0.73
Participating in Erasmus+ projects contributes to the cultural development of teachers	0	0.0	ŝ	1.0	23	7.6	110	36.3	167	55.1	4.46	0.68
Participating in Erasmus+ projects contributes to teachers' development of an international perspective on educational practices	0	0.0	2	0.7	20	6.6	112	37.0	169	55.8	4.48	0.65
Participating in Erasmus+ projects increases teachers' motivation	-	0.3	5	1.7	28	9.2	128	42.2	141	46.5	4.33	0.74
Participating in Erasmus+ projects positively affects teachers' commitment to the institution	-	0.3	6	3.0	61	20.1	114	37.6	118	38.9	4.12	0.85
Participating in Erasmus+ projects contributes to teachers' adoption of innovative educational practices	0	0.0	4	1.3	30	9.9	110	36.3	159	52.5	4.40	0.72
Participating in Erasmus+ projects increases teachers' interest in learning a foreign language	0	0.0	2	1.7	26	8.6	104	34.3	168	55.4	4.44	0.72
Teachers' participation in Erasmus+ projects contributes to their awareness of universal concepts such as freedom and democracy.	0	0.0	6	3.0	42	13.9	118	38.9	134	44.2	4.24	0.80
Teachers prioritise schools that run Erasmus+ projects when requesting appointments	6	3.0	77	25.4	109	36.0	57	18.8	51	16.8	3.21	1.09
Teachers participating in Erasmus+ school projects are objectively determined according to various criteria.	10	3.3	41	13.5	104	34.3	103	34.0	45	14.9	3.44	1.01
<i>Note.</i> SD: Standard deviation <i>Source</i> : Author's work												

 Table 5

 Distribution of teachers' responses to their statements about their views on Erasmus+ projects

Serap Çimşir

their communication skills (x=4.37), provide cultural development for them (x=4.46). Also, it is seen that teachers think that Erasmus+ projects enable them to develop an international perspective on educational practices (x=4.48), increase their motivation (x=4.33), and affect their commitment to their institutions (x = 4.12). It is seen that teachers think that Erasmus+ projects enable them to adopt innovative educational practices (x=4,40), It is seen that teachers think that Erasmus+ projects encourage them to learn foreign languages (x=4.44), provide awareness of universal concepts such as freedom and democracy (x=4.24). It is inferred that teachers are undecided

about prioritising schools with Erasmus+ projects when seeking a transfer (x= 3.21). It is apparent that teachers are hesitant about the objectivity of selecting teachers for Erasmus+ projects or think they are not objective (x= 3.44). These findings show that teachers think that Erasmus+ projects are useful for them.

Teachers' responses to the statements regarding their students' views on Erasmus+ projects are shown in Table 6.

When Table 6 is examined, the answers given by the teachers to the statements made by their students about Erasmus+ projects yielded the following results. Teachers think that Erasmus+ projects contribute

Table 6

Distribution of the answers given by teachers to the statements about their views on Erasmus+ projects about their students

	Strongly	Disagree		Disagree	Neither	Agree Nor Disagree		Agree	Strongly	Agree		
	f	%	f	%	f	%	f	%	f	%	Mean	SD
Participating in Erasmus+ projects contributes to the cultural development of students	0	0.0	1	0.3	20	6.6	124	40.9	158	52.1	4.45	0.63
Participating in Erasmus+ projects contributes to students' communication skills	0	0.0	1	0.3	22	7.3	111	36.6	169	55.8	4.48	0.65
Participating in Erasmus+ projects contributes to students' development of an international perspective in their educational lives	0	0.0	3	1.0	17	5.6	108	35.6	175	57.8	4.50	0.65
Participating in Erasmus+ projects provides students with an incentive to learn a foreign language	0	0.0	1	0.3	19	6.3	103	34.0	180	59.4	4.52	0.63
Participation in Erasmus+ projects affects students' choice of profession	0	0.0	6	2.0	57	18.8	128	42.2	112	37.0	4.14	0.79

Source: Author's work

to their students' cultural development (x= 4.45), communication skills (x=4.48), and the development of an international perspective in their educational lives (x=4,50). It is seen that teachers think that Erasmus+ projects encourage their students to learn foreign languages (x=4.52). Teachers also think that Erasmus+ projects will affect their students' choice of profession (x=4.14). These findings show that teachers think Erasmus+ projects are useful for their students.

The results of the analysis conducted to examine the differentiation of the participating teachers' opinions about Erasmus+ projects according to the descriptive characteristics are given in Table 7.

As seen in Table 7, the opinions of the participating teachers on Erasmus+ projects do not differ significantly by gender, institution of duty, professional seniority, and educational status (p>0.05).

The teachers' opinions about Erasmus+ projects are differentiated according to the descriptive characteristics of the projects in Table 8.

According to Table 8, the scores (x=4.39) of the previous participant in a project regarding their opinions on Erasmus+ projects were found to be higher than the scores (x=4.21) of the previous not participant in a project regarding their opinions on Erasmus+ projects $(t=2.10; p=0.04<0.05; d=0.31; \eta^2=0.01)$. Among the participating teachers, the scores of those who had previously been abroad within the scope of a project regarding their opinions on Erasmus+ projects (x=4.49) were found

to be higher than those who had not been abroad within the scope of a project before regarding their opinions on Erasmus+ projects (x=4.21) (t=2.80; p=0.01<0.05; d=0.48; $\eta^2=0.03$). The scores of the teachers regarding their opinions on Erasmus+ projects differed significantly in schools

Table 7

Differentiation status of teachers' opinions on Erasmus+ projects according to demographic characteristics

Demographic	n	Opinion on Erasmus+
Characteristics	п	Projects
Gender		Mean±SD
Female	239	4.25±0.58
Male	64	4.21±0.63
t=		0.55
p=		0.56
Type of Institution Serv	red	Mean±SD
Preschool	18	4.37±0.45
Primary School	224	4.21±0.61
Secondary School	43	4.33±0.60
High School	18	4.39±0.39
F=		1.32
p=		0.27
Professional Seniority		Mean \pm SD
0-5 years	14	4.30±0.55
6-10 years	33	4.25±0.62
11-15 years	46	4.50±0.39
16-20 years	79	4.21±0.53
21-25 years	76	4.18±0.69
25 years or more	55	4.16±0.62
F=		2.23
p=		0.05
Educational Status		Mean \pm SD
License	239	4.23±0.58
Postgraduate Degree	64	4.31±0.61
t=		0.96
p=		0.33

Source: Author's work

Table 8

Differentiation status of teachers' opinions on Erasmus+ projects according to the descriptive characteristics
of the projects

Demographic Characteristics	n	Opinion on Erasmus+ Projects
Previously participated in a project		Mean±SD
Positive	59	4.39±0.64
No	244	4.21±0.57
t=		2.10
p=		0.04*
Previously being abroad within the scope of an Erasmus+ project		Mean±SD
Positive	39	4.49 ± 0.58
No	264	4.21±0.58
t=		2.80
p=		0.01*
Willingness to participate in an Erasmus+ project		Mean \pm SD
Positive	187	4.45 ± 0.50
No	39	3.92±0.67
Indecisive	77	3.92±0.53
F=		35.38
p=		0.00*
Post hoc=		1>2.1>3(p<0.05)

Note. *: *p* < 0.05 *Source*: Author's work

according to their desire to participate in the project (F=35.38; p=0<0.05; $\eta^2=0.19$). The reason for this difference is that the scores of those who wanted to participate in the project in schools regarding their opinions on Erasmus+ projects were higher than the scores of those who did not want to participate in the project in schools regarding their opinions on Erasmus + projects (p < 0.05). Furthermore, the scores of those who wanted to participate in the project in schools regarding their opinions on Erasmus+ projects were higher than those who were undecided about participating in the project in schools regarding their opinions on Erasmus + projects (p < 0.05).

DISCUSSION

The findings of this study, which show that Erasmus+ projects contribute to the development of teachers and students in cultural and similar fields, are similar to the findings of other studies. Yavrutürk and Ilhan (2022) determined that students participating in the Erasmus+ student exchange program improved their intercultural experiences, using digital skills effectively, improving communication skills, project-based work, engaging in intercultural interaction and foreign language skills. Köroğlu and Çoban (2021) determined that Erasmus+ mobility has individual, academic, social, language skills and cultural effects on students. According to Ağrı (2006), the Erasmus+ programme is useful in getting to know and promote Turkish culture better and recognising different cultures. Marinescu et al. (2022) determined that university students want to study abroad with the Erasmus+ program to better access academic information, gain new experiences and improve their foreign language skills.

Tatl1 (2016) has found that teachers believe that project development contributes to personal and cultural interaction, helps development, and increases students' success. They emphasise the option of providing financial gain the least. Tatl1 (2016) has also found that although teachers do not participate in project development studies much, they have a high consensus that project studies can increase student success and provide personal development and cultural interaction. This finding coincides with the finding in the present study that teachers have positive opinions about Erasmus+ projects and that projects contribute to cultural and academic development. In their metaphor study, Demirer and Dak (2019) determined that project units were not created, and personnel employment was not provided for the preparation, execution, and finalisation of the Erasmus+ project in primary, secondary, and secondary education institutions affiliated with the Ministry of Education. In addition, studies on projects in educational institutions are mostly conducted voluntarily. Therefore, institutions need to see projects as a tool to go abroad behind their desire to present Erasmus+ projects. On the other hand, those

with insufficient institutional capacity in the institutions preparing the project received consultancy and had the training companies prepare the project. These results suggest that project preparation training is not sufficiently included in schools affiliated with the Ministry of Education and that the desire of most teachers to participate in the projects may be directed toward the purpose of being abroad for those similar to the present study's findings.

Kugiejko (2016) determined that teachers and students participating in projects can collaborate and that all school types, regardless of location (urban or rural), can benefit from participation in projects. Burden and Kearney (2023) emphasised that projects positively affect students' attitudes and peer learning. Piscová et al. (2023) stated that Erasmus+ projects provide the opportunity to practice and do internships abroad. Ağrı (2006) examined the reasons why university students participated in the Erasmus+ Program and determined that the desire to recognise different cultures and gain experience abroad, that is, the cultural dimension of the program, was at the forefront and that the students participated in the program to acquire new environments, gain experience in Europe and conduct academic studies. According to the results from the study of Bakioğlu and Certel (2010), university students found their education abroad to be academically advantageous and important within the scope of Erasmus+ and attached too much importance to their personal, social, cultural, and linguistic benefits.

In addition, almost all students were affected by the educational environments they received in the host institution and the student-centred teaching approach. These findings coincide with the present study's findings that the projects beneficial students and contributed to teachers' adoption of innovative educational practices. Hatırasu (2017) examined universities' 2014, 2015, and 2016 applications and determined that the number of applications from Türkiye was moderate and unsuccessful. From this point of view, Erasmus+ project activities should be implemented more effectively in the schools affiliated with the Ministry of Education to ensure student employment in universities so that Türkiye can benefit adequately from the grant allocated for knowledge partnerships. In addition to the current study finding that teachers want to participate in the project, the low number of teachers participating indicates that project studies should be emphasised in the schools.

Başaran et al. (2021) determined in their research that students and teachers participating in Erasmus+ exchange programs make significant contributions to both their academic and personal development, increase the use of technology in the educational environment, and that all participants want to take part in projects again when appropriate conditions are available. Tatl1 (2016) determined the opinions of 360 teachers working at the primary, secondary, and high school levels about the project development process and tried to identify the obstacles faced by teachers in this process. The study determined that branch teachers, except social studies and information technology teachers, received no project development and management training. Most teachers wanted to but could not participate in the project studies due to the deficiencies they saw.

In addition, most teachers suggested that it would be beneficial to establish a unit in their schools for project development and include foreign language teachers, especially information technologies, in these units. The areas where teachers consider themselves inadequate in project development are information and foreign language; very few teachers do not want to take responsibility, do not want to go abroad, and at least they do not participate in projects due to prejudice. These findings coincide with the present study's finding that teachers have positive opinions about the projects, want to participate in the projects, and have an increasing interest in learning foreign languages.

Botas and Huisman (2013) determined that the participation of Polish students in the Erasmus+ project positively affects their academic achievement and cultural, social, and linguistic development. However, it harms their success because their work and Erasmus+ studies provide opportunities for students to develop cultural, social, and linguistic skills in tourism. The findings of these studies for university students overlap with the teachers' views in the present study that Erasmus+ projects contribute to the development of students at preschool, primary, secondary, and high school levels. When these results are evaluated together, it can be stated that Erasmus+ projects contribute to teachers and students at all levels of education.

Kugiejko (2016) stated that every type of school, regardless of location (city or rural area), can benefit from participation in a global change with the case study and analysis conducted in two primary schools participating in the Erasmus+ project. However, the main limiting factor that stands out, especially in rural schools, is the thought and fear of participating in an international program, the strain on the language skills of the staff, and more administrative work. Cerban and Iacobescu (2018) conducted a study within the scope of the Erasmus+KA3 project on individuals who had received special education between the ages of seven and 45 years. Teachers and parents recorded the developments in the study, aiming to increase the participants' communication and life skills. Social adaptation of communication skills was observed according to visual instructions. As a result, individuals with verbal communication disabilities, under the guidance of teachers and parents, could express themselves and acquire knowledge and skills with the help of mobile software, symbols, and graphics. These results show that Erasmus+ projects greatly benefit students in special education.

In their research, Özdoğru et al. (2022) collected the contributions of "Erasmus+ School Education Personnel Mobility" projects to teachers under professional development and personal development themes. In this research, it was seen that the opinions about professional development, getting to know the education systems of different countries, getting to know different cultures, active learning, collaborating with colleagues and gaining a project culture came to the fore. In the theme of personal development, the ideas of socialising, seeing different countries and increasing self-confidence come to the fore. These findings support the current study's findings that teachers think Erasmus+ projects contribute to their cultural, personal and professional development. Yalçın-Incik and Yanpar-Yelken (2009) determined that teachers working in primary schools think that European Union Education Projects are an opportunity to see the education programs of foreign countries on-site and get to know different cultures. Klajn (2019) determined that teachers have access to the international experience and various teaching methods in terms of didactic and pedagogical knowledge by providing motivation as a benefit of the shares in the project process between the Erasmus+ project work and the intercurricular strategy, providing teachers with sufficient materials and an appropriate environmental environment over time with the grant received by the school. In addition, the teachers participating in the project in Klajn (2019) work had positive opinions. These positive opinions coincide with the present study's findings, suggesting teachers think that positive opinions about Erasmus+ projects contribute to the development of teachers and students.

Demir and Demir (2009) determined that the personal and professional development of the participants in the Erasmus+ programme improved; they determined that they improved in areas such as benevolence, kindness, planned life, time management, the culture of peace, formation of tolerance and consciousness awareness, respect, vision, language skills, and academic development and selfconfidence. Furthermore, Ballatore and Ferede (2013), in their study with Erasmus+ participants and nonparticipants in France, Italy, and the United Kingdom, determined that Erasmus+ students were more academic and comfortable travellers and had higher socioeconomic status and were more open to international opportunities than resident students. These results support the finding that participation in Erasmus+ projects in the current study affects students' development and future career choices. The findings on the benefits of Erasmus+ projects in these studies are similar to the results of the present study.

CONCLUSION

When the findings obtained from this study were evaluated, the result was that teachers think that Erasmus+ projects carried out in schools are useful for themselves and their students. Moreover, this study determined that the opinions of the participating teachers about Erasmus+ projects did not differ significantly by gender, institution, professional seniority, and educational status and that the teachers had positive opinions about Erasmus+ projects. However, the scores of the opinions on Erasmus+ projects differed significantly in favour of those participating in Erasmus+ projects, those being abroad within the scope of the project previously, and those who wanted to participate in the projects. So, it was found that teachers' views on Erasmus+ projects differed according to their characteristics in the projects: teachers who had previously participated in a project, who had been abroad within the scope of a project, and who were willing to participate in projects had more positive views on the projects. These results show that Erasmus+ projects are appreciated by teachers and evaluated as useful for themselves and their students.

Participating in international projects provides positive experiences for both teachers and students. This research reveals the importance and necessity of including more school project work for teachers' personal, professional and cultural development. In addition, the fact that teachers think that Erasmus+ projects contribute to various student development areas indicates the importance of the projects in terms of the functionality of education.

One of the important findings of this study is that the participant teachers think that Erasmus+ projects contribute to teachers' personal, professional and cultural development. Erasmus+ projects are very functional, bringing together teachers and students from different cultures in the education process and aiming to exchange and implement good practices in education. In addition, the importance of multicultural education in a globalising world is undeniable.

It is important to establish a professional team in which participants are determined according to objective criteria in institutions, to provide in-service training for writing, maintaining, and managing projects in institutions, to increase the number of projects, to disseminate the results of the project implemented and to ensure the sustainability of the project to benefit from the Erasmus+ objectives. As a result, participation in Erasmus+ projects contributes greatly to teachers in terms of cultural, communicative, and professional development and to students in terms of recognising different cultures at an early age and encountering different course content and methods.

Limitations and Recommendations for Future Research

As a result, considering the positive opinions of teachers about Erasmus+ projects, the Ministry of National Education can carry out studies to support more teachers and/or students in participating in Erasmus+ projects in schools. Besides, this research was conducted with 305 teachers working in public schools in Türkiye, and wider research can be designed to include teachers from different countries. Teachers participating in Erasmus+ projects can be asked to report and share their observations and experiences about the countries where they are project partners. On the other hand, this descriptive research is based on quantitative data. Qualitative research can be designed to determine the views of both teachers and students about Erasmus+

projects. Case or experimental research can be conducted on the effectiveness of Erasmus+ projects in schools.

ACKNOWLEDGEMENTS

The author would like to thank the teachers who participated in the research and Maltepe University for their ethics committee approval.

REFERENCES

- Ağrı, G. I. (2006). Higher education policies in the globalization process and the Erasmus Project [Unpublished Master's Thesis]. Dokuz Eylül University.
- Baki. A., & Bütüner S. Ö. (2009). Reflections on the project implementation process in a primary school in rural area. *Elementary Education Online*, 8(1), 146-158.
- Bakioğlu, A., & Certel, S. (2010). Qualitative examination of the academic life of the students participating in the Erasmus program. *Marmara* University European Community Institute Journal of European Studies, 18, (1&2), 37-62. https://doi.org/10.29228/mjes.150
- Ballatore, M., & Ferede, M. K. (2013). The Erasmus program in France, Italy, and the United Kingdom: Student mobility as a signal of distinction and privilege. *European Educational Research Journal*, 12(4), 525-533. https://doi. org/10.2304/eerj.2013.12.4.525
- Başaran, M., Kumru, S., Acar, D., Kayıklık, F., & Vural, Ö. F. (2021). Evaluation of the impact of R&D studies on schools in the context of erasmus+ projects. *International Journal of Education Science and Technology*, 7(3), 183-201. https://doi.org/10.47714/uebt.978486
- Bótas, P. C. P., & Huisman, J. A. (2013). Bourdieusian analysis of the participation of Polish students in the Erasmus program: Cultural and social capital

perspectives. *Higher Education, 66,* 741–754. https://doi.org/10.1007/s10734-013-9635-7

- Burden, K., & Kearney, M. (2023). Optimising teachers' digital pedagogies through universityschool projects. In E. Langran, P. Christensen & J. Sanson (Eds.), *Proceedings of Society for Information Technology & Teacher Education International Conference* (pp. 1989-1994). Association for the Advancement of Computing in Education. https://www.learntechlib.org/ primary/p/222086/.
- Büyüköztürk, Ş., Çokluk, Ö., & Köklü, N. (2018). Statistics for social sciences. Pegem Academy.
- Demir, A., & Demir, S. (2009). The assessment of Erasmus program in terms of intercultural dialogue and interaction (a qualitative study with candidate teachers). *The Journal of International Social Research*, 2(9), 95-105.
- Demirer, M., & Dak, G. (2019). Senior administrators', principal of school, vice principal of school and teachers' visual metaphors about Erasmus+ projects. *IBAD Journal of Social Sciences*, 5, 255-266. https:// doi.org/10.21733/ibad.627950
- Erasmus+ Programme Guide (2017). European commission Erasmus+ programme guide, version 1. https://www.ua.gov.tr/media/ vdzgae2d/2017-erasmus-program-rehberi-tr.pdf.
- Erdem, M. (2002). Project based learning. Hacettepe University Journal of the Faculty of Education, 22, 172-179.
- Erdoğan, G. (2007). The effect of project-based learning on learning global warming in environmental education [Unpublished master's thesis]. Zonguldak Karaelmas University.
- European Commission (2020). Communication from the commission to the European parliament, the council, the european economic and social committee and the committee of the regions. https://ec.europa.eu/education/sites/default/

files/document-library-docs/communicationeuropean-education-area.pdf

- Field, A. (2009). *Discovering statistics using SPSS.* (3rd ed). SAGE Publications.
- George, D., & Mallery, M. (2010). SPSS for windows step by step: A simple guide and reference, 17.0update (10th ed). Pearson. https://www. amazon.com/SPSS-Windows-Step-Simple-Reference/dp/0205755615
- Gültekin, M. (2007). The effect of project based learning on learning outcomes in the fifth-grade science education. *Elementary Education Online*, 6(1), 93-112.
- Harwiki, W. (2013). The influence of servant leadership on organizational culture, organizational commitment, organizational citizenship behavior, and employees' performance. *Journal* of Economics and Behavioral Studies, 5(12), 876-885. https://doi.org/10.22610/jebs.v5i12.460
- Hatısaru, V. (2017). A review on Turkey's participation in Erasmus+: The case of strategic partnerships and knowledge alliances. *Ankara Journal of European Studies*, 16(2), 65-83. https://doi. org/10.1501/Avraras 0000000253
- Inal, H. C., & Günay, S. (1993). Probability first and mathematical statistics. Hacettepe University Publishing.
- Karasar, N. (2008). Scientific research method (18th ed). Nobel Publishing.
- Kesik, F., & Balci, E. (2016). Evaluation of the EU projects in terms of the contributions to schools: A scale development study. *Kastamonu Education Journal*, 24(4), 1621-1640.
- Kılınç, İ., & Aday Korkmaz, G. (2022). Examining the observations of English teachers participating in the Erasmus+ program school education accreditation project regarding english education abroad. International Journal of Social, Humanities and Administrative Sciences,

8(56), 1046-1055. http://doi.org/10.29228/ JOSHAS.64167

- Klajn, K. (2019). Promoting cross-curricular teaching and learning with erasmus projects [Paper presentation] Thriving on Future Education, Industry, Business and Society; Proceedings of the MakeLearn and TIIM International Conference 2019, Piran, Slovenia. http://www. toknowpress.net/ISBN/978-961-6914-25-3/ papers/ML19-258.pdf
- Korkmaz, H., & Kaptan, F. (2002). The effects of project-based learning on elementary school students' academic achievement, academic self concepts and study time in science education. *Journal of Hacettepe University Faculty of Education, 22*, 91-97.
- Köroğlu, B. N., & Çoban, M. (2021). A general evaluation of the European Union Erasmus plus key action 2 projects for migrants: Mediterranean countries case. *International Congress on Scientific Advances (ICONSAD'21) Proceedings Book* (pp. 632-646). https://www.researchgate. net/publication/357621411
- Kugiejko, M. (2016). The Erasmus plus program as a factor to international cooperation in schools: a case study. *Problems of Education in the 21st Century*, 71, 44-52. https://doi.org/10.33225/ pec/16.71.44
- Marinescu, N., Madar, A. Neacsu, N. A., & Schiopu, C. (2022). An empirical research on the behavioral perceptions of university students on their Erasmus mobilities abroad. *International Journal Environmental Research Public Health*, 19(9). https://doi.org/10.3390/ijerph19095756
- Marron, S., Murphy, F., Pitsia, V., & Scheuer, C. (2023) Inclusion in physical education in primary schools in Europe through the lens of an Erasmus+ partnership, *Education 3-13*, 51(5), 715-730. https://doi.org/10.1080/03004279.2021.2002382
- Özdoğru, M., Zengin, E., Altun, C., & Ceylan, O., K., (2022). (2022). Investigation of "Erasmus+

school education staff mobility (KA101)" projects in the context of contribution to teachers: the example of the future model in education, flipped classrooms project. *Journal for the Education of Gifted Young Scientists*, 10(3), 453-463. http://doi.org/10.17478/jegys.1164484

- Peker-Ünal, D. (2019). Project concept and project types. In D. Peker-Ünal (Ed.), *Education project* preparation (pp.1-13). Vizetek Publishing.
- Piscová, V., Lehotayová, J., & Hreško, J. (2023). Environmental education in the school system at elementary schools in Slovakia. European Journal of Science and Mathematics Education, 11(4), 650-671. https://doi.org/10.30935/ scimath/13377
- Tabachnick, B. G., & Fidell, L. S. (2013). Using *multivariate statistics* (6th ed). Pearson.
- Tatli, Z. (2016). Teachers' views on the project development process. Yüzüncü Yıl University Journal of the Faculty of Education 13(1), 631-656.
- Thomas, J. W. (2000). A review of research on project-based learning. Autodesk Foundation. https://tecfa.unige.ch/proj/eteach-net/Thomas_ researchreview_PBL.pdf
- Gözen, Ü. E. (2010). A research on management of the variables in the project preparation process in EU projects [Unpublished master's thesis]. Beykent University.
- Yalçın-Incik, E., & Yanpar-Yelken, T. (2009). Elementary school teachers opinions about European Union Education Projects. *e-Journal* of New World Sciences Academy, 4(3), 923-940.
- Yavrutürk, A. R., & Ilhan, T. (2022). Examining the experiences of secondary school students participating in the Erasmus+ program and their achievements in 21st century skills. *International Journal of Turkish Educational Sciences*, 10(19), 320-342. https://doi.org/10.46778/ goputeb.1101339



SOCIAL SCIENCES & HUMANITIES

Journal homepage: http://www.pertanika.upm.edu.my/

Case Study

The Application of an Unplugged and Low-Cost Children's Coding Education Tool in a Gamification Context

Lei Wang^{1,2}, Miao Huang^{1*} and Julina Ismail@Kamal²

¹School of Animation and Digital Arts, Communication University of China, Nanjing, 211172 Jiangning University City, Nanjing, China ²School of the Arts, Universiti Sains Malaysia, 11800 Gelugor, Penang, Malaysia

ABSTRACT

Coding education has become a compulsory course for cultivating children's computational thinking, and its tools in a gamification context can further enhance children's learning enthusiasm. Through the literature review, the researchers identified gamification, unplugging, and low cost as important design requirements for children's coding education tools. In order to verify the effectiveness of teaching design, this study specially developed a gamified coding education tool, "Coding Adventure," which allows child learners to take on gamified roles in real-life scenarios and use instruction cards to complete tasks. While testing the prototype in the on-site teaching environment, the researchers invited 12 kindergarten and elementary school teachers to observe the testing process. Then, they formed a focus group discussion to obtain their feedback on the education tool using MAXQDA software for qualitative analysis. According to the results, teacher participants generally recognize the design concepts of gamification, unplugging, and low-cost, and believe that role-playing and rewards in

ARTICLE INFO

Article history: Received: 13 July 2023 Accepted: 31 January 2024 Published: 10 June 2024

DOI: https://doi.org/10.47836/pjssh.32.2.03

E-mail addresses: wanglei@cucn.edu.cn (Lei Wang) huangmia@cucn.edu.cn or 14998541@qq.com (Miao Huang) julina@usm.my (Julina Ismail@Kamal) * Corresponding author gamification, as well as the use of safe and simple materials to match the existing teaching environment of the school, are successful design innovations. In addition, gamified storytelling has also been proven to enhance students' team communication using this prototype. Overall, this study proves the effectiveness of the design concepts of gamification, unplugged and low cost on the perceived usefulness and ease of use of the coding education tool system under the Technology Acceptance Model theory framework. These studentcentered design concepts will provide valuable experience for the further development of unplugged coding education tools.

Keywords: Coding education, gamification, low-cost, role-playing, reward, unplugged

INTRODUCTION

Computational thinking has become essential to adapt to the globalization of information based on data products and services (Vyas, 2022). Correspondingly, coding education that cultivates computational thinking has become a prominent feature of modern international education courses to ensure students can deal with complex, open-ended, and unusual problems in the future (Zhao et al., 2022). When coding education was added to school curricula, it significantly boosted computational thinking in children (Özcan et al., 2021). As a result, children's coding courses, such as enlightenment courses for mathematics and logic teaching in kindergartens and primary schools, are gradually valued by China's education sector (Fu et al., 2023). As a result, coding education in China directly influenced students' interest in science, technology, engineering, and mathematics (STEM) careers (Jiang et al., 2022).

Gamification holds great promise for extending the gaming experience and enhancing user motivation for coding applications (Heljakka et al., 2019). Gamification-based learning occupies an important position in the curriculum system that uses coding teaching to realize computational thinking training (Israel-Fishelson & Hershkovitz, 2022). Gamification uses game-specific design elements in non-game contexts (Sanchez et al., 2020). Integrating gamification into coding project development courses has proved to have a good effect, and most students support coding teaching in the form of gamified flipped classrooms (Hasan et al., 2018).

Additionally, previous research has demonstrated that combining coding and gamification to form an augmented pedagogy can stimulate children's mathematical talents and prepare them for further exposure to artificial intelligence and robotics (Folgieri et al., 2019). The rapid advancement of technology has brought significant changes to the field of education, and the original teacher-centered coding education has gradually transformed into a student-independent education process (Hasan et al., 2018). In the existing coding courses, designers use toy robots as carriers to teach children to design tracks, solve obstacles, and use gamification competitions to motivate participants (Heljakka et al., 2019), which brings inspiration to this study.

However, the issue of whether children's cognitive mental health is affected during the popularization of gamification elements in coding courses is still controversial (Kamarudin et al., 2022). Performance hits and leaderboard-induced negativity

are the most common negative effects of gamification elements in education (Toda et al., 2018). In addition, the addiction problem caused by using gamification in electronic applications has gradually been paid attention to (Schöbel et al., 2021). The high investment in electronic equipment is also considered a hindrance to the realization of the coding curriculum (Brackmann et al., 2019). Therefore, using an unplugged design in primary coding lessons should be fully considered to avoid children's addiction to electronic applications.

In order to verify the impact of technology adoption on teaching effectiveness, the TAM theory is considered to show a good explanatory effect (Scherer et al., 2019). In a case study of teachers' adoption of information and communication technology for teaching, perceived ease of use and usefulness in the TAM theory positively affected primary school teachers' continuance intention to use (Bai et al., 2021). Especially when facing the application of new technologies, TAM theory shows good explorability for new application environments (Amron & Noh, 2021). Therefore, this study applied TAM theory to understand teachers' views on the perceived ease of use and perceived usefulness of coding education tools that incorporate new design ideas.

In summary, the research objective of this study is to prove the effectiveness of the design concepts of gamification, unplugged, and low cost on the perceived usefulness and ease of use of the coding education tool system under the framework of the TAM theory. In addition, this study also hopes to further understand which specific design technologies can optimize the gamification, unplugged, and low cost of the education tool. To achieve this objective, a coding education prototype that is gamified, unplugged, and low-cost will be designed to obtain valuable feedback from educators.

LITERATURE REVIEW

Adding gamification mechanisms to educational environments to motivate student learning behavior and promote student motivation to solve problems has proven to have high applicability (Klock et al., 2020; Krath et al., 2021). For enhanced learning, virtual elements in gamification mechanisms, including storytelling and character narrative, can effectively enhance students' learning experience (Sailer & Homner, 2020). Furthermore, various elements in the gamification mechanism are proven effective in improving student learning motivation, especially the reward system with badges, points, and leaderboards as the core (Bovermann & Bastiaens, 2020). In addition, story-based gamification is proven to enhance Chinese students' sense of belonging in coding courses (Cao, 2023). Therefore, in designing interactive tools for the digital age, non-linear narrative techniques such as role-playing games and interactive activities can be used in computational thinking teaching and learning tools (Campos et al., 2019).

In addition, gamification effectively integrates teamwork, communication with people, self-exploration, information acquisition, comprehensive analysis and other applied knowledge and the ability to carry out work to adapt to the development of the new environment into practical applications (Murillo-Zamorano et al., 2021). Allowing students to calculate point rewards on an individual and team basis in gamification-based learning can effectively promote their sense of competition and teamwork skills (Kerestes et al., 2021). Gamified rewards (points, trophies, and rankings) can effectively motivate students' negative emotions in coding learning, thereby prompting students to maintain good motivation in long-term learning (Zatarain Cabada et al., 2020). All gamification mechanisms must be considered when designing the test prototype and conducting focus group discussions.

When it comes to gamification, the public generally associates it with computerrelated activities, but gamification can also enable "tangible" and "unplugged" interactive experiences through visual activities and constructivism (Huang & Looi, 2021). Previous research has shown that tangible coding games are more acceptable to children than virtual online game mechanics (Madariaga et al., 2023). Unplugged coding instruction can be implemented by properly organizing children's classroom activities to improve their problem-solving skills, including building healthy relationships with friends, understanding the emotions of those around them, and seeing problems from other people's perspectives (Hufad et al., 2021). As a result, the children are excited and enthusiastic about the preparation and progress of the gamification activities and can fully respond to the teacher's interaction (Hufad et al., 2021). It also strengthened our determination to design physical coding games.

On the other hand, designers must pay attention to and define the needs of students before adding gamification elements to coding projects to enhance the effect of gamification (Gui et al., 2019). Incorporating gamification into the course experience must also incorporate a "student-centered" approach, which requires an ongoing investment in prototyping and testing (Venkatesh et al., 2021). Therefore, adhering to human-centered prototyping and keeping iterations low-cost has proven necessary for many educational technologies, from development to final solution (Tseng et al., 2019). The tangible coding tools designed for children are expensive or can only achieve predetermined functions (Im & Rogers, 2021). Therefore, using cheap items to create tangible interfaces has become the focus of researchers hoping to make breakthroughs (Im & Rogers, 2021). It is also an important reason why the researchers considered students' feelings more in the design and paid attention to cost control.

As computational thinking and coding elements are gradually added to primary school curricula, the teaching effect of these skills has a positive impact on children's cognitive development, especially on behavioral executive functions (Arfé et al., 2020). Coding courses allow children to learn new ways to express themselves and expand their cognition, language, and social emotions (Papadakis, 2021). In order to expose younger children to coding education, unplugged coding activities use physical instruction sets to give children the opportunity to understand elementary coding logic (Lee & Junoh, 2019). The unplugged teaching model also has the characteristics of convenient and quick deployment and management, making it easier for teachers to prepare for teaching. It also allows teachers to assess learners' abilities (Relkin et al., 2020).

Although coding education for children has become popular, there is still a lack of consensus on teaching feedback and evaluation standards (Alves et al., 2019). For children's coding education, teachers do not necessarily need high confidence in their computing or programming abilities to teach well (Rich et al., 2019). As computing and coding abilities become increasingly important in future jobs, coding education also takes on the task of helping teachers overcome concerns about teaching computers (Rich et al., 2019). In coding education, teachers can use the instructional environment of coding and computational thinking as a playground, combined with art, music, and social studies, to demonstrate autonomy for classroom communication, collaboration, and creativity (Bers et al., 2019). Using low-cost materials to develop practical and interactive teaching resources can help schools and teachers promote coding teaching more conveniently (Yeboah et al., 2019). Additionally, knowledge about teaching programming can enhance teachers' self-efficacy, pedagogical knowledge, and attitudes (Mason & Rich, 2019).

To sum up, for coding education tools designed for young children, developers need to add gamification to increase its fun, use unplugged design to enhance interaction, protect children's health, and ensure low cost to increase popularity efficiency (Chen et al., 2023). Therefore, unplugged board games and building blocks that combine the above three elements became the design plan for this study (Chen et al., 2023). Adopting such a design plan is a balancing consideration of three aspects: children's cognitive patterns, parents' health concerns, and educators' costs.

Theoretical Foundation and Hypotheses

This study used the TAM theory first proposed by Davis (1985) and simplified it according to the requirements for this test. In the subsequent studies of Davis (1989) and (1993), perceived usefulness and ease of use were determined to judge the user's acceptance of the system. In this study, the perceived usefulness and perceived ease of use of the coding education tool by teacher users were used as the independent variables, and the actual system use of the tool they observed was used as the dependent variable to simplify the previous mature theoretical model (Venkatesh & Davis, 1996). Therefore, this study draws the following theoretical framework (Figure 1).

In the case study of TAM theory, gamification showed extremely high perceived usefulness and ease of use in higher education teacher training and effectively promoted learners' continuance intentions (Vanduhe et al., 2020). In a

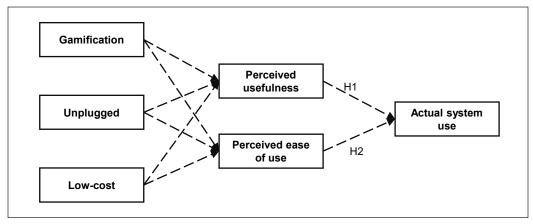


Figure 1. Theoretical framework of this study *Source*: Authors' work

similar case with secondary school students, using the coding system of unplugged flowblocks can effectively improve students' sense of self-efficacy and make teachers feel the usefulness of this teaching method (Threekunprapa & Yasri, 2020). Gamification and low cost have been proven to increase the usability of remote robot programming teaching tools and have a better promotion effect than traditional physical robots (Kiliç & Gökoglu, 2022). According to the above literature review, this study takes gamification, unplugged and low-cost as the core of the problem for measuring independent variables to test the rationality of the above framework, so the following two hypotheses are drawn:

H1. The children's coding education tool, under the influence of gamification, is unplugged and low-cost, provides sufficient perceived usefulness for educators, and finally affects the actual use of the system.

H2. The children's coding education tool, under the influence of gamification,

is unplugged and low-cost, provides sufficient perceived ease of use for educators, and finally affects the actual use of the system.

Based on the theoretical framework and in line with the research objectives, the researchers of this study summarized the key points of the test prototype design and focus group discussion in Table 1.

METHODOLOGY

The researchers examined the existing coding education tools on the market. They found that they could not meet the research objectives and design requirements simultaneously, and some were copyrighted and could not be used publicly. Therefore, the researchers decided to use self-designed tools as study instruments.

Based on the design solutions obtained from the literature review and market demand, the researchers developed a gamified coding education tool called "Coding Adventure." This educational tool has an interesting backstory: the The Application of a Coding Education Tool in a Gamification Context

Literature review highlights	Test design objectives	Focus group discussion questions
Incorporation of Gamification Elements	Storytelling, Role- Playing, Rewards, Team Communication	Through this test, how do you feel about adding the gamification elements of the game story and role-playing to the test prototype? From your observations, how do you think the students reacted to the rewards and team communication during the test? Did it meet your expectations?
Unplugged and Realization	No Electronic Equipment, Use Existing Teaching Environment	What are your thoughts on designing without electronics in test prototypes? Is the test prototype a reasonable use of the teaching environment? Do you have any suggestions?
Student-Centered, Low-Cost Iteration	Encourage Group Participation, Use Readily Available and Low-Cost Tools	What do you think of the effect of the collective participation of the students in this test? What kind of improvement can we get? Do you think the low-cost tools used in this test prototype are suitable? Any suggestions?

Design points and focus group questions summarized after the literature review

Source: Authors' work

Table 1

story of a brave knight who overcomes obstacles, destroys monsters and saves his friends. This backstory is told to child participants before starting the level to enhance immersion. Child participants who use this tool play the role of a knight. He/She can receive instruction cards by setting an exploration path in advance and placing these cards while crossing each map grid. The gamification task of this tool is to travel across the map, find treasures or defeat monsters. Child participants must use computer thinking to predict all possible events and set coding commands in advance.

In order to reduce costs and facilitate recycling for future use, all the maps in this learning tool are made of foam splicing boards, and the game items are made of foam and sponge materials. In addition, child participants are provided with soft-material armor, weapons and items to simulate real operations. These props also use low-cost and recyclable materials and ensure sufficient safety. The learning process involves students selecting paper cards, planning adventure routes, and completing gamified tasks. "Coding Adventure" supports single-player and multiplayer modes. In multiplayer mode, several students must communicate and cooperate to complete the task (Figure 2).

After the "Coding Adventure" test prototype was completed, the researchers invited a class of kindergarten students to take a one-hour test. After obtaining consent from parents, students, kindergarten leaders, and teachers, the researchers explained the rules of the gamified tool to the students and guided them through introductory learning (Figure 3). During this test, 12 kindergarten and elementary school teachers were invited to observe on the spot and became the

Lei Wang, Miao Huang and Julina Ismail@Kamal



Figure 2. Test prototype "Coding Adventure" *Source*: Authors' work



Figure 3. "Coding Adventure" Test screen in the kindergarten *Source*: Authors' work

focus group of this study. These teachers all came from kindergartens or primary schools that are offering or planning to offer coding lessons. Some of them have already participated in coding lessons and have teaching experience, and the rest have also participated in lesson preparations.

Considering that the child participants are still young and cannot give accurate evaluation opinions other than whether it is interesting, this study adopted a focus group with teachers as a qualitative research method. Researchers hope to make positive suggestions for developing coding education tools through teachers' teaching observations and combined with their own teaching experience or teaching plans.

The focus group discussion was divided into two groups, with six teachers as participants in each group and two researchers from our team as moderators. The moderators invited participants to fully express their opinions on the questions in Table 1. After obtaining the consent of the participants, 3.5-hour audio recordings were collected from the focus group discussion. The researchers independently encoded the recordings using the MAXQDA2022 and used the collaboration function to correct for encoding differences. All participants were anonymized and represented by codes in this study. The twelve participants are numbered [T01] to [T12], respectively. Finally, the demographic data of all participants are summarized in Table 2.

Table 2Demographic characteristics of participants

Chara	cteristic	n	%
Gender	Male	4	33.3
	Female	8	66.7
Age Range	25–34	10	83.3
	35–44	2	16.7
Teaching Years	0–3	5	41.7
	4–6	5	41.7
	6–10	1	8.3
	10+	1	8.3
Teacher Type	Kindergarten Teacher	7	58.3
	Primary School Teacher	5	41.7
Coding Teaching	Yes, I have.	4	33.3
Experience	No, I haven't.	8	66.7

Source: Authors' work

RESULTS

First, the researchers coded the test design objectives from the literature review using MAXQDA software and recorded the codes' frequency to understand the participants' focus (Table 3). The data obtained from the focus group were open-coded by three researchers and negotiated after completion, and the codes that achieved consensus were retained. Finally, these codes were divided into three themes: gamification, unplugged and low-cost, according to the key points of design and questions, making the discussion and conclusion below clearer.

Table 3 displays the ranking of characteristics that participants in the focus group mentioned, from highest to lowest frequency: (1) no electronic devices, (2) role-playing, (3) gamified reward, (4) use of teaching environment, (5) low-cost items, (6) student-oriented, (7) gamified storytelling, and (8) team communication.

The most highlighted feature of the prototype design is that this prototype does not use any electronic equipment so that learners can experience the fun of communicating with teachers and classmates. In this regard, most teachers supported it. Representative comments include the following:

"If such a teaching method is maintained, teachers and students will not use electronic devices, which will protect the children's eyesight, and will also reassure the parents of the students" [T03]

"Almost all coding education now relies on computers and pads, which makes students easily distracted, and they often switch to other games secretly, which makes teaching difficult" [T02]

Theme	Code	Frequency	Representative Quote
Gamification	Role-playing	15	Children like to play the role of knights, even little girls, which brings them a sense of justice. [T01]
	Gamified reward	11	Rewarding children with points and badges as the game progresses works well, and they really care about the accolades. [T10]
	Gamified storytelling	8	Children like the story of knights fighting monsters in the game very much. Such stories can quickly generate motivation for children to learn. [T03]
	Team communication	7	Children who cannot pass the game levels will discuss countermeasures with their teammates, which rarely occurs in other courses. [T02]
Unplugged	No electronic devices	18	If such a teaching method is maintained, teachers and students will not use electronic devices, which will protect the children's eyesight and reassure the parents of the students. [T03]
	Use teaching environment	10	Using the classroom or playground directly is a great idea so students can move around during class instead of staring at blackboards and screens all day. [T09]
Low-cost	Low-cost items	9	It is a good idea to use foam floor mats and inflatable toys so that schools and general teaching institutions can afford the investment in classroom equipment and children can use it safely. [T09]
	Student-oriented	8	Such a design can fully consider the feelings of each participating child, allow each of them to play, and save resources. [T11]

Table 3		
Qualitative	analysis	statistics

Source: Authors' work

"It is inevitable for us to use electronic devices in class. However, now all courses and homework need to use electronic devices, which makes parents very worried about children's vision health" [T11]

Secondly, the feature of allowing students to play a role in the game to increase their sense of participation in the prototype design has also received more attention.

"Children like to play the role of a knight, even a little girl; it brings them a sense of justice" [T01] "The idea of role-playing is nice, so the teacher does not need to spend extra time explaining the game's goal to them; they can understand it by themselves" [T07]

"The children played very seriously, and it could be seen that they were involved. As long as they are interested, the learning effect will be better" [T12]

Thirdly, gamification rewards have also received much attention, which can effectively motivate student learning motivation. "Rewarding children with points and badges as the game progresses works well, and they care about the accolades" [T10]

"Students are very interested in rewards and are willing to collect all kinds of small medals given to them by teachers in school" [T04]

In addition, reasonable use of the teaching environment and low-cost items are often mentioned together. These design features allow teachers to organize course teaching quickly.

"Using the classroom or playground directly is a great idea so students can move around during class instead of staring at blackboards and screens all day" [T09]

"It is a good idea to use foam floor mats and inflatable toys so that schools and general teaching institutions can afford the investment in classroom equipment and children can use it safely" [T09]

"We can easily get these simple items from online shopping and then put them in the classroom and use them directly. It is a very good suggestion. I even think students can be encouraged to bring some safe toys from home as game scenes. Then we can play the game ourselves in the corner of the classroom" [T05] The teacher respondents also recognized the student-oriented concept, and some opinions were expressed as follows:

"The gamification design considers students' cognitive ability and can effectively drive their learning motivation, which is interesting" [T04]

"Modern education cannot require children to avoid contact with games completely, so we should use the power of games to stimulate students' learning enthusiasm. In teaching, we can further consider students' preferences, allow them to increase their understanding of programming, and add them to new game levels, which should be more interesting" [T07]

Finally, gamified storytelling and team communication are often mentioned together. These two features can make students more involved in gamified situations.

"Children like the story of knights fighting monsters in the game very much. Such stories can quickly generate motivation for children to learn" [T03]

"Children who cannot pass the game levels will discuss countermeasures with their teammates, which rarely occurs in other courses" [T06]

"Today's children are familiar with the story of fighting monsters and upgrading in games so that they will have a good sense of substitution. Forming a team to take risks in the story is necessary, so their communication skills will also be encouraged. It is suggested that more background stories of multiplayer cooperation can be set in the game so children can interact more" [T10]

"I suggest adding more logical dialogues to the game. On the one hand, it can increase the storyline, and on the other hand, it can strengthen the children's dialogue logic" [T12]

The quantitative analysis results show that most participants (10 out of 12) expressed the advantages of gamification, unplugged and low cost in improving the perceived usefulness and ease of use of coding education tools. The researchers also further summarized the evidence given by participants to verify the hypotheses proposed in this study based on the TAM theory (Table 4). The results demonstrate sufficient evidence that the children's coding education tool, under the influence of gamification, is unplugged and low-cost, provides sufficient perceived usefulness and ease of use for educators, and finally affects the actual use of the system.

DISCUSSION

Through focus group discussions, this study gathered feedback from teachers who used a coding education tool specifically designed for children. The qualitative

Hypothesis	Theme	Representative Quote
coding education tool, under the influence of gamification, is unplugged and low-cost, provides sufficient perceived usefulness for educators, and finally affects the actual use of the U system.	Gamification	Children like the story of knights fighting monsters in the game very much. Such stories can quickly generate motivation for children to learn. [T03] The gamification design considers students' cognitive ability and can effectively drive their learning motivation, which is interesting. [T04] Rewarding children with points and badges as the game progresses works well, and they really care about the accolades. [T10] The children played very seriously, and it could be seen that they were involved. As long as they are interested, the learning effect will be better. [T12]
	Unplugged	The advantage of being unplugged is that it allows students to focus all their attention on teaching, improving the teaching effect. [T01] If such a teaching method is maintained, teachers and students will not use electronic devices, which will protect the children's eyesight and reassure the parents of the students. [T03]
	Low-cost	Students can make simple game props after class to exercise their hands-on skills. [T08] Such a design can fully consider the feelings of each participating child, allow each of them to play, and save resources. [T11]

Table 4Hypothesis testing result

Hypothesis	Theme	Representative Quote
coding education tool, under the influence of gamification, is unplugged and low-cost, provides sufficient perceived ease of use for educators, and finally affects the actual use of the system	Gamification	Students are very interested in rewards and willing to collect all kinds of small medals given to them by teachers in school. [T04] The idea of role-playing is nice, so the teacher does not need to spend extra time explaining the game's goal to them; they can understand it by themselves. [T07] Rewarding children with points and badges as the game progresses works well, and they care about the accolades. [T10]
	Unplugged	Teachers will save trouble if existing teaching resources can be used to simulate game scenarios. [T04] Using the classroom or playground directly is a great idea so students can move around during class instead of staring at blackboards and screens all day. [T09]
	Low-cost	We can easily get these simple items from online shopping and then put them in the classroom and use them directly. It is a very good suggestion. I even think students can be encouraged to bring some safe toys from home as game scenes. Then, we can play the game ourselves in the corner of the classroom. [T05] It is a good idea to use foam floor mats and inflatable toys so that schools and general teaching institutions can afford the investment in classroom equipment and children can use it safely. [T09]

Table 4 (continue)

Source: Authors' work

results are diverse in content, discussed in two parts below.

The first part discusses the perceived usefulness and ease of use of the children's coding education tool from the perspective of the theoretical framework based on the TAM theory. The results show that adding gamification, unplugged and low-cost design elements to the children's coding education tool can indeed enhance both perceived usefulness and perceived ease of use, and both perceived usefulness and perceived ease of use for educators finally affect the actual use of the system.

In terms of perceived usefulness, gamified role-playing and rewards improve children's effectiveness in using the education tool; the unplugged setting also protects children's visual health and gains parents' trust; low-cost entity props can also improve children's hands-on abilities. In terms of perceived ease of use, gamification settings reduce the difficulty of explanations for educators, and gamified rewards strengthen children's motivation to participate; unplugged gamification scenarios make it easier for educators to use existing teaching resources; and lowcost and safe teaching props can be easily purchased by educators online.

The second part discusses the effects of these design elements, such as gamification, unplugged and low-cost in this prototype, and educators' views on them. It thoroughly evaluated the future development direction of this kind of educational tool. After this feedback is coded and analyzed, it can still be summarized into three themes for discussion based on the previously set themes:

First, gamification, as the theme that attracted the most attention from participants, showed four elements in this study: (1) role-playing, (2) gamified reward, (3) gamified storytelling and (4) team communication. Among them, role-playing, gamed storytelling and team communication are highly related. Role-playing has always been important for children to develop enlightenment education (Jasutė, 2020; Lin et al., 2021). Teacher participants generally stated in group discussions that adding gamified adventure stories to education tools can effectively enhance the immersion of child learners and encourage them to bravely play game roles. The test prototype in this study uses simple items and clothing so that students can quickly perform role-playing and integrate into the game characters to have more sense of substitution, which the teachers recognize.

While playing the role, the learners actively communicated as a team after taking on the role of the game story, encouraging each other and discussing countermeasures. This social interaction method differs from the communication model between humans and computers in traditional computer learning. Gamified stories and verbal communication played an important role in testing the prototype. Students expressed full interest in the imagination and communication provided by gamification elements. Çakır et al. (2021) also showed similar results; that is, the imaginative and original elements in the language domain significantly impact the children's problem-solving ability in coding education.

In addition, gamified rewards are widely used in coding educational games (Demir, 2021; Nie et al., 2021). The test prototype further demonstrated to the teacher how gamified rewards such as badges, points, and souvenirs could motivate students. Teachers observed that child participants were motivated by gamified rewards during the learning process to persist in completing learning behaviors. Giving gamified rewards enhances the child participants' interest in learning and gives them a sense of honor. Gamification elements play a diverse role in children's coding education tools, which can enhance the motivation of child participants while improving their imagination and expression abilities.

Second, the test prototype presented an unplugged solution for coding education, which proved to gain support from kindergarten and elementary school teachers. The unplugged program is promoted in elementary coding courses to safeguard students' health and make flexible use of the school's existing resources. According to a survey, 80% of parents support the idea that their children should not use electronic devices during school hours, which is beneficial for their physical and mental health and helps cultivate study habits (Bourjaili-Radi et al., 2020). Teachers in this study expressed similar concerns. Teachers generally believe that exposing children to electronics too early leads to addiction and distracts them from learning. They also

reported parents' resistance to electronic courses for younger children.

In addition, the unplugged design allows teachers to arrange teaching scenes in ordinary classrooms and playgrounds. On the one hand, it can make full use of the teaching environment that teachers and students are familiar with: on the other hand, it can also promote students' motor functions to the fatigue caused by always staring at the projection or screen in class. The above discussion reflects that the unplugged design included in this children's coding education tool can meet the comprehensive needs of students' health, teachers' convenience and school resource allocation. Yang (2018) also emphasizes the importance of unplugged role-playing for computer-enlightenment learning.

Third, using low-cost and available materials instead of expensive electronic products to stimulate children's interest in coding education has proved an effective solution (Brackmann et al., 2019). Moreover, it fits well with the other two design features of the test prototype: "use of low-cost items" and "use of teaching environment adapted to local conditions." Using the school's existing resources and encouraging students to create their game items and scenes can enhance students' hands-on abilities and reduce the cost of popularizing lessons. In addition, the low-cost design advocated by this coding education tool does not simply use cheap materials. However, it selects items suitable for students from a student-oriented perspective to cater to their preferences and better promote coding education.

In general, unplugged and low-cost gamification can well detect the influence of perceived usefulness and perceived ease of use on educators' actual use of children's coding education tools under the framework of TAM theory. Of the three design features focused on in this study, gamification received the most significant endorsement from educators. Other related studies have also given similar conclusions, that is, gamification has a significant role in promoting the perceived usefulness and ease of use of the system (Dhahak & Huseynov, 2020; Panagiotarou et al., 2020; Zainoddin et al., 2022). Unplugged physical teaching is a compromise function developed for young students in this research. However, educators have generally recognized it, and it has indeed been proven to be highly practical for the promotion of early programming teaching (Babić & Čičin-Šain, 2023). Low cost is closely related to the ease of use of the system in most cases because it can improve users' acceptance of the system, which is also confirmed in this study (Bettayeb et al., 2020).

This study's test prototype enhances student learning motivation, encourages problem-solving to seek help, fosters creativity and critical thinking, and promotes active interaction with students. These design objectives are generated around student-centered ideas (Kim, 2019).

CONCLUSION

This study tested the children's coding education tool with gamification, unplugged and low-cost characteristics under the framework of TAM theory. The audience of educators recognized the perceived usefulness and ease of use, which could make them accept the teaching method of this educational tool.

An unplugged tool, "Coding Adventure," was designed for children's introductory coding education to verify this viewpoint. The preliminary design ideas and operation methods were shown to the relevant teachers through prototype testing. The researchers learned about the teachers' feedback on the test prototype through the focus group discussion. It further demonstrated the validity of the design idea's insistence on not using electronic devices, adding gamification elements, and using low-cost items combined with the school teaching environment in the design ideas.

Implication for Practice

This study has contributed to the popularization of coding education for younger children. Curriculum solutions combining gamification and unplugged and low-cost design elements can better train children's computational thinking in kindergarten or lower-grade primary school curriculum systems, laying a solid foundation for further learning computer programming. In addition, this type of coding education tool can be used to integrate the cultivation of computational thinking into children's extracurricular games or recess sports, giving teachers and schools more choices in teaching planning. These design objectives adhered to a student-centered approach and were supported by the teachers.

In addition, gamified role-playing, rewards, and storytelling are identified as positive and effective design elements for developing the coding education tool. Gamification elements promote children's active engagement in coding courses and cultivate their teamwork and independent problem-solving abilities. Gamification elements also play positive roles in unplugged and low-cost teaching scenarios, providing a meaningful reference for children's coding education tool developers.

Limitations and Recommendations for Future Research

This study only used focus groups as a qualitative research method, so no other methods were used to collect data for triangulation. The participants in the focus group have similar professional backgrounds and come from educational institutions in a small area, which results in a lack of sufficient representativeness of the results obtained in this study. Moreover, the object of this study is only educators, not students, which leads to an incomplete viewpoint.

Future research directions can be applied to quantitative research to further understand students' feedback and gather design suggestions from a wider range of educators. The researchers plan to fully improve the teaching system to maximize the benefits of gamification mechanisms. The researchers will add more teamwork and communication interaction based on the feedback and suggestions obtained from this test.

ACKNOWLEDGMENTS

This work is funded by Jiangsu Provincial Educational Science Planning Project Key Project (2022), issued by Jiangsu Provincial Education Science Planning Leading Group and Communication University of China, Nanjing. Project title: Innovative Research on Children's Logic Teaching Practice in the Context of Gamification (B/2022/04/42).

REFERENCES

- Alves, N. D. C., Von Wangenheim, C. G., & Hauck, J. C. (2019). Approaches to assess computational thinking competences based on code analysis in K-12 education: A systematic mapping study. *Informatics in Education*, 18(1), Article 17. https://doi.org/10.15388/infedu.2019.02
- Amron, M. T., & Noh, N. M. (2021). Technology acceptance model (TAM) for analysing cloud computing acceptance in higher education institution (HEI). Proceedings of IOP Conference Series: Materials Science and Engineering, 1176(1), Article 012036. https:// doi.org/10.1088/1757-899X/1176/1/012036
- Arfé, B., Vardanega, T., & Ronconi, L. (2020). The effects of coding on children's planning and inhibition skills. *Computers & Education*, 148, Article 103807. https://doi.org/10.1016/j. compedu.2020.103807
- Babić, S., & Čičin-Šain, M. (2023). Teacher's motivation for applying the unplugged mema method for early programming teaching. 2023 46th MIPRO ICT and Electronics Convention (MIPRO) (pp. 926-929). Institute of Electrical and Electronics Engineering. https://doi. org/10.23919/MIPRO57284.2023.10159857
- Bai, B., Wang, J., & Chai, C. S. (2021). Understanding Hong Kong primary school English teachers' continuance intention to teach with ICT. *Computer Assisted Language Learning*, 34(4),

528-551. https://doi.org/10.1080/09588221.20 19.1627459

- Bers, M. U., González-González, C., & Armas-Torres, M. B. (2019). Coding as a playground: Promoting positive learning experiences in childhood classrooms. *Computers & Education*, 138, 130-145. https://doi.org/10.1016/j. compedu.2019.04.013
- Bettayeb, H., Alshurideh, M. T., & Al Kurdi, B. (2020). The effectiveness of mobile learning in UAE universities: A systematic review of motivation, self-efficacy, usability and usefulness. *International Journal of Control and Automation*, 13(2), 1558-1579.
- Bourjaili-Radi, O. (2020). Language and electronic medium skills development through autonomous and ideological practices. In D. Ifenthaler, D.
 G. Sampson & P. Isaias (Eds.), *Technology Supported Innovations in School Education* (pp. 33-50). Springer. https://doi.org/10.1007/978-3-030-48194-0 3
- Bovermann, K., & Bastiaens, T. J. (2020). Towards a motivational design? Connecting gamification user types and online learning activities. *Research and Practice in Technology Enhanced Learning*, 15(1), 1-18. https://doi.org/10.1186/ s41039-019-0121-4
- Brackmann, C. P., Barone, D. A. C., Boucinha, R. M., & Reichert, J. (2019). Development of computational thinking in Brazilian schools with social and economic vulnerability: How to teach computer science without machines. *International Journal for Innovation Education* and Research, 7(4), 79-96. https://doi. org/10.31686/ijier.Vol7.Iss4.1390
- Çakır, R., Korkmaz, Ö., İdil, Ö., & Erdoğmuş, F. U. (2021). The effect of robotic coding education on preschoolers' problem solving and creative thinking skills. *Thinking Skills and Creativity*, 40, Article 100812. https://doi.org/10.1016/j. tsc.2021.100812

- Campos, A., Rodrigues, M., Amorim, M., & Signoretti,
 A. (2019). Designing interactive tools for learning in the digital age. In A. Reyes-Munoz,
 P. Zheng, D. Crawford & V. Callaghan (Eds.), Proceedings of EAI International Conference on Technology, Innovation, Entrepreneurship and Education: TIE'2017 (pp. 109-119). Springer. https://doi.org/10.1007/978-3-030-02242-6_9
- Cao, C. (2023). Leveraging large language model and story-based gamification in intelligent tutoring system to scaffold introductory programming courses: A design-based research Study. *Proceedings of 28th International Conference on Intelligent User Interfaces (IUI'23 Companion)* (pp. 1-5). Cornell University. https://doi. org/10.48550/arXiv.2302.12834
- Chen, P., Yang, D., Metwally, A. H. S., Lavonen, J., & Wang, X. (2023). Fostering computational thinking through unplugged activities: A systematic literature review and meta-analysis. *International Journal of STEM Education*, 10(1), Article 47. https://doi.org/10.1186/s40594-023-00434-7
- Davis, F. D. (1985). A technology acceptance model for empirically testing new end-user information systems: Theory and results [Doctoral dissertation, Massachusetts Institute of Technology].
 DSpace@MIT. https://dspace.mit.edu/bitstream/ handle/1721.1/15192/14927137-MIT.pdf
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS quarterly*, 13(3), 319-340. https://doi.org/10.2307/249008
- Davis, F. D. (1993). User acceptance of information technology: System characteristics, user perceptions and behavioral impacts. *International journal of man-machine studies*, 38(3), 475-487. https://doi.org/10.1006/imms.1993.1022
- Demir, Ü. (2021). The effect of unplugged coding education for special education students on problem-solving skills. *International Journal of*

Computer Science Education in Schools, 4(3), 3-30. https://doi.org/10.21585/ijcses.v4i3.95

- Dhahak, K., & Huseynov, F. (2020). The influence of gamification on online consumers' attitude and intention to purchase fast moving consumer goods. *Business & Economics Research Journal*, 11(3), 769-791. https://doi.org/10.20409/ berj.2020.281
- Folgieri, R., Vanutelli, M. E., Galbiati, P. D. V., & Lucchiari, C. (2019). Gamification and coding to engage primary school students in learning mathematics: A case study. *Proceedings of the* 11th International Conference on Computer Supported Education, 1, 506-513. https://doi. org/10.5220/0007800105060513
- Fu, C., Hao, X., Shi, D., Wang, L., & Geng, F. (2023). Effect of coding learning on the computational thinking of young Chinese children: Based on the three-dimensional framework. *Education* and Information Technologies, 28(11), https:// doi.org/10.1007/s10639-023-11807-4
- Gui, Y., Zhao, F., & Hoyt, E. (2019). Gamification in mobile application development education. *Proceedings of HCI in Games: First International Conference, HCI-Games 2019, 21*, 404-413. https://doi.org/10.1007/978-3-030-22602-2 30
- Hasan, Ã., Kanbul, S., & Ozdamli, F. (2018). Effects of the gamification supported flipped classroom model on the attitudes and opinions regarding game-coding education. *International Journal* of Emerging Technologies in Learning (iJET), 13(1), 109-123. https://doi.org/10.3991/ijet. v13i01.7634
- Heljakka, K., Ihamäki, P., Tuomi, P., & Saarikoski, P. (2019). Gamified coding: Toy robots and playful learning in early education. *Proceedings of 2019 International Conference on Computational Science and Computational Intelligence (CSCI)* (pp. 800-805). Institute of Electrical and Electronics Engineering. https://doi.org/10.1109/CSCI49370.2019.00152

- Huang, W., & Looi, C. K. (2021). A critical review of literature on "unplugged" pedagogies in K-12 computer science and computational thinking education. *Computer Science Education*, 31(1), 83-111. https://doi.org/10.1080/08993408.202 0.1789411
- Hufad, A., Faturrohman, M., & Rusdiyani, I. (2021). Unplugged coding activities for early childhood problem-solving skills. *Jurnal Pendidikan Usia Dini*, 15(1), 121-140. https://doi.org/10.21009/ JPUD.151.07
- Im, H., & Rogers, C. (2021). Draw2Code: Low-Cost tangible programming for creating ar animations. *Proceedings of Interaction Design* and Children (pp. 427-432). Association for Computing Machinery. https://doi. org/10.1145/3459990.3465189
- Israel-Fishelson, R., & Hershkovitz, A. (2022). Studying interrelations of computational thinking and creativity: A scoping review (2011–2020). *Computers & Education*, 176, Article 104353. https://doi.org/10.1016/j.compedu.2021.104353
- Jasutė, E. (2020). Computational thinking unplugged in CS middle class lessons in Lithuania. *Proceedings of International Teacher Forum on International Conference on Computational Thinking Education 2020* (p. 11). The Education University of Hong Kong. https://cte-stem2021. nie.edu.sg/assets/docs/proceedings/teacher_ forum-2020.pdf#page=19
- Jiang, H., Chugh, R., Turnbull, D., Wang, X., & Chen, S. (2022). Modeling the impact of intrinsic coding interest on STEM career interest: evidence from senior high school students in two large Chinese cities. *Education and Information Technologies*, 28, 2639-2659. https://doi. org/10.1007/s10639-022-11277-0
- Kamarudin, N. A., Ikram, R. R. R., Azman, F. N., Ahmad, S. S. S., & Zainuddin, D. (2022). A study of the effects of short-term ai coding course with gamification elements on students' cognitive

mental health. *TEM Journal*, *11*(4), 1854-1862. https://doi.org/10.18421/TEM114-53

- Kerestes, R., Clark, R., & Wu, Z. (2021). Enhanced student engagement through teamwork, gamification, and diversity & inclusion best practices in an electromagnetics course. *Proceedings of 2021 IEEE Frontiers in Education Conference (FIE)* (pp. 1-6). Institute of Electrical and Electronics Engineering. https:// doi.org/10.1109/FIE49875.2021.9637476
- Kiliç, S., & Gökoglu, S. (2022). Exploring the usability of virtual robotics programming curriculum for robotics programming teaching. *Informatics in Education*, 21(3), 523-540. https:// doi.org/10.15388/infedu.2022.20
- Kim, G. H. (2019). A learning model for software coding education. *Journal of Problem-Based Learning*, 6(2), 67-75. https://doi.org/10.24313/ jpbl.2019.00164
- Klock, A. C. T., Gasparini, I., Pimenta, M. S., & Hamari, J. (2020). Tailored gamification: A review of literature. *International Journal of Human-Computer Studies*, 144, Article 102495. https://doi.org/10.1016/j.ijhcs.2020.102495
- Krath, J., Schürmann, L., & Von Korflesch, H. F. (2021). Revealing the theoretical basis of gamification: A systematic review and analysis of theory in research on gamification, serious games and game-based learning. *Computers in Human Behavior*, 125, Article 106963. https:// doi.org/10.1016/j.chb.2021.106963
- Lee, J., & Junoh, J. (2019). Implementing unplugged coding activities in early childhood classrooms. *Early Childhood Education Journal*, 47, 709-716. https://doi.org/10.1007/s10643-019-00967-z
- Lin, C. P., Yang, S. J., Lin, K. Y., Looi, C. K., & Chen, Y. H. (2021). Explorations of two approaches to learning CT in a game environment for elementary school students. *Journal of Computers in Education*, *9*, 261-290. https://doi. org/10.1007/s40692-021-00203-x

- Madariaga, L., Allendes, C., Nussbaum, M., Barrios, G., & Acevedo, N. (2023). Offline and online user experience of gamified robotics for introducing computational thinking: Comparing engagement, game mechanics and coding motivation. *Computers & Education*, 193, Article 104664. https://doi.org/10.1016/j. compedu.2022.104664
- Mason, S. L., & Rich, P. J. (2019). Preparing elementary school teachers to teach computing, coding, and computational thinking. *Contemporary Issues in Technology and Teacher Education*, 19(4), 790-824.
- Murillo-Zamorano, L. R., López Sánchez, J. Á., Godoy-Caballero, A. L., & Bueno Muñoz, C. (2021). Gamification and active learning in higher education: Is it possible to match digital society, academia and students' interests? *International Journal of Educational Technology in Higher Education, 18*, Article 15. https://doi. org/10.1186/s41239-021-00249-y
- Nie, A., Brunskill, E., & Piech, C. (2021). Play to grade: Testing coding games as classifying Markov decision process. *Advances in Neural Information Processing Systems*, 34, 1506-1518.
- Özcan, M. Ş., Çetinkaya, E., Göksun, T., & Kisbu-Sakarya, Y. (2021). Does learning to code influence cognitive skills of elementary school children? Findings from a randomized experiment. *British Journal of Educational Psychology*, 91(4), 1434-1455. https://doi. org/10.1111/bjep.12429
- Panagiotarou, A., Stamatiou, Y. C., Pierrakeas, C., & Kameas, A. (2020). Gamification acceptance for learners with different E-skills. *International Journal of Learning, Teaching and Educational Research*, 19(2), 263-278. https:// doi.org/10.26803/ijlter.19.2.16
- Papadakis, S. (2021). The impact of coding apps to support young children in computational thinking and computational fluency. A literature review.

Frontiers in Education, *6*, Article 657895. https://doi.org/10.3389/feduc.2021.657895

- Relkin, E., de Ruiter, L., & Bers, M. U. (2020). TechCheck: Development and validation of an unplugged assessment of computational thinking in early childhood education. *Journal of Science Education and Technology*, 29(4), 482-498. https://doi.org/10.1007/s10956-020-09831-x
- Rich, P. J., Browning, S. F., Perkins, M., Shoop, T., Yoshikawa, E., & Belikov, O. M. (2019). Coding in K-8: International trends in teaching elementary/primary computing. *TechTrends*, 63, 311-329. https://doi.org/10.1007/s11528-018-0295-4
- Sailer, M., & Homner, L. (2020). The gamification of learning: A meta-analysis. *Educational Psychology Review*, 32(1), 77-112. https://doi. org/10.1007/s10648-019-09498-w
- Sanchez, E., van Oostendorp, H., Fijnheer, J. D., & Lavoué, E. (2020). Gamification. In A. Tatnall (Ed.), *Encyclopedia of Education* and Information Technologies (pp. 816-827).
 Springer International Publishing. https://doi. org/10.1007/978-3-030-10576-1 38
- Scherer, R., Siddiq, F., & Tondeur, J. (2019). The technology acceptance model (TAM): A meta-analytic structural equation modeling approach to explaining teachers' adoption of digital technology in education. *Computers & Education*, 128, 13-35. https://doi.org/10.1016/j. compedu.2018.09.009
- Schöbel, S., Schmidt-Kraepelin, M., Janson, A., & Sunyaev, A. (2021). Adaptive and personalized gamification designs: Call for action and future research. *AIS Transactions on Human-Computer Interaction*, 13(4), 479-494. https:// doi.org/10.17705/1thci.00158
- Threekunprapa, A., & Yasri, P. (2020). Unplugged coding using flowblocks for promoting computational thinking and programming among secondary school students. *International*

Journal of Instruction, 13(3), 207-222. https:// doi.org/10.29333/iji.2020.13314a

- Toda, A. M., Valle, P. H., & Isotani, S. (2018). The dark side of gamification: An overview of negative effects of gamification in education. Proceedings of Higher Education for All. From Challenges to Novel Technology-Enhanced Solutions: First International Workshop on Social, Semantic, Adaptive and Gamification Techniques and Technologies for Distance Learning (pp. 143-156). Springer. https://doi.org/10.1007/978-3-319-97934-2_9
- Tseng, J. J., Cheng, Y. S., & Yeh, H. N. (2019). How pre-service English teachers enact TPACK in the context of web-conferencing teaching: A design thinking approach. *Computers & Education*, 128, 171-182. https://doi.org/10.1016/j. compedu.2018.09.022
- Vanduhe, V. Z., Nat, M., & Hasan, H. F. (2020). Continuance intentions to use gamification for training in higher education: Integrating the technology acceptance model (TAM), social motivation, and task technology fit (TTF). *IEEE* Access, 8, 21473-21484. https://doi.org/10.1109/ ACCESS.2020.2966179
- Venkatesh, P., Das, S., & Das, A. K. (2021). Design and development of low-cost unplugged activities for teaching computational thinking at K-5 Level. In A. Chakrabarti, R. Poovaiah, P. Bokil & V. Kant (Eds.). *Design for Tomorrow—Volume 3. Smart Innovation, Systems and Technologies* (pp. 523-534). Springer. https://doi.org/10.1007/978-981-16-0084-5 42
- Venkatesh, V., & Davis, F. D. (1996). A model of the antecedents of perceived ease of use: Development and test. *Decision sciences*, 27(3), 451-481. https://doi.org/10.1111/j.1540-5915.1996. tb00860.x

- Vyas, L. (2022). "New normal" at work in a post-COVID world: Work–life balance and labor markets. *Policy and Society*, 41(1), 155-167. https://doi.org/10.1093/polsoc/puab011
- Yang, G. W. (2018). The effect of unplugged roleplay on learning motivation and academic achievement focusing how computers work. *Journal of Knowledge Information Technology* and Systems, 13(2), 221-229. https://doi. org/10.34163/jkits.2018.13.2.004
- Yeboah, R., Abonyi, U. K., & Luguterah, A. W. (2019). Making primary school science education more practical through appropriate interactive instructional resources: A case study of Ghana. *Cogent Education*, 6(1), Article 1611033. https:// doi.org/10.1080/2331186X.2019.1611033
- Zainoddin, A. I., Othman, N. A. F., Jaini, A., Ismail, M., & Radzi, S. F. M. (2022). Modelling intention to accept gamification in learning among university students in Malaysia. *International Journal of Academic Research in Business and Social Sciences*, 12(9), 712-720. https://doi. org/10.6007/IJARBSS/v12-i9/14577
- Zatarain Cabada, R., Barrón Estrada, M. L., Ríos Félix, J. M., & Alor Hernández, G. (2020). A virtual environment for learning computer coding using gamification and emotion recognition. *Interactive learning environments*, 28(8), 1048-1063. https://doi.org/10.1080/10494820.2018. 1558256
- Zhao, L., Liu, X., Wang, C., & Su, Y. S. (2022). Effect of different mind mapping approaches on primary school students' computational thinking skills during visual programming learning. *Computers & Education*, 181, Article 104445. https://doi.org/10.1016/j.compedu.2022.104445



SOCIAL SCIENCES & HUMANITIES

Journal homepage: http://www.pertanika.upm.edu.my/

Post-COVID-19 Spatial Resilience in Community-based Tourism: A Case Study on Ayutthaya

Patiphol Yodsurang1*, Unyaporn Suthutvoravut² and Wandee Pinijvarasin¹

¹Department of Architecture, Kasetsart University, Jatujak, Bangkok, 10900, Thailand ²Department of Family Medicine (Ramathibodi), Mahidol University, Bangkok, 10400, Thailand

ABSTRACT

There are challenges to community-based tourism (CBT) post-COVID-19, and some health measures still need to be taken to prevent the risk of people spreading the disease and remaining safe from infection. It is especially important for those in rural areas, who may have limited access to healthcare and other resources, and certain health measures can be taken to protect themselves and others. Nineteen tourism community cases from rural Ayutthaya were selected for study since their CBT recovered faster from the pandemic than in other provinces. Data were recorded and collected on the physical and actual conditions of the properties surveyed. Principal component analysis was then implemented to the dataset to clarify the major spatial management attributes contributing to decisions on the operation of the tourism community during a crisis. The study results revealed that multicenter tourism communities with several activity bases were more able to fully operate and quickly return to tourism. This pattern of community spatiality is a key factor in promoting resilience in the tourism community during and after the pandemic. The findings are expected to benefit the development of post-COVID-19 community tourism to suggest appropriate approaches for managing a geospatial tourism community.

Keywords: Carrying capacity, impact, post-COVID-19, rapid survey, resilient, spatiality, tourism community

ARTICLE INFO Article history:

Received: 12 June 2023 Accepted: 01 January 2024 Published: 10 June 2024

DOI: https://doi.org/10.47836/pjssh.32.2.04

E-mail addresses: patiphol.y@ku.th (Patiphol Yodsurang) unyaporn.sut@mahidol.ac.th (Unyaporn Suthutvoravut) wandee.p@ku.th (Wandee Pinijvarasin) * Corresponding author

INTRODUCTION

From approximately the 1970s to the 2010s, the tourism sector in Thailand has been one of the largest economic contributors to the country's GDP, fluctuating by 21.9% in 2019. However, due to the impact of the COVID-19 pandemic, a significant loss in tourism revenue has been experienced, with

ISSN: 0128-7702 e-ISSN: 2231-8534 the sector's share of GDP decreasing to 12% in 2020. The Government of Thailand continues its campaign to reopen tourism activities (Worrachaddejchai, 2021). The number of tourists in the first quarter of 2022 was 1,016,103, more than 2,368% higher than in 2021. By the end of 2022, at least 5,000,000 inbound tourists will visit the country (Ministry of Tourism and Sports, 2022).

The challenges faced post-COVID-19 go far beyond mass tourism. The community-based tourism (CBT) model is an important tool for transforming the crisis into an opportunity by allowing tourists to experience the local resources of each location ("Creative tourism," 2020). The government has posited that CBT will be a flagship model in the recovery of the country's tourism industry going forward. Therefore, raising awareness of natural and cultural heritage is important for attracting premium tourists (Ellis & Sheridan, 2014; Giampiccoli & Mtapuri, 2015; Jugmohan et al., 2016; Lindström & Larson, 2016), with communities also benefiting. The new behavioral changes in the mobilization patterns of tourists mean they are more likely to travel by car than public transportation, making destinations in and around Bangkok more accessible. For example, Ayutthaya recovered much faster than other provinces (Prajongkarn et al., 2020). As a result, the tourism community in Ayutthaya has been selected as a case study on the development of community tourism post-COVID-19 to investigate how local people manage their geospatial tourism capability.

In consideration of the significant disruption caused by the COVID-19 pandemic to Thailand's tourism sector, an urgent need emerges to explore innovative strategies for post-pandemic recovery. Beyond the immediate challenges of restoring tourist numbers, there lies a unique opportunity to redefine the future of tourism in Thailand through a sustainable and community-focused lens. This research embarks on a critical journey to investigate the role of CBT in the country's tourism resurgence. Since the Thai Government positions CBT as a flagship model for revitalizing the industry, understanding how local communities harness their geospatial tourism capabilities becomes pivotal. By exploring the spatial adaptability of these communities and their relationship with tourism activities, this study seeks to enrich the understanding of spatial management in CBT. It aims to create a valuable database for informed decision-making at the operational level. The implications of this research extend far beyond Ayutthaya; they hold the potential to shape a more resilient, community-driven, and sustainable future for tourism in Thailand and serve as a beacon of hope for post-pandemic recovery in similar contexts worldwide.

This research extends beyond prior studies in the field and offers fresh insights into the post-COVID-19 recovery strategies of CBT. It delves into uncharted territories, examining how the spatial dynamics within tourism communities can drive resilience and sustainability. It also contributes to the existing literature by bridging the gap between spatial management and CBT in the context of a pandemic or other health crises. It offers a novel perspective that emphasizes the importance of space availability and spatial adaptability, shedding new light on how these factors can influence the resilience of tourism communities.

Case Study Description

The tourism sector in Thailand has been one of the largest industries in the past few decades. The development of tourism products and services has grown rapidly and spread throughout the country. CBT has, therefore, increased significantly under the support of the Designated Areas for Sustainable Tourism Administration (DASTA) and Community Development Department (CDD), Ministry of Interior. A survey conducted by the CDD in 2018 revealed that 3,273 communities across the country operated tourism-oriented products and services (Community Development Department, 2018). Of these, 19 tourism communities operate in Ayutthaya. These communities are usually relatively small and settle in waterfront agricultural areas outside the historic city core. In addition, it is possible to travel to Ayutthaya by several modes of transportation. Besides, Ayutthaya is a perfect destination for cultural tourism in Thailand, according to a report on the Ayutthaya Historical Park, an important UNESCO World Heritage site (Ratanapongtra & Techakana, 2019). As a tourist destination, the province welcomed 7.6 million visitors (95.94% of whom were domestic tourists) in 2022,

increasing by 227.85% for the same period in 2021 (Ministry of Tourism and Sports, 2023). According to the data, Ayutthaya demonstrated a significant recovery following lifting COVID-19 restrictions on July 1, 2022.

In the present day, external factors play an important role in spatial management, especially the changes occurring post-COVID-19, which have affected tourism patterns. These have affected local tourism and the mentality of community members who feel unsafe about their health and livelihoods. The lack of tourism opportunities has made their futures uncertain as they await government support and post-COVID-19 economic recovery (Pratomlek, 2020). Many communities may lack preparedness for spatial resiliency, understanding of their design, and the utilization of buildings and supporting facilities for good hygiene, as well as mechanisms for the distribution of tourists. It is important to understand the carrying capacity necessary for creating spatial resilience in the built environment of the tourism community to help communities manage their areas appropriately for post-COVID-19 tourism.

LITERATURE REVIEW

The literature and theoretical background relating to spatiality in the tourism community during COVID-19 could involve discussing concepts such as place and spatiality, COVID-19 in local communities, and its impact on geospatial communities. These concepts are relevant to understanding how tourists and residents perceive and connect with the physical environment of a tourism community. In the tourism community context, understanding the spatiality of tourism activities and the interactions between tourists and residents is crucial for sustainable tourism development. It includes considerations such as the distribution of tourism activities across space, the impacts of tourism on local infrastructure and natural resources, and tourism's role in shaping a community's social and cultural fabric. By taking a spatial perspective on tourism, it is possible to identify opportunities for enhancing the benefits of tourism while minimizing its negative impacts, especially since changes taking place after the COVID-19 pandemic are bound to affect tourism patterns. The tourism community needs to adapt to the new reality of the pandemic and ensure the safety of tourists and the communities they visit while promoting sustainable tourism practices, benefiting local communities in the long term.

While there have been many studies on the overall impact of COVID-19 on the tourism sector at the macro level, some of the key issues that have emerged include changes in travel behavior (Anwari et al., 2021; Gao et al., 2021; Kang et al., 2022), the shift toward domestic tourism (Chan, 2022; Kupi & Szemerédi, 2021; Tan et al., 2022), and the need to manage tourism flows and capacity (Lamers & Student, 2021; Lim et al., 2022) to ensure social distancing and public health measures are followed. There is still a need for more research at the local community level, particularly on how COVID-19 has impacted CBT and the specific challenges local communities face. At the local level, there has been growing recognition of the need to involve communities in tourism management, particularly in CBT. It includes issues relating to the management of spatiality to support a new normal and adapting to new demands in a post-COVID-19 world.

Spatial Management within the Context of CBT

In the dynamic world of tourism, where travelers seek immersive experiences and communities aim to harness economic opportunities without compromising their tourism resources and health care, spatial management emerges as a linchpin. It is the cornerstone upon which the delicate balance between tourism benefits and potential drawbacks in CBT hinges (Afenyo-Agbe & Mensah, 2022). This physical aspect is one of the primary elements of CBT. It may include the beauty, atmosphere, and uniqueness of sites, the waste disposal management system, tourism activities, and sustainable system management (Sitikarn et al., 2022). Geographically, spatial management encompasses all the natural and human-made features found within precisely outlined limits, conceptualized as the scope within the realm of human tangible and intangible symbols manifests, and its physical dimensions are delineated by both physical elements and human imagination, as articulated (Świader, 2018). This approach represents a strategic framework where architectural and urban designs are aesthetically pleasing, environmentally responsible, and conducive to the wellbeing of residents and users. It involves the thoughtful allocation of space for residential, commercial, recreational, and green areas, as well as the integration of sustainable practices to mitigate environmental impacts.

Spatial management strategies in the tourism sector encompass a range of practices that extend beyond conservation and safety considerations. They also have implications for visitors' and local communities' wellbeing and healthcare (Ibănescu et al., 2018). For instance, apart from visitor flow control at heritage sites, providing accessible rest areas and amenities contributes to visitor comfort and well-being. Sustainable tourism development in Bhaktapur City (Nepal), focusing on the economic and social dimensions of the tourism sector, is pivotal in preserving the delicate balance between tourism growth and the wellbeing of residents. It also enhances spatial management practices in this renowned central tourism hub and develops its infrastructure (Badal, 2020). Besides, the significance lies in establishing host community involvement in tourism planning in Girona, Spain, alongside insights into pre-, during, and post-COVID-19 tourism data. It underscores the crucial role of spatial management, seeking to create a diversified and controlled tourism offer, ensuring that the city's attractions are optimally organized within a defined spatial framework. This approach aims to empower tourism workers and enhance the overall visitor experience while safeguarding the residents' quality of life (Fernandez et al., 2022). These examples underscore the multifaceted role of spatial management in promoting sustainable tourism by safeguarding natural and cultural assets, ensuring safety, enhancing wellbeing, and facilitating healthcare access for all stakeholders.

Spatiality in CBT

Spatial characteristics in the context of CBT relate to how the physical space of a community is used to support and promote tourism (Pratomlek, 2020; Sunakorn & Pinijvarasin, 2007). These may include using natural and cultural resources, such as parks, trails, and historical landmarks, as well as developing infrastructures, such as accommodation, transportation, and visitor centers, to support tourism in the community. The idea is to use tourism to preserve and promote the unique character of a community while also generating economic and social benefits for the residents. In the context of spatiality in tourism, this study classifies a tourism destination into two categories: (1) the main tourist destination and (2) related areas.

The main tourist destinations are those most tourists want to visit, such as ancient monuments, old towns, historical landmarks, traditional houses, cultural areas, and local community landscapes. Some of these may be cultural, natural settings designed or managed by the local community, such as community-based organizations. Tourist destinations should include three main aspects: space, system, and social network (Werapol & Prachet, 2004), where space is the major component, with a spatial border connecting it to other areas. Boullon (2004) states that space consists of zones, areas, centers, complexes, units, nuclei, clusters, and tourist corridors. Thus, space and tourists are important players in understanding the relationship between a destination and its areas of service (Anwari et al., 2021). The main tourist destination in CBT is the hub of community tourism and a central gathering space for visitor orientation and information.

Related areas are tourist destinations that support the main tourism activities and tend to be adjacent, related, and connected to the main tourist destination, such as a learning space, rest area, space for facilities or services, and many others, including those interpreted as historical urban landscapes. These physical characteristics usually include providing quality services and accommodating a sufficient number of tourists, with any activities accessible to all (Gao et al., 2021). Related areas also help to promote the authenticity and imagery of the community (Kang et al., 2022), as well as the value of the area, while stimulating the community economy.

An association between the main tourist destination and the related areas within the territorial boundaries of a tourism community can be categorized into two distinct operational management approaches: single cluster and multi-center (Figure 1). In the single cluster approach, the main tourist destination serves as the sole focal point for tourism activities within the community. The centralized model concentrates resources, infrastructure, and services in a single location, allowing for easier management and coordination. The main tourist destination is the primary hub, attracting visitors and providing a wide range of tourism facilities and services. For instance, in the small Hakka village of Lai Chi Wo in Hong Kong, UNESCO Global Geopark, the Lai Chi Wo Cultural hub, surrounded by a traditional Hakka settlement and lush countryside, plays the role of the sole tourism hub. Visitors can find a concentration of heritage sites, museums, and visitor services, making it a centralized and easily managed tourist center. In contrast, the multi-center approach involves establishing multiple centers or nodes across the tourism community. These centers are strategically distributed, offering unique attractions, amenities, and activities. In the case of the Shirakawa-go and Gokayama World Heritage Site in Japan, there are three major villages: Shirakawa-go Ogimachi, Gokayama Suganuma, and Ainokura. These strategically positioned centers offer distinct cultural and architectural experiences, distributing tourism-related activities across the region and enhancing the overall visitor experience.

However, COVID-19 required communities to strictly adhere to preventive measures in private and public settings. These measures had a disproportionate spatial impact on vulnerable communities. With densely populated districts at greater risk of COVID-19 transmission (Chan, 2022), tourism communities were severely affected. Despite the restrictions being

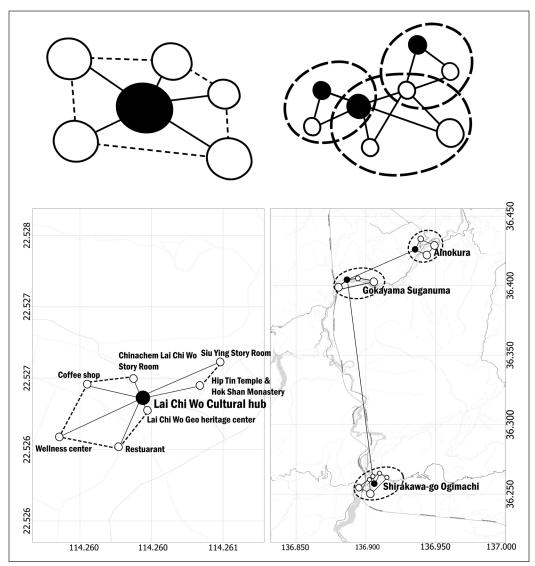


Figure 1. The comparative model shows (left) the single cluster approach of Lai Chi Wo in Hong Kong and (right) the multi-center tourism of Shirakawa-go and the Gokayama in Japan *Source:* Author's work

lifted in Thailand in July 2022 and a return to normal life, the risk of COVID-19 is still of concern, particularly in tourism communities, where older adults in rural areas face unique risks (Kupi & Szemerédi, 2021). It is, therefore, necessary to consider the relationship between tourism and wellbeing. However, some research reports indicate that this relationship is not a primary factor but also includes activities, health care, public spaces, and sanitation (Cheer, 2020; Hall et al., 2020; Lamers & Student, 2021; Lim et al., 2022; Persson-Fischer & Liu, 2021).

COVID-19 in Local Communities

Older adults are vulnerable to the negative impact of COVID-19, being at greater risk of infection and mortality (Promislow, 2020; Shahid et al., 2020). They often faced tighter restrictions during the pandemic, such as being unable to go out, visit friends, or participate in social activities, which negatively affected their social relationships (Kimura et al., 2020). Other future mental health issues and social aspects of older adults should also be considered post-COVID-19, as well as the direct health problems arising from COVID-19 itself. The likelihood of social isolation and loneliness among the older population has markedly increased with the COVID-19 pandemic, along with related public health measures, potentially leading to depression, anxiety, and cognitive impairment (Gorenko et al., 2021). Physical activity, which has various health benefits, such as preventing cognitive decline, falls, and cardiovascular disease, decreased significantly during the pandemic. The prevalence of older Thai adults with adequate physical activity decreased to 53.3% from 73.4% in the first year of the pandemic. After two years of the pandemic, only 5.3% more older adults were able to return to their standard physical activity level, fewer than other age groups (Research and Development Group, 2022). The financial impact of the pandemic remains a major issue post-COVID-19, with the percentage of older Thai adults earning sufficient income decreasing from 54% to 37% during the pandemic (United Nations Population Fund, 2020).

According to a previous study, older Thai adults in rural and semi-rural areas needed support with old-age allowance distribution, disease prevention equipment, an information center on COVID-19 in the community, and channels to express their negative feelings such as fear, stress, loneliness, or depression (Waelveerakup, 2022). People in rural areas received information from community networks of village health volunteers during COVID-19 but could not access the latest news from media sources such as the Internet (Vicerra, 2021). Thus, community networks need to be maintained, and access to new information or healthcare through technology should be encouraged in rural areas. A previous study exploring the resilience of rural older adults in Canada during COVID-19 found that their competencies depend on the material, physical, and social environment (Herron et al., 2022). Older adults were able to cope with the situation by keeping themselves busy, reaching out, and maintaining a positive outlook (Fuller & Huseth-Zosel, 2021). An environment that offers opportunities, such as access to outdoor spaces, is important for making meaningful connections.

Impact of COVID-19 on Geospatial Communities

The spread of COVID-19 affected many industries, with the tourism industry being one of the most affected and likely to be among the last to recover. Consequently, the pattern of new tourism will never be the same again. Tourism consumers and providers have also changed and are sometimes forced to do so. Over the three years of the pandemic, people have gradually adopted new practices into their daily lives. These changes have been immense, even when everything has returned to normal or the new normal (Tangirala, 2020). Although Thailand's tourism slowly recovered in 2022, health measures still need to be strictly implemented. Zukhri and Rosalina (2020) proposed two phases for tourism recovery, the first of which focuses on domestic tourists under the implementation of sanitation and hygiene measures. When the area is in a stable condition, and the incidence of death has declined significantly, a stimulus model using information technology can complement sanitation and hygiene measures and present a tourism model for developing a sustainable relationship between humans and the environment. It will optimize the existing tourism system and make it more profitable, stable, resilient, and sustainable.

The impact of COVID-19 on public spaces could provide a good opportunity to examine the linkage between the planning of public spaces and well-being (Honey-Rosés et al., 2021). The future of space management depends on the value placed on public spaces by decision-makers for socializing, community building, and identity creation. The COVID-19 pandemic demonstrated that the design of public spaces for protecting and promoting health needs to be reviewed. It requires the design and management of architecture and public health to be integrated by considering the mechanism of disease transmission. In addition, the activities of each place should

be designed in a health-appropriate and space-efficient way (Association of Siamese Architects under Royal Patronage, 2020). Architectural design and management have a spatial effect on social or physical distancing to reduce the spread of infection. These practices inevitably affect the use of space.

METHODS

This research explores the post-COVID-19 spatial management of tourism communities in Ayutthaya province as a case study. The results inform follow-up qualitative data collection and analysis of the quantitative analysis. Data collection at the cluster level was conducted using a rapid survey to obtain a general overview and ascertain the broad relationships between health, wellbeing, and carrying capacity changes from January 2022 to November 2022 (during the fourth phase for easing nationwide restrictions and after Thailand's nationwide COVID-19 restrictions) through interviewing and recording data from CBT providers. A rapid survey is suitable for documenting the distribution and type of subjects across sizeable regions and medium to large-scale projects (Oppermann et al., 2021). The rapid survey method was chosen for its ability to provide timely, resource-efficient, and comprehensive insights into the post-COVID-19 tourism landscape in Ayutthaya. It allowed the researcher to gather data from diverse stakeholders and swiftly adapt to the dynamic conditions of the study area, making it the most suitable method for addressing the research questions effectively.

Data collection was carried out in all 19 tourism communities in Ayutthaya province that were still in operation during the COVID-19 era (Figure 2). This study's sampling process involved selecting the entire population due to its small size. This research aims to capture a detailed and accurate representation of the tourism communities by including the entire population, ensuring no perspective or experience was overlooked. This survey was conducted on the communities' physical characteristics and ability to accommodate tourists. It recorded the physical conditions, collected query data from the actual conditions and validated the properties (Yodsurang et al., 2022). The variables used in the survey are explicitly detailed in accordance with the guidelines provided in the "Variables for Defining the Spatial Impact of Tourism in CBT." The derived data from the rapid survey were then discussed among CBT providers and local authorities.

Quantitative data collection involved an empirical presentation *in situ* to assess the condition of spatial tourism resiliency after lifting COVID-19 restrictions using the evidence-based physical characteristics of the selected location. The data were then analyzed and integrated to answer the related aspects of the research question. Survey data

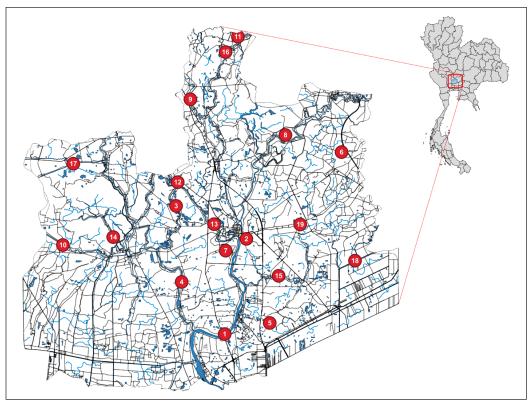


Figure 2. Distribution of the tourism communities under study in Ayutthaya *Source:* Author's work

comprised a series of information variations, and the responses were then analyzed using Principal Component Analysis (PCA) to interpret the surveyed data.

Variables for Defining the Spatial Impact of Tourism in CBT

The spatial impact of tourism on CBT indicators (Table 1) was assessed based on the number of visitors, activities, and facilities provided. These indicators were adapted from previous studies identified in the literature review. These properties were the main resources for decision-making in the tourism community, providing tourist attraction activities, and maintaining public health in the area. The criteria used to decide on space for gathering may differ. Any decision should be supported by evaluating the risks, potential management, and event planning degree (World Health Organization, 2020). The airborne transmission of COVID-19 is widely recognized, and most architectural and spacing design solutions come within the six-foot rule (Elskalakany et al., 2022). When applying the six feet rule in CBT gathering spaces, it is important to consider the spatial information and design of the space, including the number and placement of chairs, tables, and other furniture, as well as the flow and movement of visitors and staff.

Gathering spaces may need to be redesigned to allow plenty of space between visitors to maintain the recommended distance of at least six feet. It could

Table 1

Spatial impact of tourism on CBT indicators

Major indicators	Category
Targeted visitors (comparing pre- and	Individual visitors: Usually walk-in visitors who arrive at a community without making a prior reservation or arrangement.
post-COVID-19)	Small group visitors: Those interested in visiting a community together. The group size is usually limited to around ten people.
	Group excursion: Larger groups of visitors interested in visiting a community as part of a pre-organized tour or excursion.
	Event-led visitors: Those interested in attending a specific community event, such as a local festival, cultural performance, or workshop.
Main activities	Homestay: Visitors staying in a local family's home, allowing them to experience the local culture and way of life, providing an intimate and authentic experience of the local culture, as well as a unique opportunity to build relationships with local families.
	Activity-based learning: Visitors participate in activities and experiences that allow them to learn about the local culture and traditions.
	Historic market: Local markets where visitors can observe and participate in commerce and trade. Visitors may have the opportunity to purchase local products.
	Museum: Visitors visit local museums, where they can learn about the history, culture, and traditions of the local community. Local artifacts, such as textiles, pottery, and other cultural treasures, will be displayed.
	Farm station: Local farms where visitors can observe and participate in agricultural activities and learn about local food production.

Table 1	(continue)
---------	------------

Major indicators	Category
Operational management	Single cluster: Visitors typically stay in one place and participate in activities on offer in or near the community center.
	Multi-center: Visitors may travel between different sites to participate in various activities and experiences, which is suitable for larger areas with multiple sites or diverse activities and experiences.
	Activity bases: Some CBT sites may offer a limited number of activities, while others may offer a wider range.
Years of establishment	Established (years): Those in existence for a longer period may have a stronger reputation, more established relationships with local communities and suppliers, and more developed infrastructure and facilities.
Activation after the lifting of restrictions	Inactive/partial open/fully operational <i>in-situ</i> state : Whether the tourism community is able to adapt to the pandemic and/or remain operational during and after the restrictions are lifted.
Spatial information	Gathering area in total (sq. m.): A designated space that is a focal point for tourist activities and allows visitors to experience local culture and traditions.
	The average opening ratio (wall-to-windows) measures the amount of window area relative to the total wall area of a building. The average opening ratio is expressed as a percentage and is used to assess the amount of natural light and ventilation a building receives.
Capacity (comparing pre- and	Maximum visitor number: The maximum number of people allowed to enter or be present in a specific activity base at any given time.
post-COVID-19)	Spatial capacity: The maximum number of visitors a destination can accommodate.
	Change: In the spatial capacity ratio, the value pre-COVID-19 is divided by the post-COVID-19 spatial capacity number.

Source: Author's work

involve rearranging the furniture to create more space or reducing the number of chairs or tables. Therefore, the carrying capacity of places has been significantly reduced and changed over time to fit the *in-situ* conditions (Bañón & Bañón, 2020). However, safety space (particularly enclosed space) is strongly related to cumulative exposure time, the degree of ventilation and air filtration, dimensions of the room, breathing rate, respiratory activity, face-mask use of its occupants, and the infectiousness of respiratory aerosols (Bazant & Bush, 2021). Thus, the carrying capacity is a key policy measure for linking the planning of public spaces and well-being issues. Due to the continued expansion of tourism communities, this study's results are expected to clarify how to manage and improve spatial capacity in the post-COVID-19 era to suit local communities in various contexts.

RESULTS AND DISCUSSION

Despite CBT being one of the country's flagship programs post-COVID-19, no official records are available on visitor numbers in tourism communities due to their

informality and management convenience. According to the interviews, three of the 19 communities keep visitor records, while the remainder estimate the number of visitors. Figure 3 shows the average number of visitors traveling to tourism communities in Ayutthaya per month over the past five years (2018–2022). National quarantines and travel restrictions have impacted tourism communities since April 2020. The average number of visitors to tourism communities dropped by almost 80% from the pre-COVID-19. Furthermore, community tourism was suspended for 18 months until October 2021, showing little sign of recovery until March 2022, when the situation started to improve. Most tourist destinations started to increase their visitor numbers six months before the end of the COVID-19 Emergency Decree on September 30, 2022. It indicates that the Ayutthaya tourism communities have started to regain their status as tourist destinations with a similar number of visitors as during the pre-COVID-19 period.

The number of visitors to the destination and its carrying capacity directly impact the use of resources (Teddlie & Tashakkori, 2009). Uncertainty about the number of expected visitors can significantly affect the spatial management of the local community, such as increased costs and employment instability. Additionally, it is widely accepted that many visitors can help build awareness of the community and its tourism offerings, potentially leading to further economic growth and community development. However, tourism providers must offset this against a higher risk of COVID-19 in crowded places, especially among the older rural population.

During the pandemic, many tourism communities had to temporarily close or significantly reduce their operations due to restrictions on travel and gatherings. Such limitations imposed by the government have resulted in a lack of participation, which is the major reason for the failure of CBT (Yodsurang et al., 2022), with many tourism communities having to

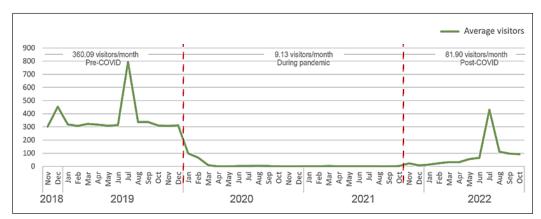


Figure 3. Average number of tourists over the past five years (2018–2022) in Ayutthaya's tourism communities *Source:* Collecting data from the visitor logbook of a surveyed tourism community spanning from November 2018 to October 2022

discontinue their operations. Some tourism communities have survived the COVID-19 pandemic by being resilient and adapting to changing circumstances. CBT cannot offer new business models, such as online sales or delivery services, unlike any other business since they can only provide in-situ experience. The first step in understanding CBT post-COVID-19 is to study and identify the nature of operation and space management. The case studies were selected based on 19 tourism communities and 72 destinations/programs/activities covering 17,675 square meters of structures incorporating tourism (Table 2). Tourism communities still operating after the pandemic tend to be older, single-cluster, and more spatially flexible, particularly in relation to open spaces and ventilation.

Principal component analysis (PCA) was applied to the dataset to clarify the attributes and reduce the dimensionality of the data. Three significant components were then determined based on the dimensions (k) using the elbow method (Figure 4). The correlation circle presents the threedimensional variance in the highest contribution to the Dim1 and Dim2 (Figure 5). The first dimension consists of multicenter, number of bases, fully operational, and post-COVID-19 events, and the second dimension is inactive, total gathering area, maximum number of visitors pre-COVID-19, and group excursion activities post-COVID-19. The third dimension consists of capacity post-COVID-19, single cluster, capacity pre-COVID-19, capacity change ratio, maximum number of visitors,

individual activities post-COVID-19, and partly open. The varimax rotation technique was applied to the principal component axes, resulting in rotated components (RC) to enhance the interpretability of loadings. Details of the principal components are presented in Table 3.

Partly open tourism communities (0.50) are moderately represented by RC1, which can be highly explained by the post-COVID-19 capacity (0.89) and capacity change ratio (0.87) and moderately explained by the post-COVID-19 maximum number of visitors (0.57). Some centers or activities based in the community may remain closed due to the impact of COVID-19. Some areas or services may be unavailable, and their capacity is limited despite the open facilities. Many facilities have implemented various measures to reduce the risk of COVID-19 transmission, including limiting their capacity, implementing social distancing guidelines, and requiring a face mask. Thus, capacity and visitor numbers may be reduced to follow the social distancing guidelines or recommendations. However, it is difficult to provide specific information on capacity changes or maximum visitor numbers at a specific location or facility post-COVID-19 since these can vary considerably depending on the location, facility, and government guidelines in place at the time.

Multi-center tourism communities (0.99) with several activity bases (0.97) remained fully operational (0.87) during the COVID-19 pandemic, depending on the RC2 having a high explanation level. These tourism communities implemented

								Pre-COVID	OVID	Post-C	Post-COVID	
Ð	Main activities	Center	Established (yrs)	Active	Number of bases	Total gathering area (sq.m.)	Opening ratio (windows-to-wall) %	Maximum number of visitors	Capacity	Maximum number of visitors	Capacity	Change
	Homestay/activity-based learning	single cluster	31	•	9	217	86.67	15	2.41	12	3.01	1.25
2	Historic market/activity-based learning/museum	multi-center	40	•	9	505	46.67	40	2.10	20	4.21	2.00
С	Activity-based learning/homestay	multi-center	5	0	9	711	65.00	30	3.95	30	3.95	1.00
4	Homestay	single cluster	5	•	7	335	20.00	20	8.38	16	10.47	1.25
5	Activity-based learning/farm station	single cluster	9	0	б	820	40.00	80	3.42	15	18.22	5.33
9	Homestay/activity-based learning	multi-center	б	×	9	498	73.33	60	1.38	40	2.08	1.50
Г	Homestay/activity-based learning	single cluster	25	0	Г	842	85.71	25	4.81	15	8.02	1.67
8	Event	single cluster	4	0	1	80	100.00	20	4.00	10	8.00	2.00
6	Activity-based learning/homestay	multi-center	6	×	9	3115	86.67	150	3.46	70	7.42	2.14
10	Activity-based learning/museum/ farm station	multi-center	43	×	4	1448	60.00	200	1.81	40	9.05	5.00
11	Event	multi-center	13	×	5	740	84.00	60	2.47	30	4.93	2.00
12	Homestay/activity-based learning	multi-center	4	0	1	80	50.00	20	4.00	15	5.33	1.33
13	Homestay	single cluster	19	•	1	216	20.00	20	10.80	15	14.40	1.33
14	Farm station	single cluster	5	•	0	162	60.00	40	2.03	20	4.05	2.00
15	Activity-based learning/farm station	multi-center	4	×	б	370	73.33	20	6.17	10	12.33	2.00
16	Homestay	single cluster	11	0	1	304	100.00	40	7.60	30	10.13	1.33
17	Activity-based learning/farm station	multi-center	б	×	5	6562	48.00	800	1.64	400	3.28	2.00
18	activity-based learning/farm station	multi-center	4	×	ю	404	20.00	60	2.24	30	4.49	2.00
19	Farm station	single cluster	11	0	5	266	68.00	30	1.77	20	2.66	1.50
Note. Source	<i>Note.</i> $\times =$ inactive, $\bigcirc =$ partly open, $\bullet =$ fully operational <i>Source:</i> Author's work											

Post-COVID-19 Spatial Resilience in Community-based Tourism

 Table 2
 Summary data on 19 tourism communities in Ayutthaya pre- and post-COVID-19
 Summary data on 19 tourism communities in Ayutthaya pre- and post-COVID-19
 Summary data on 19 tourism communities in Ayutthaya pre- and post-COVID-19
 Summary data on 19 tourism communities in Ayutthaya pre- and post-COVID-19
 Summary data on 19 tourism communities in Ayutthaya pre- and post-COVID-19
 Summary data on 19 tourism communities in Ayutthaya pre- and post-COVID-19
 Summary data on 19 tourism communities in Ayutthaya pre- and post-COVID-19
 Summary data on 19 tourism communities in Ayutthaya pre- and post-COVID-19
 Summary data on 19 tourism communities pre- and post-COVID-19
 Summary data pre- and post-COVID-19
 Summary data pre- and post-COVID-19
 Summary data pre- and post-COVID-19
 Summary data pre- and post-COVID-19
 Summary data pre- and post-COVID-19
 Summary data pre- and post-COVID-19
 Summary data pre- and post-COVID-19
 Summary data pre- and post-COVID-19
 Summary data pre- and post-COVID-19
 Summary data pre- and post-COVID-19
 Summary data pre- and post-COVID-19
 Summary data pre- and post-COVID-19
 Summary data pre- and post-COVID-19
 Summary data pre- and post-COVID-19
 Summary data pre- and post-COVID-19
 Summary data pre- and post-COVID-19
 Summary data pre- and post-COVID-19
 Summary data pre- and post-COVID-19
 Summary data pre- and post-COVID-19
 Summary data pre- and post-COVID-19
 Summary data pre- and post-COVID-19
 Summary data pre- and post-COVID-19
 Summary data pre-

Patiphol Yodsurang, Unyaporn Suthutvoravut and Wandee Pinijvarasin

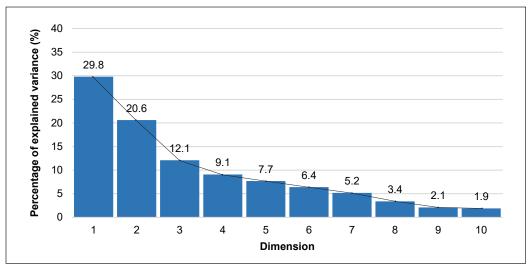


Figure 4. The first three PCs capture 62.5% of the variance in the scree plot *Source:* Author's work

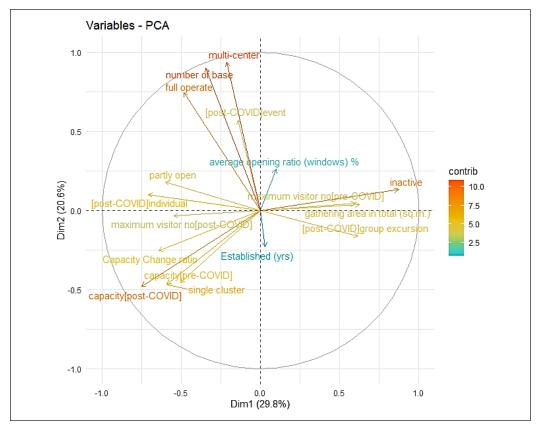


Figure 5. PCA correlation circle shows the highest contribution of variance influencing a principal component *Source:* Author's work

Table 3

The principal component index shows the strength of the correlation, where 0.5 is considered important for defining the principal component

	RC1		RC2		RC3
[Post-COVID-19] Capacity	0.89	Multi-center	0.99	[Post-COVID-19] Event	0.62
Capacity change ratio	0.86	Number of bases	0.97	Average opening ratio (windows) %	0.53
[Post-COVID-19]					
Maximum number of visitors	0.57	Fully operational	0.87	Single cluster	0.52
Partly open	0.50			Total gathering area (sq. m.)	-0.68
[Post-COVID-19] Event	-0.51			[pre-COVID-19] Maximum number of visitors	-0.70
Average opening ratio (windows) %	-0.59			[Post-COVID-19] Group excursions	-0.86
Inactive	-0.82				

Note. RC = Rotated Component *Source:* Author's work

adequate health and safety measures, particularly social distancing protocols, allowing them to be fully operational during the pandemic. CBT destinations with multicenter activities tend to have plenty of space. Activities take place in multiple locations within the destination rather than in a single centralized location. The availability of space can be a major attraction for tourists. For example, a destination with plenty of space might be able to host outdoor farming, certain festivals, events, and other large-scale activities. The open space could also be used for more low-key activities, such as picnics, leisurely walks, and other recreational activities.

Event-led tourism communities and average opening (windows-to-wall) ratio, represented on average (-0.51 to -0.59 and 0.53 to 0.62) by RC1-negative and RC3, were impacted by single cluster (0.52) and inactive CBT (-0.82). Some tourism communities were unable to operate during the pandemic due to the measures put in place to reduce the risk of COVID-19 transmission, such as restrictions on gatherings and social distancing requirements. These measures significantly impacted event-led tourism communities, with many events postponed, canceled, or converted into a virtual format. Besides, most of these communities had limited capacity to comply with social distancing guidelines, making it difficult for organizers to generate revenue and requiring them to reimagine their event format or venue.

Since RC1-negative was highly explained by the inactive cases (-0.82) and average explained by the opening (windowsto-wall) ratio (-0.59), it was suggested that the lack of adequate ventilation seemed to have increased the risk of COVID-19 transmission, which could be a contributory factor in the closure or inactivity of tourism communities, particularly in the context of the pandemic. Good ventilation is important for reducing the risk of COVID-19 transmission in indoor spaces. However, none of the local places are equipped with an active HEPA filter, which can help to remove small particles, including viruses and other contaminants, from the air. The infrastructure of a tourism community with less than adequate ventilation space, such as those in dense areas or smaller, enclosed spaces, may be particularly affected by social distancing measures and other COVID-19 restrictions. For example, indoor attractions and museums may have to limit the number of visitors allowed at one time or close certain exhibits or areas to maintain social distancing. Such facilities have had to temporarily close or significantly reduce their operations.

The result revealed that multi-center community tourism allows for a more distributed tourism flow, which can help to avoid overcrowding and the overuse of specific attractions. For example, suppose one tourism site is closed due to unforeseen circumstances, such as a natural disaster, a disease outbreak, or other reasons. In that case, visitors can be redirected to other open spots. It can be important in managing the carrying capacity of the destination and maintaining its sustainability. Decentralizing allows tourism communities to flexibly balance between pandemic control and local tourism revitalization (Huynh et al., 2022). However, space utilization requires some consideration since an underserved group may use an open space vulnerable

to COVID-19 infection. A post-pandemic analysis recommends that the open space provide a high sense of control with clear orientation and multipurpose facilities such as benches and a socializing area. In contrast, it was difficult for event-led activities to survive during the pandemic since they often had to close due to an outbreak. However, it is important to note that both models have advantages and disadvantages, and the best approach depends on the specific context and circumstances of the tourism community.

The tourism community's spatial adaptability and geospatial tourism capability have played a crucial role in its resilience during the pandemic. Spatial adaptation is important for pandemic resilience and could include decentralized activities, resilience-building typologies, restricted commute time, diverse mode choices, and a balanced allocation of services and facilities (Manifesty & Lee, 2022; Yang et al., 2021). Specifically, diversified rural communities gain flexibility and resilience from spatial clustering (Hu & Zhang, 2022). Consequently, multi-center communities with a number of activity bases were able to remain fully operational. They provided flexibility in responding to changing circumstances and should be prepared for a future crisis not only in the context of tourism businesses but also for tourists, locals, and stakeholders (Pocinho et al., 2022).

Undoubtedly, spatial resiliency has become a crucial topic in the post-COVID-19 era since it involves ensuring that the built environment can withstand and adapt to unexpected shocks such as pandemics. Although a study on crisis adaptation in the CBT community in Ban Maung Nong Khai, Thailand (Sann et al., 2023) discussed social and economic resilience to the pandemic, nothing was mentioned about the spatial aspect of the tourism community. A previous study on spatial intervention in Kampoeng Boenga Grangsil, Indonesia (Wikantiyoso et al., 2022) provided a checklist for space design innovations to meet health protocols, including sanitary stations, sufficient room openings, 80% of open space, open space facilities, and shade-free pedestrians. Ding et al. (2022) suggested that policy (The National Landscape Garden Cities in China policy) could play an important role in creating city resilience, especially during the COVID-19 pandemic. It can be achieved by ensuring that disaster-avoidance green spaces constitute 85% or more of the urban landscape, thus creating disaster-proof composite spaces.

In CBT destinations, spatial flexibility could allow for the use of open spaces for a variety of purposes. Additionally, flexibility in terms of ventilation can ensure the space is comfortable and safe for visitors, especially during the COVID-19 pandemic, where good ventilation is crucial for reducing the spread of the virus. Overall, spatial flexibility is important for creating a versatile and functional space that can support a variety of activities and uses. However, several communities have discontinued their operations due to the COVID-19 pandemic. It has been difficult to gather in groups, which can have a negative impact on the sense of community and social connections within it, particularly for a newly established tourism community. Thus, spatial resiliency in the post-COVID-19 era must involve designing the built environment to make it more flexible, adaptable, and healthy. Spatial management in the tourism community is just one example of how spatial resiliency is being implemented to address the challenges brought about by the pandemic.

CONCLUSION

The multi-center tourism community with a number of activity bases and sufficient space available is unlikely to be a limited factor by the number of tourists allowed. Multicenter spaces tend to have sufficient tourism facilities to support the anticipated number of tourists. However, if the centers were closed/unable to operate or restrictions were placed on the number of people gathering in one place at the same time, it could spill over to the neighborhood's tourism activities. In contrast to the multi-center, single cluster community tourism offers the advantage of being easier to manage and quality controllable. However, the failure of the central hub could have a detrimental impact on the entire tourism sector. The dependency on a single center for tourism operations creates vulnerability and increases the risk of failure. Therefore, diversifying tourism activities across multiple centers is crucial for ensuring resilience and mitigating the potential negative consequences of a struggling or non-functional central hub. Distributing tourism activities and facilities can minimize the risks associated with relying solely on one center, leading to a more robust and sustainable regional tourism industry.

Therefore, the availability of space was a key factor in promoting resilience in tourism communities during the pandemic while helping to make the local tourism community more resilient. The limitation of this finding is that the results primarily focus on the spatial management scheme within CBT operation and do not extensively consider any influences of external factors such as policy frameworks, economic conditions, and accessibility constraints. The research findings highlight the significance of space availability in establishing multicenter tourism communities. The extent to which space availability contributes to a sense of resilience remains a topic for further investigation. By incorporating the above-mentioned external factors, the research outcome could provide a more holistic understanding of the complexities of spatial management in CBT. This broader perspective would enable researchers and practitioners to develop more comprehensive strategies that consider the interdependencies between spatial management and policy frameworks, economic conditions, and accessibility constraints, thereby enhancing the resilience and sustainability of CBT initiatives in other areas.

However, some health measures still need to be taken to prevent the risk of spreading the disease and keep people safe from infection even post-COVID-19. It is especially important for rural people with limited access to healthcare and other resources. There are certain health measures people can take to protect themselves and others. However, the two-meter distancing (or six feet) rule may not be applicable in rural areas. Several communities with a considerable amount of open space and the ability to allow more than four square meters per person have been unable to continue.

The spatial management of CBT plays a pivotal role in enhancing resilience and ensuring sustainable practices amidst health crises. Diversifying tourism activities across multiple centers, rather than relying solely on a centralized hub, is crucial for mitigating risk and strengthening the overall resilience of tourism communities. This approach allows for better crowd management, reduces the impact of disruptions to any single center, and promotes a more equitable distribution of tourism benefits. While adequate space is essential for effective spatial management, it is equally important to consider the broader context in which CBT operates. Policy frameworks, economic conditions, and accessibility constraints influence communities' ability to implement effective spatial management strategies. A deeper understanding of these interdependencies is necessary to develop comprehensive and sustainable CBT initiatives that can withstand the challenges of health crises and foster longterm resilience.

Amidst the COVID-19 challenges of neoliberal policies and pandemic-induced disruptions, communities seek to transition to sustainable tourism to foster economic resilience and social justice (Moayerian et al., 2022). To address these challenges, policymakers and practitioners must adopt a holistic approach encompassing spatial management, health measures, and the broader external factors that shape CBT operations. Tailored health protocols should be developed for rural areas, taking into account their unique characteristics and space limitations. Additionally, comprehensive policy frameworks that support CBT communities in managing space availability while promoting diversification and implementing effective health measures should be established. By working collaboratively, policymakers and practitioners can foster resilient and sustainable CBT communities capable of adapting to the ever-changing landscape of health crises. This collaborative effort would ensure the continued viability of CBT and contribute to the economic well-being of local communities and the preservation of their unique cultures and environments.

The current context of post-pandemic recovery demands a nuanced exploration of spatial management within CBT operations (Fenitra et al., 2022; Pan et al., 2022). The discourse on resilience expands to encompass the evolving landscape of health crises and the enduring impacts of neoliberal policies. Communities grappling with the disruptions induced by the pandemic are strategically embracing sustainable tourism as a catalyst for economic resilience and social justice. This transition underscores the pivotal role of spatial management in CBT, not only in mitigating risks and ensuring sustainable practices but also in fostering adaptability to the challenges posed by the shifting global context. Policymakers and practitioners must adopt a forward-looking perspective integrating spatial considerations with effective health protocols and comprehensive policy frameworks. This holistic approach ensures that CBT communities not only withstand the immediate shocks of health crises but also thrive in the face of ongoing uncertainties, contributing meaningfully to local economies and cultural preservation.

Implications for Practice

The enriched discussion on post-pandemic resilience in CBT offers significant implications for practice. Practitioners should recognize the heightened importance of spatial management in the recovery phase, acknowledging that the availability of space is a linchpin for effective crowd management and visitor safety. Embracing a multi-center approach, rather than relying solely on a centralized hub, emerges as a strategic practice to mitigate risks and enhance overall resilience. Diversifying tourism activities across multiple centers safeguards against the failure of a single hub and promotes equitable distribution of tourism benefits. Moreover, integrating tailored health protocols, especially for rural areas with unique characteristics and space limitations, is imperative for protecting residents and tourists in the post-COVID era. Policymakers and practitioners must collaboratively develop and implement comprehensive policy frameworks that support CBT communities in managing space effectively while fostering diversification and implementing health measures. This approach ensures that CBT practices endure the immediate challenges of health crises and contribute substantively to local communities' longterm sustainability and well-being.

Limitations and Recommendations for Future Research

While the study revealed the pivotal role of spatial management in post-pandemic CBT, certain limitations merit consideration. The research primarily focuses on the spatial management scheme within CBT operations and does not extensively delve into external influences such as policy frameworks, economic conditions, and accessibility constraints. This limitation suggests a potential gap in understanding the holistic dynamics influencing CBT resilience. Future research endeavors should adopt a more comprehensive approach to address these limitations and enrich the discourse. Investigating the interdependencies between spatial management, policy frameworks, economic conditions, and accessibility constraints could offer a more nuanced understanding of CBT resilience. Additionally, exploring the effectiveness of tailored health protocols in diverse rural settings, considering variations in space limitations, can contribute valuable insights for post-pandemic tourism practices. Moreover, longitudinal studies tracking the implementation of spatial management strategies in CBT communities over time

would provide a deeper understanding of their sustained impact on resilience. Future research initiatives could also explore integrating technology in spatial management practices and its implications for CBT resilience in the evolving landscape of health crises.

ACKNOWLEDGEMENT

This work (Grant No. RGNS 64-029) was supported by the Office of the Permanent Secretary, Ministry of Higher Education, Science, Research and Innovation (OPS MHESI), Thailand Science Research and Innovation (TSRI), and Kasetsart University.

REFERENCES

- Afenyo-Agbe, E., & Mensah, I. (2022). Principles, benefits, and barriers to community-based tourism: Implications for management. In I. Mensah & E. Afenyo-Agbe (Eds.), *Prospects* and challenges of community-based tourism and changing demographics (pp. 1-29). IGI Global. https://doi.org/10.4018/978-1-7998-7335-8. ch001
- Anwari, N., Ahmed, M. T., Islam, M. R., Hadiuzzaman, M., & Amin, S. (2021). Exploring the travel behavior changes caused by the COVID-19 crisis: A case study for a developing country. *Transportation Research Interdisciplinary Perspectives*, 9, Article 100334. https://doi. org/10.1016/j.trip.2021.100334
- Association of Siamese Architects under Royal Patronage. (2020). Building management and facilities for safety from COVID-19 infection. https://asa.or.th/handbook/covid-19/
- Badal, B. P. (2020). Bhaktapur tourism. Research Nepal Journal of Development Studies, 3(1), 29-55. https://doi.org/10.3126/rnjds.v3i1.29650

- Bañón, L., & Bañón, C. (2020). Improving room carrying capacity within built environments in the context of COVID-19. *Symmetry*, *12*(10), Article 1683. https://doi.org/10.3390/sym12101683
- Bazant, M. Z., & Bush, J. W. M. (2021). Beyond six feet: A Guideline to limit indoor airborne transmission of COVID-19. Proceedings of the National Academy of Sciences, 118(17), Article e2018995118. https://doi. org/10.1101/2020.08.26.20182824
- Boullon, R. (2004). Planning tourist space. Trillas.
- Chan, C.-T. (2022). The impact of COVID-19 on domestic tourism by older people in Taiwan. *Frontiers in Public Health*, 10, Article 885632. https://doi.org/10.3389/fpubh.2022.885632
- Cheer, J. M. (2020). Human flourishing, tourism transformation and COVID-19: A conceptual touchstone. *Tourism Geographies*, 22(3), 514-524. https://doi.org/10.1080/14616688.2020.1 765016
- Community Development Department. (2018). OTOP Village Project Management Manual for 8 routes Tourism (OTOP Village). Ministry of Interior Affair. https://korat.cdd.go.th/wp-content/ uploads/sites/22/2018/05/คู่มือการบริหารOTOP -Village.pdf
- "Creative tourism" attracts premium tourists. (2020, November 16). *Bangkok Biz News*. https://www. bangkokbiznews.com/news/detail/908084
- Ding, A., Cenci, J., & Zhang, J. (2022). Links between the pandemic and urban green spaces, a perspective on spatial indices of landscape garden cities in China. Sustainable Cities and Society, 85, Article 104046. https://doi. org/10.1016/j.scs.2022.104046
- Ellis, S., & Sheridan, L. (2014). The legacy of war for community-based tourism development: Learnings from Cambodia. Community Development Journal, 49(1), 129-142. https:// doi.org/10.1093/cdj/bst015

- Elskalakany, S. M., Tolba, O., & Fahmy, A. (2022). Application of COVID-19 guidelines in workplace design. *IOP Conference Series: Earth and Environmental Science*, 1056(1), Article 012009. https://doi.org/10.1088/1755-1315/1056/1/012009
- Fenitra, R. M., Abbas, A., Ekowati, D., & Suhairidi, F. (2022). Strategic intent and strategic leadership: A review perspective for post-COVID-19 tourism and hospitality industry recovery. In P. Mohanty, A. Sharma, J. Kennell, & A. Hassan (Eds.), *The Emerald handbook of destination recovery in tourism and hospitality* (pp. 23-44). Emerald Publishing Limited. https://doi.org/10.1108/978-1-80262-073-320221003
- Fernandez, J. M., Sanchez, D. M., & Izquierdo, L. E. (2022). Tourism planning and management during COVID-19 pandemic: A lesson from Girona. *Open Journal of Social Sciences*, 10(6), 299-318. https://doi.org/10.4236/ jss.2022.106023
- Fuller, H. R., & Huseth-Zosel, A. (2021). Lessons in resilience: Initial coping among older adults during the COVID-19 pandemic. *Gerontologist*, 61(1), 114-125. https://doi.org/10.1093/geront/ gnaa170
- Gao, Y., Sun, D., & Zhang, J. (2021). Study on the impact of the COVID-19 pandemic on the spatial behavior of urban tourists based on commentary big data: A case study of Nanjing, China. *ISPRS International Journal of Geo-Information*, *10*(10), Article 678. https://doi.org/10.3390/ ijgi10100678
- Giampiccoli, A., & Mtapuri, O. (2015). Between theory and practice: A conceptualization of community based tourism and community participation. *Loyola Journal of Social Sciences*, 29(1), 27-52.
- Gorenko, J. A., Moran, C., Flynn, M., Dobson, K., & Konnert, C. (2021). Social isolation and psychological distress among older adults related

to COVID-19: A narrative review of remotelydelivered interventions and recommendations. *Journal of Applied Gerontology*, 40(1), 3-13. https://doi.org/10.1177/0733464820958550

- Hall, C. M., Scott, D., & Gössling, S. (2020). Pandemics, transformations and tourism: Be careful what you wish for. *Tourism Geographies*, 22(3), 577-598. https://doi.org/10.1080/146166 88.2020.1759131
- Herron, R. V., Lawrence, B. C., Newall, N. E. G., Ramsey, D., Waddell-Henowitch, C. M., & Dauphinais, J. (2022). Rural older adults' resilience in the context of COVID-19. *Social Science & Medicine*, 306, Article 115153. https:// doi.org/10.1016/j.socscimed.2022.115153
- Honey-Rosés, J., Anguelovski, I., Chireh, V. K., Daher, C., van den Bosch, C. K., Litt, J. S., Mawani, V., McCall, M. K., Orellana, A., Oscilowicz, E., Sánchez, U., Senbel, M., Tan, X., Villagomez, E., Zapata, O., & Nieuwenhuijsen, M. J. (2021). The impact of COVID-19 on public space: An early review of the emerging questions – design, perceptions and inequities. *Cities & Health*, 5(sup1), S263-S279. https://doi.org/10 .1080/23748834.2020.1780074
- Hu, Z., & Zhang, Q. F. (2022). The resilience of diversified clusters: Reconfiguring commodity networks in rural China during the COVID-19 Pandemic. *Land*, *11*(3), Article 404. https://doi. org/10.3390/land11030404
- Huynh, D. V., Duong, L. H., Nguyen, N. T., & Truong, T. T. K. (2022). Tourism vulnerability amid the pandemic crisis: Impacts and implications for rebuilding resilience of a local tourism system in Vietnam. *Social Sciences*, *11*(10), Article 441. https://doi.org/10.3390/socsci11100441
- Ibănescu, B.-C., Stoleriu, O. M., Munteanu, A., & Iaţu, C. (2018). The impact of tourism on sustainable development of rural areas: Evidence from Romania. *Sustainability*, 10(10), Article 3529. https://doi.org/10.3390/su10103529

- Jugmohan, S., Spencer, J., & Steyn, J. (2016). Local natural and cultural heritage assets and community based tourism: Challenges and opportunities. *Journal of Physical Activity and Health*, 22, 306-317.
- Kang, J., Duan, X., Yan, W., & Ma, Z. (2022). Spatial differentiation and impact factors of tourism development: A case study of the Central Plains, China. *Sustainability*, 14(12), Article 7313. https://doi.org/10.3390/su14127313
- Kimura, M., Ojima, T., Ide, K., & Kondo, K. (2020). Allaying post-COVID 19 negative health impacts among older people: The "need to do something with others"-lessons from the Japan Gerontological Evaluation Study. *Asia Pacific Journal of Public Health*, 32(8), 479-484. https:// doi.org/10.1177/1010539520951396
- Kupi, M., & Szemerédi, E. (2021). Impact of the COVID-19 on the destination choices of Hungarian tourists: A comparative analysis. *Sustainability*, 13(24), Article 13785. https://doi. org/10.3390/su132413785
- Lamers, M., & Student, J. (2021). Learning from COVID-19? An environmental mobilities and flows perspective on dynamic vulnerabilities in coastal tourism settings. *Maritime Studies*, 20(4), 475-486. https://doi.org/10.1007/s40152-021-00242-1
- Lim, J., Kourtit, K., Nijkamp, P., & Stream, C. (2022). Spatial deconcentration of tourism concentrations: A visitors' galaxy impact model of the COVID-19 crisis. *Sustainability*, 14(6), Article 3239. https://doi.org/10.3390/ su14063239
- Lindström, K., & Larson, M. (2016). Community-based tourism in practice: Evidence from three coastal communities in Bohuslan, Sweden. *Bulletin of Geography. Socio-economic Series*, 33, 71-78. https://doi.org/10.1515/bog-2016-0025
- Manifesty, O. R., & Lee, J. (2022). A spatial adaptation strategy for safe campus open spaces

during the COVID-19 pandemic: The case of Korea University. *International Journal of Environmental Research and Public Health*, *19*(15), Article 9390. https://doi.org/10.3390/ ijerph19159390

- Ministry of Tourism and Sports. (2022). *Tourism* Statistics 2022. https://www.mots.go.th/images/ v2022_1709902126810RG9tZXN0aWNfUTEt UTRf4Lib4Li1LTI1NjVf4Lib4Lij4Liw4LmA4 LiX4LioLnhsc3g=.xlsx
- Ministry of Tourism and Sports. (2023). Domestic Tourism Statistics 2022. https://www.mots.go.th/ news/category/657
- Moayerian, N., McGehee, N. G., & Stephenson, M. O. (2022). Community cultural development: Exploring the connections between collective art making, capacity building and sustainable community-based tourism. *Annals of Tourism Research*, 93, Article 103355. https://doi. org/10.1016/j.annals.2022.103355
- Oppermann, R., Aguirre, E., Bleil, R., Calabuig, J. D., Šálek, M., Schmotzer, A., & Schraml, A. (2021). A rapid method for monitoring landscape structure and ecological value in European Farmlands: the LISA approach. *Landscape Online*, 90. https://doi.org/10.3097/LO.202190
- Pan, H., Chen, M., & Shiau, W. L. (2022). Exploring post-pandemic struggles and recoveries in the rural tourism based on Chinese situation: A perspective from the IAD framework. *Journal of Hospitality and Tourism Technology*, *13*(1), 120-139. https://doi.org/10.1108/JHTT-11-2020-0300
- Persson-Fischer, U., & Liu, S. (2021). The impact of a global crisis on areas and topics of tourism research. *Sustainability*, 13(2), Article 906. https://doi.org/10.3390/su13020906
- Pocinho, M., Garcês, S., & de Jesus, S. N. (2022). Wellbeing and resilience in tourism: A systematic literature review during COVID-19. *Frontiers in Psychology*, *12*, Article 748947. https://doi. org/10.3389/fpsyg.2021.748947

- Prajongkarn, W., Riancharoen, T., & Surawattananon, N. (2020, October 13). *Peid switch phākh kār thxng theiņw xyāngri hî khûm seiņng* เปิดสวิตช์ภาค การท่องเทียวอย่างไรให้ดัมเสียง. [How to switch on the tourism sector to be worth the risk]. Bank of Thailand. https://www.bot.or.th/th/research-andpublications/articles-and-publications/articles/ Article 13Oct2020.html
- Pratomlek, O. (2020, June 4). Critical nature: Community-based tourism in Thailand: Impact and recovery from the COVID-19. Center for Social Development Studies. Faculty of Political Science, Chulalongkorn University. https://www. csds-chula.org/publications/2020/6/2/criticalnature-community-based-tourism-in-thailandimpact-and-recovery-from-the-covid-19
- Promislow, D. E. L. (2020). A geroscience perspective on COVID-19 mortality. *The Journals of Gerontology: Series A*, 75(9), e30-e33. https:// doi.org/10.1093/gerona/glaa094
- Ratanapongtra, T., & Techakana, J. (2019). An approach to retain Ayutthaya as a destination of cultural tourism in Thailand. Asian Administration & Management Review, 2(2), 181-189.
- Research and Development Group. (2022, May 24). *The situation of "reviving physical activity" of the Thai population from the impact of the COVID-19 pandemic*. Thailand Physical Activity Knowledge Development Centre. https://www. tpak.or.th/th/article/545
- Sann, R., Lai, P.-C., & Chen, C.-T. (2023). Crisis adaptation in a Thai community-based tourism setting during the COVID-19 pandemic: A qualitative phenomenological approach. *Sustainability*, 15(1), Article 340. https://doi. org/10.3390/su15010340
- Shahid, Z., Kalayanamitra, R., McClafferty, B., Kepko, D., Ramgobin, D., Patel, R., Aggarwal, C. S., Vunnam, R., Sahu, N., Bhatt, D., Jones, K., Golamari, R., & Jain, R. (2020). COVID-19

and older adults: What we know. *Journal of the American Geriatrics Society*, 68(5), 926-929. https://doi.org/10.1111/jgs.16472

- Sitikarn, B., Kankaew, K., Sawangdee, Y., & Pathan, A. (2022). Coffee value symbiosis toward a mountain geographical community-based tourism in Thailand. *GeoJournal of Tourism* and Geosites. 42(2spl), 657-663. https://doi. org/10.30892/gtg.422spl03-874
- Sunakorn, P., & Pinijvarasin, W. (2007). Local identity the hill-tribe villages of northern. In C. Bull, D. Boontharm, C. Parin, & D. Radovic (Eds.), *Cross-cultural urban design: Global or local practice*? (1st ed., pp. 119-124). Routledge. https://doi.org/10.4324/9780203826225
- Świąder, M. (2018). The implementation of the concept of environmental carrying capacity into spatial management of cities. *Management* of Environmental Quality: An International Journal, 29(6), 1059-1074. https://doi. org/10.1108/MEQ-03-2018-0049
- Tan, T., Zha, J., Tang, J., Ma, R., & Li, W. (2022). Spatial-temporal disparities in the impact of the coronavirus disease 2019 on domestic tourism demand: A study of Emeishan National Park in Mainland China. *Journal of Vacation Marketing*, 28(3), 261-284. https://doi. org/10.1177/13567667211053385
- Tangirala, M. (2020, April 9). What COVID spells for community-based tourism. Tata trusts. https:// www.tatatrusts.org/insights/opinions/whatcovid-spells-for-community-based-tourism
- Teddlie, C., & Tashakkori, A. (2009). Foundations of mixed methods research: Integrating quantitative and qualitative approaches in the social and behavioral sciences. Sage.
- United Nations Population Fund. (2020). COVID-19 and older persons: Evidence from the survey in Thailand. https://thailand.unfpa.org/sites/ default/files/pub-pdf/covid-19_report-onlinerevised_2021.pdf

- Vicerra, P. M. M. (2021). Knowledge-behavior gap on COVID-19 among older people in rural Thailand. *Gerontology and Geriatric Medicine*, 7. https://doi.org/10.1177/2333721421997207
- Waelveerakup, W., Aeamlaor, S., Manalo, R. J. C., Pheungsakul, J., Phonudom, P., Yodyai, S., & Chaiyo, S. (2022). Social support of the older persons during the second waves of COVID-19 pandemic in semi-rural Thailand. *Interdisciplinary Research Review*, 17(2), 8-13.
- Werapol, T., & Prachet, A. (2004). *Fhl thì keid khûn cāk kār cạd kickrrm kār thxng theìyw ìx prachāchn nı phûnthì tåbl mà ræm xåphex màrim cạngħwąd cheīyngħim* ผลทีเกิดขึ้นจาก การจัดกิจกรรมการท่องเทียวต่อประชาชนในพื้นที ตำบลแม่แรม อำเภอแม่ริม จังหวัดเชียงใหม่. [Consequence of tourism activities management on the local community Tumbon Maeram, Amphur Maerim Chiangmai, Thailand]. Faculty of Agricultural Production, Meajo University. https://doi.org/10.14457/MJU.res.2004.3
- Wikantiyoso, R., Prakasa Wikananda, T., Triyosoputri, E., Sukanti Cahyaningsih, D., & Galih Sulaksono, A. (2022). Rural tourism destination spatial interventions face the risk of COVID-19 infection case study: Kampong Boenga Grangsil Tourism Destination, Dampit District, Malang Regency. *International Review for Spatial Planning and Sustainable Development*, 10(3), 50-64. https://doi.org/10.14246/irspsd.10.3 50
- World Health Organization. (2020, June 29). *Coronavirus disease (COVID-19): Mass gatherings*. https://www.who.int/emergencies/ diseases/novel-coronavirus-2019/question-andanswers-hub/q-a-detail/coronavirus-diseasecovid-19-mass-gatherings
- Worrachaddejchai, D. (2021, February 12). Lacking vaccination plan, TAT sees Q3 return for foreigners. *Bangkok Post*. https://www. bangkokpost.com/business/2067043/lackingvaccination-plan-tat-sees-q3-return-forforeigners

- Yang, Y., Li, Y., Kral, K., Hupert, N., & Dogan, T. (2021). Urban design attributes and resilience: COVID-19 evidence from New York City. *Buildings and Cities*, 2, 618-636. https://doi. org/10.5334/bc.130
- Yodsurang, P., Kiatthanawat, A., Sanoamuang,P., Kraseain, A., & Pinijvarasin, W. (2022).Community-based tourism and heritage consumption in Thailand: An upside-down

classification based on heritage consumption. *Cogent Social Sciences*, 8(1), Article 2096531. https://doi.org/10.1080/23311886.2022.2096531

Zukhri, N., & Rosalina, E. (2020). Acceleration model for tourism industry recovery based on environment post COVID-19. *IOP Conference Series: Earth and Environmental Science*, 599, Article 012090. https://doi.org/10.1088/1755-1315/599/1/012090



SOCIAL SCIENCES & HUMANITIES

Journal homepage: http://www.pertanika.upm.edu.my/

Review Article

Work Outcomes and Well-being Among Working Women: A Systematic Literature Review

Syara Shazanna Zulkifli and Hazalizah Hamzah*

Department of Psychology, Faculty of Human Development, Universiti Pendidikan Sultan Idris, 35900 Tanjung Malim, Perak, Malaysia

ABSTRACT

The impact of work outcomes (work stress, work-life balance, workplace bullying, and support) on the well-being of working women has been argued for decades. As the rate of employed women rises, the negative impacts of work outcomes on well-being require urgent investigation to retain employees. Thus, this review identifies the associations between work outcomes and psychological well-being among working women. Utilising seven databases (EBSCOhost Research Database, Scopus, Sage Publications, PubMed, Taylor and Francis Online, Google Scholar, and Wiley Online), a total of 13 quantitative studies and ten qualitative studies were included in the review. This review reported moderate links between work stress and well-being (r = -0.20 to -0.44), weak to strong links between work-life balance and well-being (r = 0.12 to 0.70), moderate links between workplace bullying and well-being (r = -0.21 to -0.24), and weak to moderate links between support and well-being (r = 0.20)to 0.38). The most thoroughly researched constructs were work-life balance, workplace bullying, and well-being. Leaders' characteristics, leadership style, employer maltreatment, and workplace bullying have harmed workers' well-being. Furthermore, job stress, workload, staff shortage, loss of privacy, and prejudice detrimentally impacted well-being. Notably, qualitative studies on work stress and support experience are lacking. Overall, studies on work outcomes and well-being among working females are limited. This review identifies

ARTICLE INFO

Article history: Received: 03 August 2023 Accepted: 26 February 2024 Published: 10 June 2024

DOI: https://doi.org/10.47836/pjssh.32.2.05

E-mail addresses: syarashazanna@gmail.com (Syara Shazanna Zulkifli) hazalizah@fpm.upsi.edu.my (Hazalizah Hamzah) * Corresponding author the current gaps in work outcomes and wellbeing. It provides recommendations for future research directions and informs organisations on the importance of work outcomes on the well-being of these working women.

Keywords: Support, well-being, women, work-life balance, workplace bullying, work stress

INTRODUCTION

Women are becoming more prevalent in the labour force as the cost of living rises. According to the Department of Statistics Malaysia (2023), the percentage of working women in Malaysia increased from 47.7% in 2002 to 56.2% in 2021. The increase in working women from diverse backgrounds may be attributed to diverse reasons for working, including lifting financial burdens, obtaining financial independence, building a career identity, and valuing work and work-related achievements (Arshad et al., 2018; Singh & Vanka, 2021).

In Southeast Asia alone, the Malaysian female rate in the workforce ranked seventh out of 10 participating countries, with 52.74% of women currently in the workforce (The Global Economy, 2022). Although statistics showed an increasing trend of working women, recent studies showed that they face work outcome challenges impacting their psychological well-being. It is a matter of concern for organisations, as more than half of employees reported experiencing extreme stress, bringing about economic loss (Chua, 2020). Recent works of literature have attributed poor psychological well-being among working women to increasing work stress, having poor work-life balance, and being targeted as victims of bullying at work (Arabi et al., 2022; Mazumdar et al., 2022; Reid et al., 2020; Rosander et al., 2020).

Additionally, social support studies reported significant improvements in mental health as support increased, with bigger effects shown among older working women (Hamzah et al., 2023). With constant workloads, having supportive leaders enables employees to attain a better quality of working life, indirectly contributing to improved well-being (Abdul Rahman et al., 2019). Moreover, the presence of social support has been linked to improving levels of psychological well-being through the reduction of depressive, anxiety, and stress symptoms (Ibrahim et al., 2021). In line with past literature, this review focuses on work stress, work-life balance, workplace bullying, and support as work outcome elements.

In general, 29% of employees may be associated with well-being challenges through poor mental health (Chua, 2020). Well-being is commonly associated with two paradigms: the hedonic and eudemonic perspectives. According to the hedonic perspective, psychological well-being results from life satisfaction and the presence of pleasant emotions, in addition to the absence of negative emotions (Diener, 1984). Several examples of hedonic well-being include measures of emotional well-being and psychological health. Simply, hedonic well-being pertains to how an individual feels. On the other hand, the eudemonic approach to wellbeing emphasises self-actualisation that promotes human development, including mastery, autonomy, purpose in life, and relationships (Ryff & Keyes, 1995). In simpler terms, it is more complex than hedonic well-being, which relates to how an individual thinks, uses opportunities in life, engages in a meaningful social relationship,

and can function with maximum potential. This research identifies the impact of work outcomes on well-being comprising both hedonic and eudemonic perspectives to provide a comprehensive review.

These studies showed these constructs' relevance in impacting working women's psychological well-being. Yet, the current trend of these constructs and their relationships with psychological well-being is to be known. Therefore, this study aims to uncover the findings regarding work outcomes and psychological well-being among working women. With that, the researcher has formulated the following question:

- Research question 1: What is the link between work stress and women's well-being?
- Research question 2: What is the link between work-life balance and women's well-being?
- Research question 3: What is the link between workplace bullying and women's well-being?
- Research question 4: What is the link between support and women's well-being?
- Research question 5: What are working women's experiences with job stress, work-life balance, workplace bullying, support, and well-being?

MATERIALS AND METHODS

Inclusion and Exclusion Criteria

The following criteria must be met for a study to be included in the review: (1) studies published between 2018 and 2022, (2) studies that investigated the relationships between work stress, work-life balance, workplace bullying, support, and wellbeing, (3) studies from a sample of working women, (4) studies that utilised either one or both quantitative and qualitative approaches, (5) primary studies, (6) peer-reviewed and grey literature studies, (7) studies on workrelated synonyms for work-life balance, workplace bullying, support, and wellbeing, and (8) studies that were published in English, Malay, and Indonesia, which the researcher comprehends. Accordingly, we did not consider studies that (1) were not conducted in English, Malay, or Indonesia languages, (2) review articles, (3) published before 2018, (4) had results that were not specific to working women, and (5) focused on women who did not actively participate in the labour force. It is important to note that this review only focused on studies published in the recent five years to ensure the relevance of the constructs and their relationships, issues surrounding the constructs, and the identification of current findings and methodological approaches.

Procedures

This review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines developed by Page et al. (2021). Beginning in October 2022, the researchers conducted a systematic literature review in several research databases, including EBSCOhost Research Database, Scopus, Sage Publications, PubMed, Taylor & Francis Online, Google Scholar, and Wiley Online, to locate studies on work stress, work-life balance, workplace bullying, support, and well-being among working women around the world.

Firstly, phrased searching was conducted using specific keywords with the inclusion of Boolean operators OR and AND, as follows: ("work stress" OR "job stress" OR "occupational stress" OR "work-related stress" OR "workplace stress" OR "work-life balance" OR "work-life imbalance" OR "work-family balance" OR "workplace bullying" OR "workplace violence" OR "workplace abuse" OR "workplace harassment" OR "aggression" OR "workplace aggression" OR "counterproductive workplace behaviour" OR "workplace mistreatment" OR "supervisor support" OR "supervisor support" OR "workplace support" OR "social support" OR "organisational support") AND ("psychological wellbeing" OR "well-being") AND (female OR women OR employees OR worker OR "working mother" OR "working women"). Noteworthy, phrase searching was also conducted in one grey literature, Google Scholar, to identify relevant work outcomes and well-being studies. A total of 4078 articles emerged as a result of the phrase searching.

Then, these articles were screened for duplicates and automation tools for ineligible studies. From that, 2590 articles were screened following their titles and abstracts. Two thousand four hundred fifty-one abstracts were irrelevant to work outcomes and well-being constructs and were removed. The remaining 139 articles were assessed for eligibility by full text, whereby the researchers assessed the content of the articles to ensure they fit the inclusion criteria. A total of 116 articles were removed for several reasons, such as not being relevant, articles in languages beyond the researchers' knowledge, and using different populations. Finally, 23 studies fully met the inclusion criteria and were included in this review. Figure 1 shows the PRISMA framework and procedure of this review.

Critical Appraisal

A total of 23 articles were reviewed, 13 of which were quantitative and 10 of which were qualitative. The Quality Assessment Checklist for Survey Studies in Psychology (Q-SSP; Protogerou & Hagger, 2020) was used to appraise the quantitative studies. The Q-SSP comprises 20 criteria, categorised into four sections: introduction, participation, statistics, and ethics. As a rule of thumb, a 75.0% or higher score indicates a well-written study. If the study meets more than five "Not Stated Clearly" criteria and receives a "No" or a score of 75.0% or lower, the quality of the research is called into doubt. Table 1 shows the criteria for methodological appraisal based on Q-SSP.

From the appraisal, only two of the 13 articles are considered high-quality (Alrawadieh et al., 2022; Kim, 2022). Based on this checklist, most articles, which is 11 out of 13 articles in the systematic review, are of questionable quality. Detail-wise, one article reported a quality of 95.0%, which

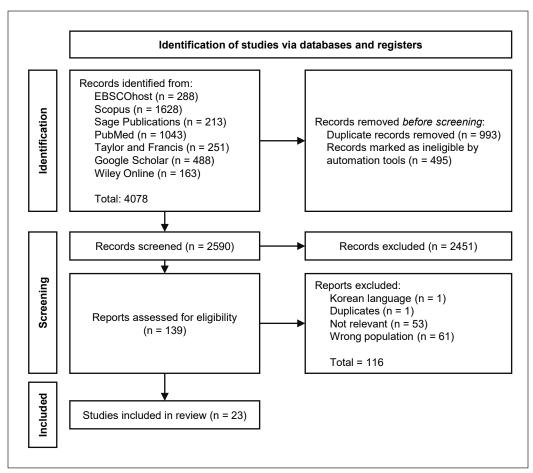


Figure 1. PRISMA framework *Source:* Page et al. (2021, p. 5)

Table 1

Q-SSP criteria for critical appraisal

Dimension	Criteria
Introduction	1. Was the problem or phenomenon under investigation defined, described, and justified?
	2. Was the population under investigation defined, described, and justified?
	3. Were specific research questions and/or hypotheses stated?
	4. Were operational definitions of all study variables provided?
Participants	5. Were participant inclusion criteria stated?
	6. Was the participant recruitment strategy described?
	7. Was a justification/rationale for the sample size provided?
Data	8. Was the attrition rate provided?
	9. Was a method of treating attrition provided?
	10. Were the data analysis techniques justified (i.e., was the link between hypotheses/aims/ research questions and data analyses explained)?

Table 1	(continue)
---------	------------

Dimension	Criteria
	11. Were the measures provided in the report (or a supplement) in full?
	12. Was evidence provided for the validity of all the measures (or instruments) used?
	13. Was the information provided about the person(s) who collected the data (e.g., training, expertise, other demographic characteristics)?
	14. Was the information provided about the data collection context (e.g., place)?
	15. Was the information provided about the data collection duration (or start and end date)?
	16. Was the study sample described in terms of key demographic characteristics?
	17. Was the discussion of findings confined to the population from which the sample was drawn?
Ethics	18. Were participants asked to provide (informed) consent or assent?
	19. Were participants debriefed at the end of data collection?
	20. Were funding sources or conflicts of interest disclosed?

Source: Protogerou and Hagger (2020, p. 7)

is the highest quality paper, followed by another paper with a score of 75.0%. A total of four out of 13 articles received a score between 60.0% and 70.0%, followed by two articles receiving a score between 50.0% and 60.0%, four articles received a score between 40.0% and 50.0%, and only one article received a score of 15.0% or less. Noteworthy, the scores are solely based on the chosen critical appraisal tool. Hence, other quality analysis checklists may produce different scores for the included articles.

Most papers fulfilled the introduction criteria 1–4, while criterion 3 (stating research ideas or hypotheses) scored the lowest. No item fulfilled all 13 criteria. Over half of the articles scored lower in criteria 7 (justification for sample size), 8 (attrition rate), 9 (method for treating attrition), 13 (information of person collecting data), 15 (duration of data collection), and 16 (essential demographic characteristics of participants: age, gender, race/ethnicity, and socioeconomic status). The complete quality assessment scores of the 13 included studies are found in Table 2.

Meanwhile, the Critical Appraisal Skills Programme (CASP; 2018) was adopted for qualitative studies as it is frequently used to assess qualitative studies in systematic reviews (Long et al., 2020). Ten qualitative articles were included for appraisal. CASP comprises ten criteria grouped into three aspects: (1) validity, (2) results, and (3) contribution. Table 3 shows the criteria for methodological appraisal following CASP.

From the appraisal, three out of ten articles evaluated fulfilled all criteria, indicating high-quality papers. Most of the articles satisfied most of the evaluation criteria, except for a paper that failed to satisfy four criteria: 3, 6, 8, and 9. More than half of the included articles did not meet criterion 6 of the evaluation, whereby there was no identification of the researcherparticipant relationship. Table 4 shows the results of the critical appraisal for the qualitative studies.

Table 2 Critical appraisal for quantitative studies																					
Author (Year)		12	m	4	5	9	2	8	6	10		12	[3]	4	15 1	16 1	17	18	19 2	20 J	Total (%)
Akram & Ch (2020)		-	0	-	-	-	0	0	0	-	-	-	0	_	0	0	_	0	0	0	40.0
Alrawadieh et al. (2022)	-	-	-	-	-	0	-	0	0	-	-	-	0	-	-	_	_	-	0	-	75.0
Chawla & Sharma (2019)	1	-	-	-	-	-	0	0	7	-	-	-	0	-	0	0		-		0	68.4
Cuéllar-Molina et al. (2018)	1	-		-	-	-	0	0	7	-	-	-	0	-	0	0		0	0	1	63.2
Dirfa & Prasetya (2019)	1	-	0	-	-	-	0	0	0	-	-	-	0	-	0	0		0	0	0	50.0
Jabeen et al. (2021)	1	-		-	0	0	0	0	0	-	-	-		-	0	0		0	0	0	50.0
Kapoor et al. (2021)	1	-		-	0	-	0	-	-		-	-	-	-	0	0	—	_		0	75.0
Kim (2022)	1	-	0	-	-	-	1	-	-		-	-	-	-			—	_	_	-	95.0
Lucia-Casademunt et al. (2018)	1	-	-		1	0	0		0	-	-	-		0	0	0		0	0	_	60.0
Mensah (2021)	1	-		-	1	-	0	0	0		1	-	0	0	0	0	_	5	5	-	61.0
Prasad & Vaidya (2021)	0	0	-	0	0	0	0	0	0	-	0	-	0	0	0	0	0	0	0	0	15.0
Shui et al. (2020)	1	-		-	0	-	0	0	0	-	0	0	0	-	0	0		-		1	55.0
Wang et al. (2020)	1	-		-	0		0	0	0	-	1	1	0	1	-	0	_	1	0	1	65.0
Source: Author's work																					

Working Women Work Outcomes and Well-being Systematic Review

	Jer and the second second second second second second second second second second second second second second s
Num.	Criteria
1.	Was there a clear statement of the aims of the research?
2.	Is a qualitative methodology appropriate?
3.	Was the research design appropriate to address the aims of the research?
4.	Was the recruitment strategy appropriate to the aims of the research?
5.	Was the data collected in a way that addressed the research issue?
6.	Has the relationship between the researcher and participants been adequately considered?
7.	Have ethical issues been taken into consideration?
8.	Was the data analysis sufficiently rigorous?
9	Is there a clear statement of findings?
10.	How valuable is the research?

Table 3CASP criteria for critical appraisal

Source: Critical Appraisal Skills Programme (2018, pp. 2-6)

Table 4Critical appraisal for qualitative studies

Author (Year)	1	2	3	4	5	6	7	8	9	10	Quality
Antoshchuk & Gewinner (2020)	Y	Y	CT	Y	Y	Ν	Y	CT	Ν	Y	Moderate
Bertola et al. (2022)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	High
Boakye et al. (2021)	Y	Y	Y	Y	Y	Y	Y	Y	Ν	Y	Moderately high
Dousin et al. (2022)	Y	Y	Y	Y	Y	CT	Y	Y	Y	Y	Moderately high
Faghihi et al. (2021)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	High
Hall et al. (2019)	Y	Y	Y	Y	Y	Ν	Y	Y	Y	Y	Moderately high
Lekchiri & Eversole (2021)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	High
Lorber et al. (2021)	Y	Y	Y	Y	Y	Ν	Y	CT	Y	Y	Moderately high
Uddin (2021)	Y	Y	Y	Y	Y	Ν	Y	Y	Y	Y	Moderately high
Wadsworth et al. (2019)	Y	Y	Y	Y	Y	CT	Y	Y	Y	Y	Moderately high

Note. Y = Yes; CT = Cannot Tell; N = No

Source: Author's work

RESULTS

Study Characteristic

Within the 23 included articles, most participants were from China (three articles), European countries (three articles), and India (three articles). Notably, only one article was obtained from the qualitative study, while no article from the quantitative study was found for participants within Malaysia. Furthermore, for five years, from 2018 to 2022, there is an increasing trend of articles published from 2018 to 2021, with a slight reduction of articles in 2022. It is important to note that this review was conducted in 2022. Hence, the number of articles published for that particular year may not reflect the number published by the time of this publication. From the included articles, the

sample sizes for the studies were between 12 to 15,486 participants. Noteworthy, studies conducted in European countries mainly used the data obtained from the European Foundation for the Improvement of Living and Working Conditions Survey (Cuéllar-Molina et al., 2018; Lucia-Casademunt et al., 2018; Mensah, 2021), hence the large number of participants. Supplementary Tables 1 and 2 show the information for the included studies in this review, which can be found in the APPENDIX section.

Work Stress and Well-being Among Working Women

The first research question examines the relationship between work stress and wellbeing among working women. Four studies were conducted in India. South Korea, and Europe (Kapoor et al., 2021; Kim, 2022; Mensah, 2021; Prasad & Vaidya, 2021). Among working women, two articles reported a moderate negative association between work stress and well-being (Kapoor et al., 2021; Kim, 2022), one article reported a low correlation (Mensah, 2021), and one article reported a strong correlation (Prasad & Vaidya, 2021). These results are in line with a past study indicating that perceived work stress, occupational stress, and stress from psychological threats were among the determinants of low well-being (Hirschle & Gondim, 2020).

Although all articles reported significant associations between work stress and wellbeing, the studies obtained different scores during the critical evaluations. Specifically, Kim (2022) scored 95.0% for the appraisal,

failing only one critical appraisal criterion, indicating a high-quality article. Similarly, Kapoor et al. (2021) failed to state the inclusion criteria for participants, sample size, or sample research features and obtained a score of 75.0%, indicating a high-quality paper. Next, Mensah (2021) obtained a lower score as justification for the sample size, and sufficient demographic information was not provided, resulting in a 61.0% score. Lastly, Prasad and Vaidya (2021) calculated an exceedingly low score for the paper, which scored 15.0% out of 100.0% in the quality rating, failing to meet most criteria. Therefore, according to the Q-SSP, the results of this article are considered dubious, and one should take extra caution when referring to the study.

Next, the included studies used several theoretical foundations to support the link between work stress and well-being, namely, the Conservation of Resource Theory (Hobfoll, 1989), the Job Demand-Control Theory (Karasek, 1979), and the Effort Reward Imbalance Theory (Siegrist, 1996). To start, the Conservation of Resource Theory suggests that individuals struggle to acquire and maintain their resources, which are categorised into four groups: objects, conditions, personal characteristics, and energies, and that the loss of resources has a greater impact than their acquisition. Thus, resource scarcity causes tension, and tension is regarded as adversity. In return, adversity influences people to invest in their resources to safeguard other resources.

The next theory, the Job Demand-Control Theory, asserts that stress is strongest when

demand exceeds control (Karasek, 1979). Job demand revolves around workloads, conflict between employees, and time management, while job control primarily revolves around skill discretion and decision authority. With high job expectations, employees can take control by strengthening workplace social support and improving well-being. Finally, a study on occupational stress and well-being used the Effort Reward Imbalance Theory (Siegrist, 1996). This theory suggests that an employee's effort to meet workplace demands is not logical and does not weigh the same as a reward. In other words, workload, work hours, and time pressures do not equal job stability, compensation, and career progress.

Work-Life Balance and Well-being Among Working Women

The second research question examines the relationship between work-life balance and well-being among working women. A total of six studies were conducted in Lahore, European countries, China, India, and Indonesia (Akram & Ch, 2020; Cuéllar-Molina et al., 2018; Dirfa & Prasetya, 2019; Lucia-Casademunt et al., 2018; Prasad & Vaidya, 2021; Shui et al., 2020). All studies found significant positive relationships between work-life balance and well-being.

While they showed significant positive relationships, the strengths of the relationships varied. For example, two studies reported a strong correlation between work-life balance and well-being (Akram & Ch, 2020; Dirfa & Prasetya, 2019), while one study reported a moderate correlation (Cuéllar-Molina et al., 2018), and another study reported a weak correlation (Lucia-Casademunt et al., 2018). Furthermore, this review showed an increasing trend in worklife balance and well-being studies from 2018 to 2020. The associations between work-life balance and well-being were supported by past literature showing an upward trend in work-life balance and support between 1998 and 2020 (Rashmi & Kataria, 2022).

Although all studies reported positive associations, the quality of the papers must be considered due to the low scores obtained in the critical appraisals using the Q-SSP, which ranged from 40.0% to 63.2%, falling short of the 75.0% required for high-quality papers. The low scores obtained were further amplified by the lack of theoretical foundations among the studies, as theoretical support was mentioned only in one of the six included papers. Lucia-Casademunt et al. (2018) explained the work-life balance phenomenon supported by the Role Stress Theory. The theory posits that elevated expectations elicit stress, and assuming additional responsibilities intensifies stress levels. According to the theoretical framework, mothers responsible for greater shares of domestic and occupational roles than fathers are likely to encounter role strain and experience diminished overall well-being.

Workplace Bullying and Well-being Among Working Women

The third research question examines the relationship between workplace bullying

and the well-being of working women. Two studies from Turkey and Pakistan reported the relationship between workplace bullying and well-being (Alrawadieh et al., 2022; Jabeen et al., 2021). In these studies, workplace bullying was measured in terms of sexual harassment and poor workplace behaviors perpetrated by individuals. The findings of the studies reported a moderately negative and significant link between workplace bullying and well-being.

Specifically, Alrawadieh et al. (2022) reported negative associations between being a victim of sexual harassment and psychological well-being. Meanwhile, Jabeen et al. (2021) reported negative associations between workplace bullying, which was the experience of harassment and psychological well-being. These findings are consistent with prior research among female and male employees, which found that workplace bullying significantly influences employee well-being (Boudrias et al., 2021; Gupta et al., 2020; Hayat & Afshari, 2020).

In addition to the significant findings, the quality appraisal reported minimal to questionable qualities for the studies. For instance, Alrawadieh et al. (2022) did not incorporate the sampling recruitment approach, assuming biases. However, it scored 75.0%, indicating a high-quality paper. A lower score was obtained by Jabeen et al. (2021) since the paper did not specify the inclusion criteria, sampling technique, sample size, or participant demographics. Furthermore, the ethical procedures are also considered dubious due to the lack of informed consent, conflict of interest, and debriefing statements. Thus, the paper obtained a quality analysis score of 50.0% and was deemed questionable. Notably, only one theory was found to be the basis of the article, similar to work stress, which is the conservation of resource theory (Hobfoll, 1989) adopted by Jabeen et al. (2021).

Support and Well-being Among Working Women

The fourth research question examines the relationship between support and well-being among working women. The support construct in this review consists of organisational, social, and supervisor support. A total of five studies found a positive association between support and well-being in female employees (Alrawadieh et al., 2022; Lucia-Casademunt et al., 2018; Mensah, 2021; Wang et al., 2020). These studies incorporated samples from China, European countries, and Turkey. The findings of these studies showed that higher social support obtained increased mental well-being. One study reported that support moderated the association between occupational stress and mental well-being (Mensah, 2021).

Specifically, other types of support and family support were associated positively with subjective well-being, whereas friend support was not. In detail, family support was reported to moderate the effects of emotional exhaustion on subjective well-being (Wang et al., 2020). Surprisingly, one study found a negative relationship between social support and subjective well-being; however, it was not statistically significant (Chawla & Sharma, 2019). The significant findings of these studies are supported by past studies that found significant connections between social support and mental health in female-headed households (Khazaeian et al., 2017). Furthermore, a recent systematic evaluation found a substantial impact between organisational support and a pleasant mood, an aspect of subjective wellbeing (Rhoades & Eisenberger, 2002).

In magnitude, the findings of working women's support and well-being in this review reported weak positive associations. The papers received scores between 60.0% to 75.0%, indicating questionable to highquality papers. The diverse scores were obtained due to insufficient information, such as no justification for sample size, absence of data collection procedures, demographics, or inclusion criteria.

Furthermore, two theoretical foundations were adopted regarding workplace bullying and well-being. Firstly, Wang et al. (2020) adopted the Job Demand-Supports-Constraints model (Payne & Fletcher, 1983) to examine female doctors' subjective well-being and perceived organisational support. According to the model, social support reduces stress and strain, while support and resource limits increase stress. The Job Demand-Supports-Constraints model was supported by the study's direct positive correlations between social support and well-being and family support's moderation effect between emotional fatigue and well-being (Wang et al., 2020). Next, supervisor support for employee well-being was explained and assessed using the Organisational Support Theory in the study by Lucia-Casademunt et al. (2018). The theory states that supervisor support is the extent to which an organisation recognises and values employees' efforts and promotes their well-being (Eisenberger et al., 1986).

Experience of Job Stress, Work-life Balance, Workplace Bullying, Support and Well-being Among Working Women

The fifth research question examines the qualitative experience among working women on work stress, work-life balance, workplace bullying, support and wellbeing. For the qualitative papers, the most extensively studied work outcomes factor is work-life balance, which has been the subject of six studies (Antoshchuk & Gewinner, 2020; Bertola et al., 2022; Boakye et al., 2021; Dousin et al., 2022; Lekchiri & Eversole, 2021; Uddin, 2021), followed by working women's experiences of well-being, which have been the subject of three studies (Hall et al., 2019; Lorber et al., 2021; Wadsworth et al., 2019), and experience of workplace bullying with one study (Faghihi et al., 2021). Unfortunately, using the seven databases, our review could not locate qualitative studies on work stress and support experiences among working women.

Firstly, this review found that working women face issues with work-life balance, which influences their well-being. Findings from the work-life balance studies reported that stigma, spillover, and injustice prevented working women from achieving work-life balance. The lack of employees, limited time for work and home matters, socio-cultural and family conventions, gender stereotypes, and the weight of dual obligations interrupted these women's work-life balance. Adequate support from the workplace and family was integral in permitting working women to attain an optimal balance between their work and personal lives. In order to do so, many strategies were employed, including facilitating the engagement of oneself and one's partner in work-life affairs. Alternatively, working women reported to have engaged in a variety of strategies for attaining work-life balance, such as promoting job flexibility, seeking support and assistance from other individuals, proactive planning, stress management, and prioritising crucial activities.

Importantly, only one study in this review examined working women's views on workplace violence, whereby interpersonal and organisational coercion caused physical and verbal violence in the workplace, such as high job expectations, limited social support, and inadequate facilities. Besides that, studies on well-being investigated the experiences, factors influencing wellbeing, and facilitators that improve the well-being of employed women. Qualitative findings on well-being indicated that social support impacts the workforce's wellbeing, with high social support increasing well-being and vice versa (Hall et al., 2019; Lorber et al., 2021; Wadsworth et al., 2019). According to the findings of the three included studies, the well-being of employed women focused on management

and workplace leaders. Leaders' traits, expertise, abilities, and leadership styles are critical in preserving well-being, and employer maltreatment and workplace bullying have harmed workers' well-being. Furthermore, job stress, workload, staff shortage, loss of privacy, and prejudice were all issues that had a detrimental impact on well-being.

Several theoretical approaches were the fundamentals of these qualitative studies, with no theory being the most prominent, as each theory is mentioned only in the respective paper. Specifically, all theories were utilised in studies relating to worklife balance, including the Capabilities and Agency Framework to Work-Family Balance and Life Course Institutionalisation Theory (Antoshchuk & Gewinner, 2020), Social Role Theory and Work-Life Spillover Theory (Bertola et al., 2022), Ecological Theory and Conservation of Resources Theory (Boakye et al., 2021), and Conflict Theory and Role Theory (Lekchiri & Eversole, 2021). Although these studies revolve around work-life balance, their approaches to its definition remain wide, as each theory is only mentioned in the respective paper.

To start, the Capabilities and Agency Framework to Work-Family Balance and Life Course Institutionalization Theory, for example, defines work-life balance in terms of role-specific natures, which asserts that the ability to successfully carry a role is determined by the mother's cultural, structural, and institutional environments, which are nationally bound. These theories are similar in the ways that they posit that individual factors (i.e., income, gender, demographic information), societal factors (i.e., community, media), and institutional factors (i.e., childcare services, workplace culture, autonomy) are interconnected and simultaneously influence the mother's worklife balance.

Meanwhile, the social role theory states that men and women have respective roles that remain the same across time and conditions, and both genders are expected to fulfil their gender roles, such as women caring for the household and men working for the family. The Work-Life Spillover Theory states that work matters influence the worker's personal life in such a way that the organisation's favour of work-life balance policies instils a guilty feeling in the worker, which forces the worker to work overtime or disengages herself from thoughts about work while being at home due to feelings of obligation for receiving work-life balance support from the organisation. Furthermore, the Ecological Theory and Conservation of Resources Theory work together in such a way that the ecological theory argues that work-life balance is achievable when mothers can balance between work and nonwork matters, and to do so, the conservation of resources theory argues that mothers seek to maintain work-life balance by using the environmental resources that are available in the workplace. Poor resources may influence the imbalance of work and family matters.

On the other hand, the Conflict Theory posits that conflict will arise when the mother participates more in one domain than the other. While both work and home domains are connected, they are essentially contradictory. Finally, Role Theory is also used to explain work-life balance. This theory posited that women may compensate for their expected social roles by achieving a high position in the workplace; however, even by achieving a respectable position, women are still bound by their gender roles in the workplace. These incongruences may lead to negative perceptions of women by other employees in the workplace.

Finally, most qualitative studies were assessed as high-quality papers compared to the conflicting findings of the overall quantitative papers. However, Such a comparison is impossible due to the differences in procedures and instruments used to appraise qualitative and quantitative studies.

DISCUSSION

This systematic review examined an initial 4078 studies and selected a finalised 23 studies for synthesis to investigate the relationship between work outcomes (work stress, work-life balance, workplace bullying), support, and well-being of working women from quantitative and qualitative lenses. Results showed significant negative associations between work stress and well-being, significant positive relationships between work-life balance and well-being, negative and significant links between workplace bullying and well-being, and positive associations between social support obtained and well-being, with one study reporting a moderation association between support, occupational stress, and mental well-being. Furthermore, results from qualitative studies explained the difficulties working women experienced regarding work-life balance, well-being, and workplace bullying.

The relationship between work outcomes, support, and well-being showed significant results regardless of the sample population. It indicates that a high work-life balance, low work tension and workplace bullying, and high workplace support are paramount for female employees from diverse backgrounds. Work-life balance is the most researched relationship between work outcomes and well-being, followed by support, work-related stress, and workplace bullying. The impact of work stress on wellbeing could only be determined between 2021 and 2022, with studies unable to show a single trend due to the diversity of magnitudes of the impact of work stress on well-being. For work-life balance, this review found not only an increasing trend in the studies published but also an increasing magnitude of association between worklife balance and well-being, suggesting the increasing importance of work-life balance on well-being in recent years.

Due to the limited findings, the trend of the impacts of work outcomes on wellbeing could not be accurately determined. Similar to work stress, only two studies on workplace bullying were reviewed; hence, the data obtained is too little to identify the trends of the findings. However, both studies mentioned a moderate impact of workplace bullying on well-being, indicating a consistent trend of impacts. No further deduction can be made due to the limited findings. All studies from 2018 to 2022 on support and well-being showed weak associations, suggesting a consistent magnitude of weak positive impacts. Finally, qualitative studies on supervisor support and psychological well-being among working mothers, especially in Malaysia, are scarce. In contrast, quantitative studies from Malaysia are unable to be located within the included studies.

From this review, it can be deduced that work-life balance showed the strongest impact and is presumed to be the most important, while support showed the weakest impact. Although these constructs have been extensively studied, the fact that this review only focuses on working women may explain the scarcity of quantitative investigations. This systematic review found only three studies on workplace bullying in five years, so more research on workplace bullying and women's well-being is required. In contrast, increased research on work-life balance and support shows that these variables sufficiently promote the well-being of female employees.

To sum up, quantitative and qualitative measures reported the significant impacts of work outcomes on well-being, except qualitative studies on work stress and support constructs that were unavailable in this review. However, the construct of social support was found in the qualitative studies on the well-being outcomes of working women. Though this review found no specific article on support experience, it discovered the impact of high and low social support on well-being (Hall et al., 2019; Lorber et al., 2021; Wadsworth et al., 2019). Moreover, it is worth noting for future researchers that qualitative studies on work outcomes and well-being have shown other variables not assessed in this review as determinants of well-being. These include leadership styles and organisationalrelated factors, including staff shortages, prejudice, and work overload. Compared to quantitative measures that explicitly evaluate the impacts of the intended work outcomes on well-being, the findings from the qualitative studies provide a new direction for future research endeavours.

The present systematic review represents an initial endeavour to gain a deeper comprehension of the impact of work stress, work-life balance, bullying at work, and support on the well-being of female employees. The review's notable strength is rooted in the observation that the associations among support, work outcomes, and well-being are consistently significant across most studies. Moreover, this systematic review has effectively bypassed any potential biases in the evaluation by employing systematic methodologies and conducting thorough analyses of the results.

However, it is important to note that certain constraints present in most quantitative research analyses may affect the findings' significance. The sample size was deemed to be insufficient by the quality assessment, which raises concerns about the results' significance. In addition, the respondents' demographic information was absent, and no other information about the participants besides their employment was provided. Furthermore, certain studies failed to include crucial elements such as the recruitment methodology, informed consent protocol, and debriefing process, potentially resulting in biased presumptions.

Notably, this review is not without limitations. The most prominent flaw in this systematic review is the small number of conclusions reached due to incorporating only five years of data. Given the constraints of this study, additional information regarding past trends of the observed significant outcomes remains unknown. Hence, it is recommended that upcoming research endeavours incorporate a comprehensive systematic review spanning the last decade pertaining to the work outcomes and well-being of employed women to gain a more nuanced understanding of the patterns and variations surrounding these phenomena.

Notably, the systematic review was conducted solely on seven databases, which may constrain the scope of related studies to those available to the researcher through the university library subscription. Thus, forthcoming research endeavours may consider seeking endorsement from multiple academic institutions and research organisations possessing diverse database subscriptions, thereby enabling more extensive and all-encompassing research outcomes. Finally, the researchers did not utilise wildcards and truncations in the searches; thus, the number of studies that emerged may differ from those that utilise these search strategies. In an effort to maximise the searches, similar terms and phrases were used, such as work-life balance, work-family balance, and worklife imbalance. With all our limitations, we hope that the findings will benefit all relevant parties.

CONCLUSION

This review provides insights regarding women's work outcomes and well-being in the workforce. Significant relationships exist between work stress, work-life balance, workplace bullying, support, and wellbeing among working women. All variables have been actively researched for the past five years, confirming the significance of all variables to be examined in this research. Second, searching the respective databases for quantitative studies conducted in Malaysia over the past five years reveals a paucity. A single qualitative study was discovered regarding the work-life balance experience among female physicians and nurses, thus presenting opportunities for further research regarding work outcomes and well-being in Malaysia. This review, which included both quantitative and qualitative studies, supported the positive associations between work-life balance and support for well-being, as well as the negative impacts of work stress and workplace bullying on well-being.

Implication for Theory and Practice

This review, conducted using recent 5-year published studies, reveals several gaps in the literature regarding work outcomes and well-being among working women. These gaps may aid researchers in further delving into the relationship between work stress, work-life balance, workplace bullying, and support for well-being among working women. This review likewise provides an overview of the current work outcomes and well-being studies from seven databases, their methodologies, sample size, and theories, which aid researchers in identifying key concepts and research gaps. From this review, contributions can be made to identify new and important research areas to be investigated.

Furthermore, this review provides theoretical contributions in terms of summarising existing knowledge surrounding work outcomes and their impacts on well-being, as well as aiding in developing a new theoretical framework using a mixture of work outcome elements included in this review. Compiling commonly used theories provides a diverse and integrative view of the constructs, resulting in a comprehensive understanding of them and their influences. Subsequently, the systematic review highlighted the strengths and weaknesses of each included paper by evaluating the quality of the research paper following the specific appraisal tools. The review critically evaluates the methodological rigour of the included studies. It enlightens researchers on the included research paper's quality and opportunities for further methodological advancements in research design, participants, measures, ethical procedures, and data analysis.

Accordingly, the findings from this review contribute to the integration of practical decision-making from a theoretical standpoint and aid in transforming theoretical insights into real-world applications by stakeholders, policymakers and other practitioners. This review carefully identifies the link between work outcomes and psychological well-being and advocates for implementing womenfriendly policies, such as work-life balance policies. The challenges regarding work-life balance that are immensely reported in this review serve as a guideline for the crucial work-life balance policies, such as the focus on improving flexible work arrangements, as well as reducing gender stereotypes and stigma towards working women. Subsequently, the positive association between support and psychological wellbeing asserts the importance of training programmes for supervisors that emphasise the strategies to maintain well-being and provide work-related support to subordinates. Supervisor training, work-life balance policies, workplace bullying policies and stress management programmes are essential to positive organisational change.

However, the absence of studies from the Malaysian population in this review demonstrates a theoretical and practical gap. The limited studies on work outcomes and psychological well-being among working women in Malaysia are insufficient to support the development of women-friendly policies in the workplace. Future research may benefit from this review by designing mixed-method research, combining both quantitative and qualitative approaches regarding work outcomes and psychological well-being from the perspectives of working women and organisations to provide comprehensive and clearer findings regarding these relationships in Malaysia. Such studies, particularly those that identify the impacts of work outcomes on psychological well-being from different ethnicities, will provide detailed descriptions of experiences that further contribute to developing actionable strategies to improve work outcomes and psychological wellbeing that cater to working women from diverse backgrounds.

ACKNOWLEDGEMENTS

This review is conducted as a requirement for graduation with a Master of Science in the field of Psychology from Sultan Idris Education University, Perak, Malaysia. The authors wish to show appreciation to the university for its contribution to the publication of this review.

REFERENCES

- Abdul Rahman, R., Wan Mustaffa, W. S., Ab Wahid, H., & Yunus, N. K. Y. (2019). Exploring the factors affecting quality of work life among millennial academic staff in Malaysian public universities. *International Journal of Asian Social Science*, 9(6), 379-389. https://doi. org/10.18488/journal.1.2019.96.379.389
- Akram, M. F., & Ch, A. H. (2020). Relationship of work-family conflict with job demands, social support and psychological well-being of university female teachers in Punjab. *Bulletin of Education & Research*, 42(1), 45-66.
- Alrawadieh, Z., Alrawadieh, D. D., Olya, H. G. T., Bayram, G. E., & Kahraman, O. C. (2022).

Sexual harassment, psychological well-being, and job satisfaction of female tour guides: The effects of social and organisational support. *Journal of Sustainable Tourism*, *30*(7), 1639-1657. https://doi.org/10.1080/09669582.2021. 1879819

- Antoshchuk, I. A., & Gewinner, I. (2020). Still a superwoman? How female academics from the former Soviet Union negotiate work-family balance abroad. *Monitoring Obshchestvennogo Mneniya: Ekonomicheskie i Sotsial'nye Peremeny*, 155(1), 408-435. https://doi. org/10.14515/monitoring.2020.1.17
- Arabi, A., Lugiai, M., Candiru, J., Laveti, M., & Workie, Y. (2022, November 18). Enabling women's and feminist movements to end violence against women and girls: Experience from Vanuatu. United Nations Development Programme. https://www.undp.org/publications/ dfs-enabling-womens-and-feminist-movementsend-violence-against-women-and-girlsexperiences-vanuatu
- Arshad, M. R. M., Alias, F. A. Z., & Marhalim, A. A. (2018). Survivability of single mother: A study in Sepang, Selangor. *Academic Journal of Business* and Social Sciences, 2, 1-12.
- Bertola, L., Colombo, L., Fedi, A., & Martini, M. (2022). Are work-life policies fair for a woman's career? An Italian qualitative study of the backlash phenomenon. *Gender in Management*, 38(1), 1-16. https://doi.org/10.1108/GM-12-2021-0366
- Boakye, A. O., Mensah, R. D., Bartrop-Sackey, M., & Muah, P. (2021). Juggling between work, studies and motherhood: The role of social support systems for the attainment of work–life balance. *SA Journal of Human Resource Management*, 19, Article a1546. https://doi.org/10.4102/sajhrm. v19i0.1546
- Boudrias, V., Trépanier, S. G., & Salin, D. (2021). A systematic review of research on the longitudinal

consequences of workplace bullying and the mechanisms involved. *Aggression and Violent Behavior*, *56*, Article 101508. https://doi. org/10.1016/j.avb.2020.101508

- Chawla, S., & Sharma, R. R. (2019). Enhancing women's well-being: The role of psychological capital and perceived gender equity, with social support as a moderator and commitment as a mediator. *Frontiers in Psychology*, 10, Article 1377. https://doi.org/10.3389/fpsyg.2019.01377
- Chua, S. N. (2020). Workplace mental health: The business costs. Relate Mental Health Malaysia. https://relate.com.my/wp-content/ uploads/2020/02/WorkplaceMentalHealth_ FA 17022020 BW.pdf
- Critical Appraisal Skills Programme. (2018). CASP Qualitative Checklist. https://casp-uk.net/images/ checklist/documents/CASP-Qualitative-Studies-Checklist/CASP-Qualitative-Checklist-2018_ fillable_form.pdf
- Cuéllar-Molina, D., García-Cabrera, A. M., & Lucia-Casademunt, A. M. (2018). Is the institutional environment a challenge for the well-being of female managers in Europe? The mediating effect of work-life balance and role clarity practices in the workplace. *International Journal* of Environmental Research and Public Health, 15(9), Article 1813. https://doi.org/10.3390/ ijerph15091813
- Department of Statistics Malaysia. (2023). *Labour* force statistics report. https://www.dosm.gov.my/ uploads/release-content/file_20230511111955. pdf
- Diener, E. (1984). Subjective well-being. *Psychological Bulletin*, 95(3), 542-575. https:// doi.org/10.1037/0033-2909.95.3.542
- Dirfa, Y. N., & Prasetya, B. E. A. (2019). Hubungan antara work-life balance dengan psychological well-being pada dosen wanita di perguruan tinggi Salatiga [The relationship between worklife balance and psychological well-being in

female lecturers at Salatiga universities]. *Jurnal Psikohumanika*, *11*(2), 151-169. https://doi. org/10.31001/j.psi.v11i2.699

- Dousin, O., Collins, N., & Kler, B. K. (2022). The experience of work-life balance for women doctors and nurses in Malaysia. *Asia Pacific Journal of Human Resources*, 60(2), 362-380. https://doi.org/10.1111/1744-7941.12282
- Eisenberger, R., Huntington, R., Hutchison, S., & Sowa, D. (1986). Perceived organizational support. *Journal of Applied Psychology*, 71(3), 500-507. https://doi.org/10.1037/0021-9010.71.3.500
- Faghihi, M., Farshad, A., Abhari, M. B., Azadi, N., & Mansourian, M. (2021). The components of workplace violence against nurses from the perspective of women working in a hospital in Tehran: A qualitative study. *BMC Women's Health*, 21(1), Article 209. https://doi. org/10.1186/s12905-021-01342-0
- Gupta, P., Gupta, U., & Wadhwa, S. (2020). Known and unknown aspects of workplace bullying: A systematic review of recent literature and future research agenda. *Human Resource Development Review*, 19(3), 263-308. https:// doi.org/10.1177/1534484320936812
- Hall, B. J., Garabiles, M. R., & Latkin, C. A. (2019). Work life, relationship, and policy determinants of health and well-being among Filipino domestic workers in China: A qualitative study. *BMC Public Health*, 19(1), Article 229. https://doi.org/10.1186/s12889-019-6552-4
- Hamzah, H., Ramlee, F., Perveen, A., Mustapha, R., & Zulkifli, S. S. (2023). Social support and mental health among female employees: The moderating effect of age. *International Journal* of *Public Health Science*, *12*(3), 1-9. https://doi. org/10.11591/ijphs.v12i3.22808
- Hayat, A., & Afshari, L. (2020). Supportive organisational climate: A moderated mediation model of workplace bullying and employee well-

being. *Personnel Review*, 50(7/8), 1685-1704. https://doi.org/10.1108/PR-06-2020-0407

- Hirschle, A. L. T., & Gondim, S. M. G. (2020). Stress and well-being at work: A literature review. *Ciencia e Saude Coletiva*, 25(7), 2721-2736. https://doi.org/10.1590/1413-81232020257.27902017
- Hobfoll, S. E. (1989). Conservation of resources: A new attempt at conceptualizing stress. *American Psychologist*, 44(3), 513-524. https://doi. org/10.1037/0003-066X.44.3.513
- Ibrahim, R. Z. A. R., Zalam, W. Z. M., Foster, B., Afrizal, T., Johansyah, M. D., Saputra, J., Bakar, A. A., Dagang, M. M., & Ali, S. N. M. (2021). Psychosocial work environment and teachers' psychological well-being: The moderating role of job control and social support. *International Journal of Environmental Research and Public Health*, 18, Article 7308. https://doi.org/10.3390/ ijerph18147308
- Jabeen, A., Abbas, B., Syed, F. U., & Khalil, M. (2021). An investigation of the consequences of workplace bullying, including defensive silence and psychological well-being. The role of negative work rumination in mediating the effects of workplace bullying. *International Journal of Innovative Science and Research Technology*, 6(7), 1004-1010.
- Kapoor, V., Yadav, J., Bajpai, L., & Srivastava, S. (2021). Perceived stress and psychological well-being of working mothers during COVID-19: A mediated moderated roles of teleworking and resilience. *Employee Relations: The International Journal*, 43(6), 1290-1309. https://doi.org/10.1108/ER-05-2020-0244
- Karasek, R. A. (1979). Job demands, job decision latitude, and mental strain: Implications for job redesign. Administrative Science Quarterly, 24(2), 285-308. https://doi.org/10.2307/2392498
- Khazaeian, S., Kariman, N., Ebadi, A., & Nasiri, M. (2017). The impact of social capital and

social support on the health of female-headed households: A systematic review. *Electronic Physician*, *9*(12), 6027-6034. https://doi. org/10.19082/6027

- Kim, H.-K. (2022). In the Covid-19 era, effects of job stress, coping strategies, meaning in life and resilience on psychological wellbeing of women workers in the service sector. *International Journal of Environmental Research* and Public Health, 19(16), Article 9824. https:// doi.org/10.3390/ijerph19169824
- Lekchiri, S., & Eversole, B. A. W. (2021). Perceived work-life balance: Exploring the experiences of professional Moroccan women. *Human Resource Development Quarterly*, 32(1), 35-53. https://doi. org/10.1002/hrdq.21407
- Long, H. A., French, D. P., & Brooks, J. M. (2020). Optimising the value of the critical appraisal skills programme (CASP) tool for quality appraisal in qualitative evidence synthesis. *Research Methods* in Medicine & Health Sciences, 1(1), 31-42. https://doi.org/10.1177/2632084320947559
- Lorber, M., Treven, S., & Mumel, D. (2021). Workplace factors related to the well-being of employees in nursing: A mixed-methods study. *Journal of East European Management Studies*, 26(1), 100-116. https://doi.org/10.5771/0949-6181-2021-1-100
- Lucia-Casademunt, A. M., García-Cabrera, A. M., Padilla-Angulo, L., & Cuéllar-Molina, D. (2018). Returning to work after childbirth in Europe: Well-being, work-life balance, and the interplay of supervisor support. *Frontiers in Psychology*, 9, Article 68. https://doi. org/10.3389/fpsyg.2018.00068
- Mazumdar, K., Sen, I., & Parekh, S. (2022). The invisible frontline workers: Lived experiences of urban Indian mothers during COVID-19 in India. *Journal of Gender Studies*, 31(5), 623-638. https://doi.org/10.1080/09589236.2021. 2007472

- Mensah, A. (2021). Job stress and mental well-being among working men and women in Europe: The mediating role of social support. *International Journal of Environmental Research and Public Health*, 18(5), 1-19. https://doi.org/10.3390/ ijerph18052494
- Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., ... Moher, D. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *The BMJ*, 372, Article n71. https://doi.org/10.1136/ bmj.n71
- Payne, R., & Fletcher, B. (1983). Job demands, supports, and constraints as predictors of psychological strain among schoolteachers. *Journal of Vocational Behavior*, 22(2), 136-147. https://doi.org/10.1016/0001-8791(83)90023-4
- Prasad, K. D. V., & Vaidya, R. (2021). Occupational stress and its impact on work-life balance and psychological well-being of remote working women employees in information technology enabled sector during Covid-19 pandemic: An empirical study in Hyderabad Metro. *Review of International Geographical Education Online*, 11(7), 619-630.
- Protogerou, C., & Hagger, M. S. (2020). A checklist to assess the quality of survey studies in psychology. *Methods in Psychology*, *3*, Article 100031. https://doi.org/10.1016/j.metip.2020.100031
- Rashmi, K., & Kataria, A. (2022). Work-life balance: A systematic literature review and bibliometric analysis. *International Journal of Sociology and Social Policy*, 42(11-12), 1028-1065. https://doi. org/10.1108/IJSSP-06-2021-0145
- Reid, A., Daly, A., LaMontagne, A. D., Milner, A.,& Ronda Pérez, E. (2020). Descriptive study of workplace demand, control and bullying among

migrant and Australian-born workers by gender: Does workplace support make a difference? *BMJ Open*, *10*, Article e033652. https://doi. org/10.1136/bmjopen-2019-033652

- Rhoades, L., & Eisenberger, R. (2002). Perceived organisational support: A review of the literature. *Journal of Applied Psychology*, 87(4), 698-714. https://doi.org/10.1037/0021-9010.87.4.698
- Rosander, M., Salin, D., Viita, L., & Blomberg, S. (2020). Gender matters: Workplace bullying, gender, and mental health. *Frontiers in Psychology*, 11, Article 560178. https://doi. org/10.3389/fpsyg.2020.560178
- Ryff, C. D., & Keyes, C. L. M. (1995). The structure of psychological well-being revisited. *Journal of Personality and Social Psychology*, 69(4), 719-727. https://doi.org/10.1037/0022-3514.69.4.719
- Shui, Y., Xu, D., Liu, Y., & Liu, S. (2020). Workfamily balance and the subjective well-being of rural women in Sichuan, China. *BMC Women's Health*, 20, Article 1. https://doi.org/10.1186/ s12905-019-0871-6
- Siegrist, J. (1996). Adverse health effects of higheffort / low-reward conditions. Journal of Occupational Health Psychology, 1(1), 27-41. https://doi.org/10.1037/1076-8998.1.1.27

- Singh, S., & Vanka, S. (2021). Career break, not a brake on career: A study of the reasons and enablers of women's re-entry to technology careers in India. *Business Perspectives and Research*, 9(2), 195-214. https://doi.org/10.1177/2278533720964328
- The Global Economy. (2022). *Female labor force participation in Asia*. https://www. theglobaleconomy.com/rankings/female_labor_ force participation/South-East-Asia/
- Uddin, M. (2021). Addressing work-life balance challenges of working women during COVID-19 in Bangladesh. *International Social Science Journal*, 71(239-240), 7-20. https://doi. org/10.1111/issj.12267
- Wadsworth, P., Krahe, J. A. E., & Allen, E. (2019). Occupational well-being in sexual assault victims and survivors. *Journal of Holistic Nursing*, 38(2), 170-185. https://doi. org/10.1177/0898010119863537
- Wang, L., Wang, H., Shao, S., Jia, G., & Xiang, J. (2020). Job burnout on subjective well-being among Chinese female doctors: The moderating role of perceived social support. *Frontiers in Psychology*, 11, Article 435. https://doi. org/10.3389/fpsyg.2020.00435Supplementary Files

	,					
No.	No. Author (Year) Country	Country	Sample	Theoretical approach	Instrument	Outcome
П	Akram and Ch Lahore (2020)	Lahore	Female teachers $N = 410$	Not mentioned	Work-family conflict (Carlson et al., 2000) General health questionnaire (Goldberg, 1979)	Work-family conflict significantly correlates positively with psychological well-being ($p < 0.000, t = 16.374 > 1.96$); path coefficient 0.556 shows a positive correlation between work-family conflict and psychological well-being. It shows
						that teachers having work-family conflict are also having depression and anxiety, which reflects their poor mental health and psychological well-being.
7	Alrawadieh et al. (2022)	Turkey	Female tour guides	Female tour Not mentioned guides	Sexual harassment scale (Murry et al., 2001)	Significant positive correlations between perceived social support and organisational support with
			122 = N		Psychological well-being scale (Diener et al., 1985)	psychological well-being were reported, and a significant negative correlation between sexual
					Percetved social support scale (Zimet et al., 1988)	harassment and psychological well-being. Besides that, sexual harassment significantly and negatively
					Perceived organisational support scale (Shanock & Eisenberger, 2006)	affects psychological well-being ($\beta = -0.224$, p < 0.0001).
ŝ	Chawla and Sharma (2019)	India	Managers $N = 433$	Not mentioned	Social support scale (Marcinkus et al., 2007)	For women, findings reported a negative, non- significant correlation between social support and
			(201 women)		Positive and Negative Affect Schedule (Watson et al., 1988)	well-being, whereby higher social support leads to lower well-being levels.
					Satisfaction With Life Scale (Diener et al., 1985)	

Supplementary Table 1 Included quantitative studies for review

Supp	Supplementary Table 1 (continue)	(continue)				
No.	Author (Year)	Country	Sample	Theoretical approach	Instrument	Outcome
4	Cuéllar-Molina et al. (2018)	European countries	Female managers $N = 575$	Social production function theory Job demand – resource model Warr's model of well-being	European Working Conditions Survey (Eurofond, 2015), which consisted of the following: 1. A 3-item measure for subjective well-being 2. A single-item for work-life balance	A significant positive effect was reported between work-life balance and female managers' subjective well-being ($\beta = 0.215$, p < 0.001).
Ŋ	Dirfa and Prasetya (2019)	Indonesia	Female lecturer $N = 40$	Not mentioned	Work-Life Balance Scale (Fisher, 2009) Ryff's Scale of Psychological Well- being (Ryff, 1995)	The results showed a significant positive correlation that $r = 0.702$ with a significance value of 0.000 (p <0.05), which means that psychological well- being will be high with a higher work-life balance.
Q	Jabeen et al. (2021)	Pakistan	Female nurses $N = 350$	Conservation of resource theory	Negative Acts Questionnaire- Revised scale (Einarsen et al., 2009) General Health Questionnaire (Goldberg, 1972)	Workplace bullying has a negative impact on psychological well-being (β = -0.209, p < 0.01).
5	Kapoor et al. (2021)	India	Working mothers $N = 326$	Conservation of resource theory	Psychological Well-Being Scale (Diener & Diener, 2008) Perceived stress scale (Cohen et al., 1983)	An inverse association was found between perceived stress and psychological well-being ($\beta = 0.32$, $p < 0.01$),
∞	Kim (2022)	South Korea	Women service worker N = 135	Not mentioned	Modified job stress tool (Lee, 2009; Beehr & Newman, 1978) Ryff's Psychological Well-being Scale (Ryff, 1989)	On the other hand, psychological well-being showed negative correlations with job role stress ($r = -0.43$, $p < 0.001$), interpersonal stress ($r = -0.41$, $p < 0.001$), job environment stress ($r = -0.40$, $p < 0.001$), interactional stress ($r = -0.20$, $p = 0.019$), job stress ($r = -0.44$, $p < 0.001$). Psychological well-being factors include job role stress ($\beta = -0.24$, $p < 0.001$).

460

Pertanika J. Soc. Sci. & Hum. 32 (2): 437 - 464 (2024)

upple No.	Supplementary lable 1 (commue) No. Author (Year) Country	Country	Sample	Theoretical approach	Instrument	Outcome
	Lucia- Casademunt et al. (2018)	European countries	Female employees N = 664	Perceived Organisational Support Theory Warr's model of well-being Role stress theory	Working Conditions Survey (Eurofond, 2012) which consisted of: 1. WHO-5 Questionnaire Index (World Health Organisation) 2. A single-item measure for supervisor support 3. A single-item measure for work- life balance	Correlations between work-life balance and job well-being are positively significant ($r = 0.118$, p<0.01) and between supervisor support and job well-being ($r = 0.200$, p <0.001). Furthermore, a significant and negative impact was found for the interaction effect of work-life balance and supervisor support on job well-being, in such a way that at low perceived work-life balance, supervisor support increases the job well-being of women. However, supervisor support was less relevant and important in increasing well-being and achieving a high work-life balance.
	Mensah (2021)	European countries	Working women $N = 15,486$	Job demand- control theory Effort reward imbalance theory Job demand resources model Transactional process model	Working Conditions Survey (Eurofond, 2015), which consisted of: 1. WHO-5 Questionnaire Index (World Health Organisation) 2. A single-item measure of Job Stress 3. A short version of the social support scale	Findings showed a weak and negative significant correlation between job stress and mental well- being among women ($p = -0.248$) and a positive correlation between social support and mental well-being ($p = 0.273$). In addition, social support significantly mediated the relationship between mental well-being and job stress ($\beta = -0.0052$, 95% <i>CI</i> : $-0.0081-0.0024$)
	Prasad and Vaidya (2021)	India	IT sector female employees N = 255	Not mentioned	Ryff's Psychological Well-being Scale (Ryff, 1995) Self-developed stress and a work- life balance scale	There is a significant relationship between work- life balance and psychological well-being, and a significant relationship between occupational stress and all elements of psychological well- being (autonomy, positive relations, environmental mastery, purpose in life, personal growth, self- acceptance)

Supp	Supplementary Table 1 (continue)	1 (continue)					
No.	Author (Year)) Country	Sample	Theoretical approach	Ins	Instrument	Outcome
12	Shui et al. (2020)	China	Rural working <i>N</i> = 380	Not mentioned	The household survey (China I Development Survey Group in Sichuan Province, 2016).	The household survey (China Rural Development Survey Group in Sichuan Province, 2016).	Work-interfering-with-family conflict and work-family balance impacted the subjective well-being of rural working women in China.
13	Wang et al. (2020)	China	Female doctors $N = 120$	Job demand- supports- constraints model	Perceived Social St (Zimet et al., 1988) Subjective Well-bei 1996)	Perceived Social Support Scale (Zimet et al., 1988) Subjective Well-being Scale (Duan, 1996)	Perceived social support and its dimensions of other support and family support positively correlate with subjective well-being. In contrast, a non- significant correlation was found between friend support and subjective well-being. Furthermore, family support moderates the relationship between emotional exhaustion and subjective well-being.
Soura	Source: Author's work	k					
Supp Inclu	Supplementary Table 2 Included qualitative studies for review	2 tudies for revi	iew				
No.	Author	Country	Variable	Objective	Sample	Theory	Findings
	Antoshchuk and Gewinner (2020)	Soviet Union	Work-life balance	To examine the work-life balance strategies of Russian-speaking female academics after migration.	Female academics N = 22	Capabilities and agency framework to work-family balance Life course institutionalisation theory	Working mothers engaged in three strategies: family-oriented, compromise and career-oriented. The most common is compromise, followed by career-oriented and family-oriented. Two types of institutional and cultural contexts shape these strategies: self-reliance and partner involvement.
	Bertola et al. (2022)	Italy	Work-life balance	To explore the work- family backlash phenomenon in the Italian working mother work context.	- Italian working women <i>N</i> = 15	Social role theory Work-life spillover theory	Mechanisms of work-family backlash, including stigma, spillover, inequity, and strategic mechanism of work-family backlash, triggered a vicious cycle of perceived inequity that leads to job dissatisfaction and low work motivation.

Syara Shazanna Zulkifli and Hazalizah Hamzah

462

Supp	Supplementary Table 2 (continue)	s 2 (continue)					
No.	Author	Country	Variable	Objective	Sample	Theory	Findings
	Boakye et al. (2021)	Ghana	Work-life balance	To explore the experiences of working mothers currently studying and working on achieving work-life balance.	Working mothers $N = 6$	Ecological theory Conservation of resources theory	Working mothers maintain work-life balance through work flexibility, co-worker support, supportive supervisor, supportive family, and programmed work-life schedule.
	Dousin et al. Malaysia (2022)	Malaysia	Work-life balance	To explore the experiences of female doctors and nurses in Malaysia and the factors impacting their work-life balance.	Women doctors and nurses $N = 26$	Not mentioned	Three themes emerged from the interview: the burden of carrying dual responsibilities disrupts work-life balance; collegiality at work facilitates work-life balance and reduces work-life balance conflict; and staff shortages increase work-life balance conflict.
	Faghihi et al. (2021)	Iran	Workplace bullying	To describe the components of workplace violence against nurses from the perspective of working women.	Female nurses <i>N</i> = 21	Not mentioned	Workplace violence against women occurs at two levels, namely interpersonal violence, including physical and verbal violence, patient ingratitude, and organisational coercion, such as work demands, low support, and lack of facilities.
	Hall et al. (2019)	China	Well- being	To explore the experiences of Filipino female domestic workers in China regarding working conditions and risk factors for poor health.	Female domestic workers $N = 22$	Not mentioned	Findings reported factors affecting well-being, such as employer abuse, lack of privacy, language barriers, discrimination, lack of protection, and low social support.

Working Women Work Outcomes and Well-being Systematic Review

No. Author Country	Author	Country	Variable	Objective	Sample	Theory	Findings
	Lekchiri and Eversole (2021)	Morocco	Work-life balance	To explore the perception of professional Moroccan working women on work-life balance.	Working women $N = 45$	Conflict Theory Role Theory	Work-life balance was viewed as equal fulfilling professional and personal responsibilities. 67% of participants faced difficulties balancing their professional lives and families. Most the companies did not have work-life balance programmes for the employees. Finally, participants stated that they received a good support system from their families.
	Lorber et al. (2021)	Slovenia	Well- being	To identify workplace factors that influence the well-being of nurses.	Female nurses $N = 12$	Not mentioned	Factors influencing the well-being of nurses include leadership style, personal qualities and knowledge and skills of the leader, workplace stress, satisfied patients, and organisation-related factors such as co-workers, workload, lack of staff, and safety culture.
	Uddin (2021)	Bangladesh	Work-life balance	To identify the challenges of work- life balance among working women in Bangladesh.	Working wonen $N = 22$	Not mentioned	Analysis showed that motivations for work- life balance include flexibility, homeworking, and receiving support from family, spouse, and organisation. Meanwhile, challenges faced by working women were limited time, socio-cultural and family norms, and gender stereotypes. Lastly, strategies used by participants include effective time and stress management, keeping the household happy, managing professional and personal lives equally, and prioritising.
	Wadsworth et al. (2019)	United States of America	Well- being	To explore the definition, barriers, and facilitators to the occupational well-being of sexual assault victims/ survivors.	Working women N = 22	Not mentioned	Diagnosed with mental disorders and having symptoms, substance abuse, inflexible attendance policies, and workplace bullying were barriers to occupational well-being. Meanwhile, personal coping strategies and receiving organisational and social support were facilitators of occupational well-being.

Pertanika J. Soc. Sci. & Hum. 32 (2): 437 - 464 (2024)

Source: Author's work



SOCIAL SCIENCES & HUMANITIES

Journal homepage: http://www.pertanika.upm.edu.my/

Review Article

A Review of Chinese as a Second Language Journal Publication Trends: The Case of Universiti Teknologi MARA

Min Hui Leow^{1*}, Foo Terng Hoe¹ and Chin Shuang Goh²

¹Academy of Language Studies, Universiti Teknologi MARA, 13500 Permatang Pauh, Pulau Pinang, Malaysia ²Academy of Language Studies, Universiti Teknologi MARA, 40450 Shah Alam, Selangor, Malaysia

ABSTRACT

This study reviews the publication trends on Chinese as a second language, which indicates the current situation, research gaps, and potential directions for future research. This review examines Chinese as a second language journal publications produced by lecturers and researchers at Universiti Teknologi MARA (UiTM) since the publications are scattered without systematic organisation, making it difficult to determine which direction the research is headed and to foresee the topics of interest that will encourage future growth. This review conducted a systematic review of 75 journal articles published from 2013 to 2023, focusing on publication status and trends, co-authorship, and content scope. As a result, this study discovered a publication gap between general-UiTM-recognised journals and international-recognised journals. It proposed to broaden the expertise collaboration to international networking. This study also identifies population gaps, which urged conducting research at a wider range. In terms of content scope, research gaps were found in theoretical, conceptual, model, and toolbuilding research, as well as in-depth investigation of Chinese language, culture, and social studies. The incorporation of technology in future research is prospective due to the current rise in digital awareness. Moreover, learners' behaviour in learning Chinese as a second language should be further investigated due to dispersive research. This systematic review

ARTICLE INFO

Article history: Received: 23 October 2023 Accepted: 14 February 2024 Published: 10 June 2024

DOI: https://doi.org/10.47836/pjssh.32.2.06

E-mail addresses: leowminhui@uitm.edu.my (Min Hui Leow) hoef0964@uitm.edu.my (Foo Terng Hoe) gohch269@uitm.edu.my (Chin Shuang Goh) * Corresponding author contributes to the continuous development of researching and instructing Chinese as a second language in UiTM. It serves as a guide for other Malaysian higher education institutions with a similar research interest.

Keywords: Chinese, second language, systematic review, trends

ISSN: 0128-7702 e-ISSN: 2231-8534

INTRODUCTION

Chinese language learning has experienced a worldwide boom due to China's ongoing and extensive support of international Chinese language education since 2004. Before the outbreak of the Covid-19 epidemic, statistics presented at the 2019 International Conference on Chinese Language Education indicated that China had established 550 Confucius Institutions and 1,172 Confucius Classrooms in 162 countries or regions to promote the Mandarin/Chinese language and culture (as cited in Hu, 2019). It is projected that the number will rise in the upcoming years. Indeed, for tertiary students in higher education institutions worldwide, spending time in China to learn Mandarin/ Chinese is becoming gradually mainstream (Wei & Chen, 2021). Meanwhile, teaching Chinese as a second language is quite common worldwide.

In Malaysia, many public and private universities offer Chinese courses to nonnative Chinese speakers. According to Hoe and Tan (2007), teaching Chinese courses in Malaysia began in the 1960s. These Chinese courses are often included as part of the requirement for graduation. Hence, the Chinese courses offered at these public universities are designed to be as elementary as possible, emphasising Pinyin (the standard system of Romanised spelling for transliterating Chinese) and simplified Chinese characters (Lee & Jaganathan, 2020). There are 20 national universities in Malaysia, each offering Chinese courses. Records show that the earliest university to offer Chinese as a second language

classes was the University of Malaya (UM), where Chinese classes opened in 1963 and were taught by lecturers from the Department of Chinese Studies (Fan, 2011). Universiti Teknologi MARA (UiTM), formerly Institut Teknologi MARA (ITM), is Malaysia's largest of the 20 national universities. Following UM, UiTM began offering Chinese language courses to its students in 1968. 15,000 to 16,000 Malay and indigenous students learn Chinese at UiTM every semester. In December 2020, the number of students learning Chinese reached 19,568 (Gan et al., 2021). Since UiTM has such a strong background and is a pioneer in this field, investigating UiTM's second language teaching can probably reflect the landscape of second language teaching in Malaysia.

With regard to active teaching and learning of Chinese as a second language, much research has been conducted by UiTM lecturers and researchers, which allows contributions to developing or improving knowledge in the field of Chinese as a second language education. However, the studies are scattered without systematic organisation, making it difficult to determine which direction the research on Chinese as a second language is headed and to foresee the topics of interest among lecturers and researchers that will encourage the future growth of Chinese as a second language instruction in the UiTM context. Reviews are often conducted in second-language studies to investigate current and emerging trends. A recent comprehensive review of the development of Chinese as second

language research was conducted by J. Chan et al. (2022), giving a map of articles published on Chinese as a second language in more than 24 countries over the last three decades and addressing what ought to be regarded as a significant gap in the literature. Conversely, from a narrower perspective, it is equally critical to understand the extent to which the publication trend of a specific educational institution corresponds with the global demands of the field of study at present. The lack of reviewing the publications causes publication redundancy in the UiTM context. The redundancy of publications wastes resources and hardly addresses the gaps in the literature to meet the field's current needs.

Furthermore, there has not been a comprehensive study on systematic reviewing and synthesising Chinese as a second language research published by the lecturers and researchers in UiTM, in which the publication trend on Chinese as a second language at this specific educational institution is not adequately known. Similarly, no studies at Malaysian universities and institutions have yet been conducted to comprehensively investigate the publication trends of second languages, including Chinese, English, and Malay as a second language. This circumstance hardly keeps track of the effective growth of second-language publications to meet the field's demands on a national or worldwide scale. This study's initiative is anticipated to extend to other regional universities and institutions in Malaysia to further enhance the expansion of valuable publications in second languages beyond the realm of Chinese as a second language.

From a broader view, however, some studies have investigated publication trends on subjects other than second language. For instance, Budisantoso and Mungkasi (2020) analysed the publication trends in technology, public policy, and economics between Indonesia and Malaysia. Furthermore, in the Malaysian context, Sarjidan and Kasim (2023) investigated academic publication trends in a wide subject area among Malaysian research universities. Consequently, these studies suggested the enhancement of research productivity in particular fields to assist the research development of national universities and institutions. These studies served as inspiration for the present investigation. Hence, this systematic review will contribute to the continuous development of researching and instructing Chinese as a second language at UiTM, and it will also serve as a guide for other Malaysian higher education institutions with a similar area of research interest.

This systematic review exclusively includes reviews of journal publications due to the rigorous peer-review process that most journal papers are subjected to. Discussions in journal papers typically meet greater standards of quality, validity, and reliability compared to other types of publication. This study aims to examine the journal papers produced by lecturers and researchers at UiTM who have been researching Chinese as a second language. Subsequently, this study identified the research trends on Chinese as a second language, which indicated the current situation, research gaps, and potential future directions for Chinese as second language research, supporting ongoing advancement in higher education research. The systematic review was undertaken to address the following questions:

- 1. What are the status and trends in Chinese as a second language research from 2013 to the end of 2023 in terms of journal publication year and publication venue?
- 2. What are the patterns of multipleauthor and single-author journal publications in Chinese as a second language research?
- 3. What are the trends of Chinese as a second language journal publications in terms of content scope?

The Context of Teaching Chinese as a Second Language

With the advancement of technology and education, the demand for learning a second language keeps increasing today. A recent study (Li & Gong, 2022) emphasised the importance of today's agencies in assisting second language learners in utilising a variety of linguistic and cultural resources to create identities and forge social connections. Second-language learners' socialisation and the creation of social networks are largely dependent on their acquisition and application of language (Mas-Alcolea & Torres-Purroy, 2022). According to Zanne et al. (2022), learning

a new language allows people to easily interact with others, especially on the international scene. Some learners acquire a second language intending to study overseas (Mori & Gobel, 2020). Recently, Liu (2023) initiated the development of a second language acquisition theory for international students to enhance second language development globally. On the other hand, regardless of international or local students, mastering a second language will enable individuals to learn more about the history and culture of other ethnic groups, potentially breaking down biases and leading to better understanding among tribes, races, and countries (Tar, 2011). Point et al. (2021) further noted that a second language is learned for personal enrichment or to fulfil job requirements. According to Zanne et al. (2022), a second language equips graduate students to become competitive global knowledge workers after they enter the job market.

As a multicultural and multi-racial country like many progressive countries, Malaysia has always emphasised second language or foreign language learning. Children start learning other languages besides their mother tongue, even in preschool. For instance, Malay is Malaysia's official language, and English is taught as a second language in all schools and public universities (Ismail et al., 2018). Other languages such as Arabic, Chinese, Spanish, French, German, Japanese, and Korean are also taught to undergraduates in Malaysian public universities as non-core elective courses. These languages are also

468

taught in Malaysian private universities and institutions.

China's rapid economic growth has motivated many individuals interested in conducting business with China and exploring economic opportunities there to learn Chinese (Sae-thung & Boonsuk, 2022). Tan et al. (2016) reported that Malaysia has maintained a diplomatic and economic relationship with China since 1976. Sae-thung and Boonsuk (2022) further noted that the United Nations World Tourism Organization (UNWTO) and the United Nations (UN) officially recognise Chinese as one of the languages for international communication.

Regarding teaching materials for Chinese as a second language, most public universities use textbooks written by their lecturers with localised contents and distinctive international characteristics. For instance, from 1978 until today, UiTM has used textbooks and workbooks authored by UiTM Chinese lecturers with localised content and references to the Chinese Proficiency Test (HSK) contents. The textbook consists of simplified Chinese characters, Pinyin, English, and Malay. The courses are conveyed in Romanised Chinese. At UiTM, Malaysia's largest university in enrolment, Chinese is undoubtedly the most popular second language. The Chinese courses focus on four learning skills: listening, speaking, reading, and writing. The main objective is to equip students with basic communication skills. The teaching methodology places a strong emphasis on the oral-communications approach. Throughout the courses, students are exposed to a variety of instructional methods, including lectures, blended learning, discussions, and engaging language activities like role-plays and language games. Various teaching aids, such as exercise books, flashcards, computers, and audio-visual materials, are integrated into the curriculum to enhance the learning experience.

UiTM offers language courses tailored to different faculties. In alignment with the Ministry of Higher Education (MOHE) learning outcomes and the unique learning objectives of UiTM's various faculties, the Chinese Unit has developed a set of generic program outcomes (PO) for its Chinese courses. These program outcomes are as follows:

PO4: Demonstrate interpersonal skills and social responsibilities.

PO5: Demonstrate effective communication skills and the ability to assume alternate roles as both a leader and a member within diverse teams.

Furthermore, these POs are in parallel with the Course Learning Outcomes (CLO) established for Chinese, per the Malaysian Qualifications Framework (MQF) 2017 statement. The CLO for Chinese encompasses C3B—Interpersonal Skills and C3C—Communication Skills. In essence, this implies that the learning outcomes of the Chinese course place a significant emphasis on enhancing students' interpersonal skills and communication abilities. This approach aligns with MOHE standards and the specific needs of UiTM's diverse faculties, ensuring that Chinese language learners develop vital skills for effective communication and social responsibility within various contexts.

METHOD

This paper reviews the trends in Chinese as a second language journal publication in UiTM over the past ten years. The review follows the Preferred Reporting Items for Systematic Review and Meta-Analyses (PRISMA 2020) guidelines (Page et al., 2021). This study closely adhered to PRISMA 2020 guidelines due to its standardised peer-accepted technique that helps with quality control during the revision process. The PRISMA 2020 flow diagram (Figure 1) illustrates the stages of this systematic review, from the initial number of identified references to the publications that were eventually excluded and included.

Data Sources and Search Strategies

PRISMa is a database management system of UiTM designed to provide up-to-date information on publication. The PRISMa database was predominantly employed in this study for electronic search, along with earlier publications compiled on compact

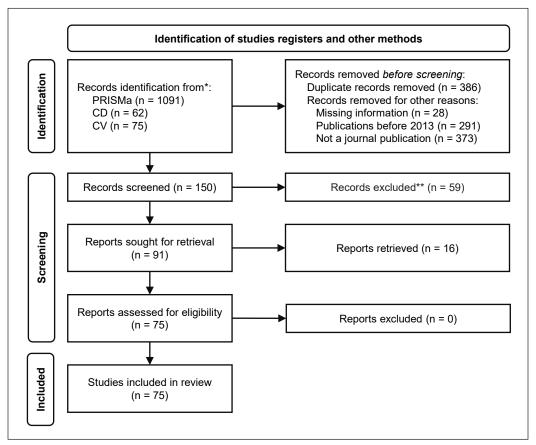


Figure 1. PRISMA 2020 flowchart *Source:* Authors' work

discs (CD) and lecturer's curriculum vitae (CV), which the information was missing from the PRISMa database due to technical issues. Keyword searches consisted of the following terms, which we included "OR" within each group of key terms and "AND" between those groups: "second language" OR "foreign language" AND "Chinese" OR "Mandarin". These keywords were selected according to the research scope.

Criteria for Screening

To investigate the Chinese as a second language journal publication trends in UiTM over the past ten years, we considered studies published from 2013 to 2023 in peer-reviewed scholarly journals. The inclusion and exclusion criteria employed in the PRISMA 2020 screening procedure are displayed in Table 1.

Study Selection and Screening

The PRISMA 2020 flowchart states that there should be two rounds of screening: one for titles, keywords and abstracts and the

other for the full-text screening. A Microsoft Excel electronic data extraction table was used to organise data in both rounds. There were 1228 publications identified initially. Then, 386 duplicate publications were removed, while another 692 were removed due to missing information, publications outside of the time frame, and non-journal publications. The publications were numerically coded as "1" if included or "0" if excluded, in accordance with the inclusion and exclusion criteria. The first round of screening revealed that 91 publications fit the requirements for inclusion, but 16 publications could not be retrieved since the full text could not be located. Seventy-five publications were eventually included in this review after the full-text screening.

Data Extraction and Data Analysis

The research questions that this study attempted to answer served as the basis for data extraction. Table 2 presents a detailed description of the coding scheme utilised in this study to address the research questions.

Criteria	Inclusion	Exclusion
Publication timeframe	2013-2023 (ten years)	Before 2013 and after 2023
Type of publication	Scholarly journals' original papers	Dissertations, conference proceedings, book/book chapters, reviews, articles in newspapers and magazines, notes, editorials, reports, newsletters, and monographs.
Language	Publications in English, Malay, and Chinese language	Articles published in languages other than English, Malay, and Chinese
Research focus	Articles that focus only on Chinese as a second language teaching and learning	Articles that focus on another field of teaching and learning

Table 1Inclusion and exclusion criteria

Source: Authors' work

Code	Justification of code	Research question (RQ)
Year of publication Journal name	Year of publication between 2013-2023 Journal name	RQ1: What are the status and trends in Chinese as second language research from 2013 to the end of 2023 in terms of journal publication year and publication venue?
Indexing	Indexed by internationally recognised databases (Pranckutė, 2021): Web of Science (WoS) and Scopus Indexed by UiTM-recognised databases: Excellence in Research for Australia (ERA), Malaysian Citation Index (MyCite) Indexed by other recognised databases Non-indexed	
Number of authors Authors	Number of collaborating authors in a publication Affiliations of corresponding author and co- author(s)	RQ2: What are the patterns of multiple-author and single-author journal publications in Chinese as a second language research?
Content scope Educational level	The scope of research is founded on the subject matter of teaching Chinese as a second language. The participants' educational level	RQ3: What are the trends of Chinese as a second language journal publications in terms of
	1 1	content scope?

Table 2 *The coding scheme*

Source: Authors' work

Three iterative coding cycles were performed through the review, coding, discussion, and clarification process to achieve high coding reliability. Three authors independently coded 10% of the available articles each, resulting in an interrater reliability of 92.6%. Thematic analysis was carried out to identify patterns and themes, leading to the reporting of research trends on Chinese as a second language. It indicated the current situation, research gaps, and potential future directions for research in Chinese as a second language.

Co-author Contribution

Author 1 carried out statistical analysis and interpretation of the results. Authors 2 and 3 did the data entry and strategised on the structure of the review. After finding the relevant publications, three authors independently reviewed the titles, keywords, and abstracts. Then, each author conducted an eligibility evaluation separately by carefully screening the remaining publications' full text. Conflicts were resolved until complete agreement was attained among authors. The authors affirmed that there is no conflict of interest in this article.

RESULTS

The Publication Status and Trends in Chinese as a Second Language Research

Figure 2 shows the number of Chinese as a second language journal publications from 2013 to 2023. The number of publications increased on average, demonstrating increased scientific research in Chinese as

Second Language Journal Publication Trends

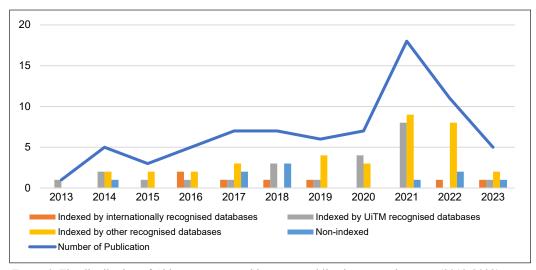


Figure 2. The distribution of Chinese as a second language publications over the years (2013-2023) *Source:* Authors' work

a Second Language. Interestingly, there was a significant rise from 2020 to 2021. After 2021, the number of publications returned to the average level. It might be the result of the COVID-19 epidemic, which compelled most educational institutions worldwide to adopt online, open, and distance learning to satisfy learners' needs at that critical moment (Harun et al., 2021; Mathew & Chung, 2021; Othman et al., 2022; Salleh et al., 2020). The circumstance has encouraged educators' initiatives to attempt online learning, including teaching Chinese as a second language. Consequently, the amount and frequency of publications inevitably arose in that period, especially concerning incorporating technology into teaching Chinese as a second language.

On the aspect of publication indexing (Figure 2), researchers and lecturers at UiTM who specialise in teaching Chinese as a second language prefer to publish their work in general indexed publications (47%) rather than journals that are recognised internationally or by UiTM. However, there has been a rise in publishing in UiTMrecognised journals throughout the years, which may be related to a shift in UiTM's Key Performance Indicator (KPI) policy, which reached a total percentage of 31. There is a significant gap between general-UiTM-recognised journal publications and international-recognised journal publications. The number of publications in non-indexed journals remained low (13%); however, the number of publications in the international-recognised journal was the lowest (9%). Publications in internationalrecognised journals only began in 2016 and tended to expand, which is encouraging.

Pattern of Multiple-author and Singleauthor Publications

Since collaboration among educators or instructors could lead to positive professional growth (Pischetola et al., 2023), this study sought to determine the prevalence of joint authorship and its pattern in UiTM Chinese as a second language publication. The investigation shed light on how lecturers or researchers network with professionals and universities. Figure 3 demonstrates that joint authorship was quite prevalent among 75 publications in Chinese as a second language, with two to six authors appearing in 89% of the publications, whereas 11% appeared with no collaboration. The number of publications employing joint authorship is increasing each year; the number of publications with two, three, and four authors was the highest by the end of the period, indicating an increase in professional collaboration in Chinese as a Second Language research.

In addition, joint authors may come from the same institution or different institutions and regions. Each year, the largest number of publications was by co-authors from

UiTM (68%). They were lecturers and researchers from various UiTM branches around Malaysia, demonstrating the multiinternal collaborative network. External networking among professionals is still lacking. However, we may still anticipate ongoing expansion in external collaboration due to the current progression of working with other education institutions in Malaysia over the years such as primary schools, University of Malaya (UM), Universiti Putra Malaysia (UPM), Universiti Sains Malaysia (USM), Universiti Malaysia Kelantan (UMK), Universiti Malaysia Sarawak (UNIMAS), and the Universiti Kuala Lumpur Malaysian Institute of Aviation Technology (UniKL MIAT), although there were considerably less author collaborations outside of UiTM. There is no international networking as if China and Taiwan are the countries that connect with the research area the most: this demonstrates a national-

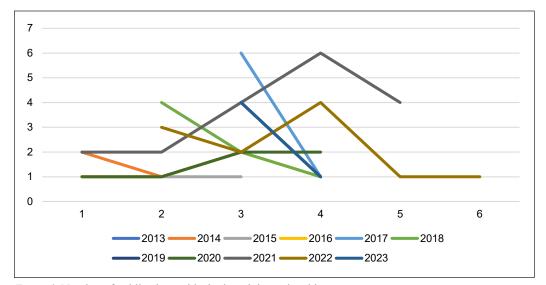


Figure 3. Number of publications with single or joint authorship Note: 1=single author; 2=two authors; 3=three authors; 4=four authors; 5=five authors; 6=six authors *Source:* Authors' work

international networking gap that could impede the continued progress of the field.

The Trends of Content Scope

The essential learning content for Chinese as a second language is braced by listening, speaking, reading, writing, and communicative skills. In relation to this, the publications included in this study made a variety of points highlighting the particular skills, for example, emphasising a specific skill (e.g., listening-Tan et al., 2019; speaking-Goh et al., 2014; reading-Kumaran et al., 2021; writing-Ch'ng et al., 2018; communication-Low, 2021), discuss about multiple skills (e.g., listening & speaking-Lew et al., 2022; reading & writing-Ting & Lam, 2021), and comprehensively investigate all the fundamental skills (e.g., Goh et al., 2014; Teh et al., 2018). On the other hand, the fundamental skills were enhanced by other related learning skills, such as thinking skills (Toh & Chu, 2015), problem-solving, creativity and collaborative skills (Y. S. Chan et al., 2021), and practical and experiential learning skill (Rahmat et al., 2020). Even though some studies did not explicitly mention the skills they were focusing on, recent studies have successfully provided a solid foundation for the skill development of teaching Chinese as a second language.

Based on the focus skills, the publications proposed various content scopes worth studying. Figure 4 shows that most publications (32%) focused on using conventional teaching methods, whilst 20% of publications investigated learners' learning behaviours while learning Chinese as a second language. Studies that investigated the application of digital learning tools in teaching Chinese as a second language also gained high attention among the publications (12%), followed by the application of technology-enhanced instructional methods (7%), the use of learning tools (7%), linguistic studies (7%), and developing online learning tools (5%). Low attention was being put to studies such as needs analysis (4%), learning model application (3%), developing instructional concepts (1%), assessment (1%), and Chinese culture curriculum (1%).

The current publication tended toward empirical research rather than theoretical, conceptual, model, and tool-building studies. The absence of this research hindered innovative efforts in teaching and learning, particularly needs analysis, a crucial phase in design that provides validity and relevance for all subsequent design activities (Johns, 1991). By considering the context of Chinese as a second language, the related publications were geared more towards the instructional field than an indepth investigation of the Chinese language, culture, and social studies. Nevertheless, since 2018, the Chinese language, culture, and social studies fields have received increased attention (Table 3), which may have filled the gaps left by previous studies.

Addressing what was being said earlier, model and tool development in a technology context still lags. According to Table 3, although digital and technologybased studies received less attention in



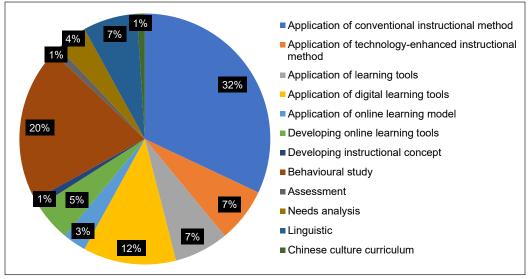


Figure 4. Content scope in publications *Source:* Authors' work

Table 3

Distribution of content scope over the years (2013–2023)

Content scope		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Application of the conventional instructional method		3	1		5	3	1	2	5	3	1
Behavioural study				4	2			3	4	2	
*Application of digital learning tools						1	2		5	1	
*Application of technology-enhanced instructional method						1		1		2	1
Application of learning tools				1				1	1	2	
Linguistic						2	1		1		1
*Developing online learning tools	1						1		1		1
Needs analysis		1	1								1
*Application of online learning model		1	1								
Developing instructional concept							1				
Assessment										1	
Chinese culture curriculum									1		

Note: * = Content scope relates to technology integration *Source:* Authors' work

publications as compared to conventional learning studies, they began to emerge. They typically increased over the years, related to studies on developing online learning models and tools. In precise, publications concerning the incorporation of technology into teaching Chinese as a second language kept rising during and after the pandemic (2020 onwards), consistent with the findings in Figure 2; moreover, digital awareness has been displayed distinctly through publications since 2018.

Many behavioural studies in the findings were scattered across the years without consensus, with a diversity of pre-, during, and post-pandemic contexts. Part of the research carried out by different lecturers or researchers on similar target groups had a close correspondence and is yet to be compiled and compared. The situation demonstrates the need for more research on how learners' behaviours change over time when learning Chinese as a second language in a similar research context.

Overall, 69 out of 75 publications focused on higher education, whereas only 6 out of 75 publications were devoted to primary education in Malaysia which the corresponding author was mostly Heng, B. C. (Heng, 2021; Heng, Cheong, & Taib, 2017a; Heng, Cheong, & Taib, 2017b; Heng, Taib, & Cheong, 2017; Heng et al., 2022; Teoh et al., 2022). No studies on teaching Chinese as a second language in secondary and early childhood settings, demonstrate a gap in the publications. However, the scarcity of studies examining educational levels other than higher education must consider the current state of the Malaysian school system, as the scant availability of Chinese Vernacular pre-, primary, and secondary schools in Malaysia might impact the findings. Still, the results indicate that lecturers and researchers tend to be scientifically induced to investigate and explore the teaching of Chinese as a second language in uncommon educational contexts. It indicates opportunities for expanding the relevant research area.

The majority of the target groups (84%) for publications on higher education were UiTM students, or it was not made clear where the target audiences from; three publications examined higher education students outside of UiTM, including those from UNIMAS (Lam et al., 2020; Lam et al., 2023) and international students (Zhou et al., 2022); two publications included a significant target group from various Malaysian higher education institutions, including Universiti Teknologi MARA (UiTM), Universiti Sains Malaysia (USM), University of Malaya (UM), Universiti Putra Malaysia (UPM), and The National University of Malaysia (UKM; Low, 2014, 2015); and one publication investigated lecturers rather than students (Teh et al., 2014). In short, there is a lack of studies on learner groups from a wider range of institutions (national and international), which could help to improve the validity and reliability of the research area; there is also a lack of involvement of stakeholders other than learners in the related field of study.

DISCUSSION

Universiti Teknologi MARA (UiTM) lecturers and researchers are proactively investigating Chinese as second language instruction in higher education learners, examining the impact and efficacy of language approaches, and proposing enhancement for current teaching and learning demands. The research initiatives

ensure ongoing improvement, eventually facilitating scientific and professional advancement. Based on the crucial findings identified in this study, there is a significant difference between publications in general-UiTM-recognised journals and those in international-recognised journals. Publications of Chinese second language research in Chinese journals are common because of their scope and linguistic suitability. From a global perspective, Ma et al. (2017) indicated that the leading Chinese journals are now more receptive. Apart from UiTM, the publication efforts of Chinese language researchers worldwide have been made to meet the rapidly expanding global demand for Chinese language research. It should be noted that a journal's indexation is viewed as a reflection of its quality (Choudhury, 2020). Nonetheless, Chinese journals' Impact Factors are generally low (Wang et al., 2018). It is among the uncontrollable factors contributing to the low attainment of international-recognised journals. This situation impacts UiTM and all relevant institutions and universities worldwide.

However, in the UiTM context, the number of publications in internationally recognised journals has grown since 2016. This situation demonstrates an initial rise in awareness among lecturers and researchers from that specific year due to the shift in UiTM's Key Performance Indicator (KPI) policy (Universiti Teknologi MARA, 2017). Even though the initiatives appeared to be enforced by the university's requirements, this study's finding argues that the number of publications is anticipated to grow over time as publications in internationally recognised journals enhance one's visibility and reputation in a particular field, which in turn creates new opportunities for professional development and attract potential collaborators who could aid in expanding the field. An extensive academic publication review of Malaysian research universities conducted by Sarjidan and Kasim (2023) highlighted that publishing in high-impact journals is crucial for all Malaysian universities. Even though UiTM was not one of the universities they investigated, the finding of this present study confirmed that the gradual rise of UiTM Chinese second language high-impact publications led to an inevitable contribution to the national research ecosystem of Malaysia. The findings can be generalised to indicate a topic area the national research community should emphasise.

This study discovered a positive correlation between collaboration, support and enforcement, and publication productivity. The finding refutes Ynalveza and Shrum's (2011) study, which stated that productivity and collaboration are not directly correlated. Regarding expertise collaboration, the finding presented a favourable networking pattern between UiTM lecturers and researchers, Malaysian institutions, and schools, in accordance with the decrease in single-author publications. This instance pertained once more to the correlation between collaboration and publication productivity. Ylikoski and Kivelä (2017) indicated that collaboration

among national partners enhances the quality and quantity of publications produced by regional universities since it benefits from comparable research experiences and contexts. It is therefore anticipated that the national collaboration between lecturers and researchers at UiTM and other Malaysian institutes and schools will grow continually in the years to come, as well as enhance the field of research that benefits the entire Malaysian education system. However, international networking could be further enhanced, especially collaborating with countries that provide similar professions in the topic area. Corresponding with the current issue that most Malaysian universities and institutions face, Sarjidan and Kasim (2023) stated that factors contributing to international networking should be government support for research funding and university incentives to enhance the quality of knowledge sharing that benefits the Malaysian research community.

Regarding research content scope, more research should be done on theoretical, conceptual, model, and tool-building studies to ensure the contributions of new ideas and fundamental insights to the field's ongoing progress. According to the most recent comprehensive review conducted by J. Chan et al. (2022), supposedly, orthographic, linguistic, and cultural traits are distinctive Chinese features that usually attract research attention. However, in the UiTM context, given the abundance of instructional research, the study of Chinese linguistic, cultural, and social studies, which appears to be growing at the moment, has to be increased to enrich the research area. This situation necessitates investigating the educational background and expertise of the Chinese lecturers and researchers recruited in UiTM. For instance, if the professional development and expertise of Chinese lecturers or researchers are inclined toward Chinese educational instruction instead of linguistics, the growth of linguistic research areas may be retarded. Regarding this matter, the finding underlined the significant concern on the research interest and professional development direction of lecturers and researchers in a particular research field or educational institution. Every lecturer and researcher should consider the publications' relevancy to their area of expertise, as this could impact the publication quality or status of the university or institution (Zeevi & Mokryn, 2023).

Technology integration is another area of research that is essential in today's educational system. For instance, speech technology can be used to improve pronunciation, multimedia can help learners acquire Chinese characters, electronic writing can help identify learner errors, and so on (Da & Zheng, 2018). It is proven that integrating technology into the teaching and learning of Chinese as a second language can enhance input and learning opportunities, promote individualised learning, foster learner interaction and collaboration, improve the acquisition process, and allow for greater understanding of the language (Ding, 2022; Zhang, 2020). The finding of this present study is aligned with the comprehensive review conducted by J.

Chan et al. (2022), proving the potential growth of UiTM's research on Chinese as a second language research that keeps in line with the significant interest in teaching with technology in today's global Chinese as a second language research. We could anticipate these studies' ongoing development or evolvement in the context of Chinese as a second language that contributes to contemporary national or even worldwide education.

Behaviour has been a dominant topic in the wider second language learning research (J. Chan et al., 2022). Similarly, UiTM lecturers and researchers have offered much thought to this issue. However, with the UiTM's dispersed investigation on learners' behaviour in learning Chinese as a second language, future studies can conduct a bibliometric analysis to look into higher education learners' (target group with shared criteria) behaviour change and contribute worthwhile to find other actions. Furthermore, studies on learners were given preference over other participant groups in recent studies. It is recommended that future research employ data triangulation to enhance the validity and reliability of data by incorporating a broader range of data sources from learner groups as well as instructors and stakeholders.

CONCLUSION

There is a possible increase in scientific research in Chinese as a second language over time when looking at publications by year. As a result of rapid change and the development of modern demand in today's world, the increase in publications and the research focus are closely tied to context or environmental changes. There is a gap between general-UiTM-recognised journal publications and internationalrecognised journal publications the change in UiTM's Key Performance Indicator (KPI) policy; there is an increase in publishing in journals recognised by UiTM; the publication in the international-recognised journal is a relatively new trend. Also, this study anticipates increased professional collaboration in Chinese as second language research in terms of internal or external networking. Yet international networking is still lacking, suggesting the need for government support for research funding and university incentives to Malaysian universities and institutions.

Based on the review of the prior research, the publications have effectively offered a solid foundation for developing listening, speaking, reading, writing, and communicative skills in teaching Chinese as a second language. Nonetheless, this study identified the content scope gaps. It was believed that the Chinese as a second language research could be more comprehensive by enriching the theoretical, conceptual, model, and toolbuilding research as well as in-depth investigation of Chinese language, culture, and social studies concerning the research interest and professional development direction, which other universities and institutions ought to take into consideration as well. Meanwhile, due to the rise of digital awareness corresponding to national and

global educational demands, the scope of future research content can be enriched by incorporating technology. Investigating the change in learners' behaviour in learning Chinese as a second language over the years should also be considered.

This study suggests implications for Chinese lecturers' second language instructional practices and researchers' potential research directions in Chinese as a second language. Through this study, lecturers understood the current focus of Chinese second language teaching and learning content. Lecturers would thus have ideas for what content should receive more emphasis (e.g., culture) and what approaches should be developed further (e.g., the use of technology). On the other hand, lecturers and researchers would be aware of the value of a resultful Key Performance Indicator (KPI) policy in the university that supports the growth of international collaboration and publications in the professional field. However, this study revealed that one issue to be taken into account for Key Performance Indicator (KPI) policy modulation is the low impact factor of the majority of Chinese journals, which is a threat to obtaining the desired goal.

This study's greatest limitation was that it only included publications produced by lecturers and researchers at UiTM due to the scope of the study. National university research collaborators of UiTM, such as Universiti of Malaya (UM), Universiti Putra Malaysia (UPM), Universiti Sains Malaysia (USM), The National University of Malaysia (UKM), Universiti Malaysia Kelantan (UMK), Universiti Malaysia Sarawak (UNIMAS), and the Universiti Kuala Lumpur Malaysian Institute of Aviation Technology's (UniKL MIAT) publication databases could also provide worthful information to enrich the research area. It indicates the need to study higher education learners further at a wider range of national or international institutions and expand the study of Chinese as a second language instruction at different educational levels. The range of research samples should be enhanced in future research by expanding the scope from a single university to a variety of universities or institutions in comparable contexts to encourage more in-depth integrated comparative analysis.

The study of a second language deserves substantial research space. This study benefits not only UiTM but also those who are interested in or concerned about a related area of research. Other universities and institutions could obtain a reference for the research area, which would aid in broadening the limited analysis of publications within the current research ecosystem. This study inspires larger-scale research other than Chinese as a second language, including but not limited to studying other languages or other research areas.

ACKNOWLEDGEMENT

The authors sincerely thank Universiti Teknologi MARA (UiTM), Malaysia, for granting access to their library database to conduct the research and access relevant articles. Additionally, the authors would also like to express their heartfelt appreciation to the reviewers and editorial board of the journal for their invaluable feedback and insightful suggestions that greatly contributed to enhancing the quality and clarity of the manuscript.

REFERENCES

- Budisantoso, R. I. N., & Mungkasi, S. (2020). Publication trends by Indonesia and Malaysia affiliated researchers about public policy, technology, and economics. *Indonesian Journal* of Information System, 2(2), 105-110. https://doi. org/10.24002/ijis.v2i2.3061
- Ch'ng, L. C., Ting, H. L., & Chuah, K. M. (2018). Common stroke mistakes in Chinese character writing among business administrative students. *Academic Journal of Business and Social Sciences*, 2(1), 1-10.
- Chan, J., Woore, R., Molway, L., & Mutton, T. (2022). Learning and teaching Chinese as a foreign language: A scoping review. *Review of Education*, 10, 1-35. https://doi.org/10.1002/ rev3.3370
- Chan, Y. S., Tan, C. P., Chong, O. L., & Yeap, C. K. (2021). Innovative in teaching Mandarin through scaffolding strategies. *E-Academia Journal*, 10(2), 133-143. https://doi.org/10.24191/e-aj. v10i2.16295
- Choudhury, P. (2020). A study on the indexing concepts and its benefits in research publication. International Journal of Advance Research, Ideas and Innovations in Technology, 6(3), 177-180.
- Da, J., & Zheng, Y. (2018). Technology and the teaching and learning of Chinese as a foreign language. In C. Ke (Ed.), *The Routledge* handbook of Chinese second language acquisition (pp. 457-472). Routledge. https:// doi.org/10.4324/9781315670706

- Ding, L. (2022). Application of information technology in teaching Chinese as a second language. *MATEC Web of Conference*, 365, 1-5. https://doi. org/10.1051/matecconf/202236501001
- Fan, P. S. (2011). The spread and development of Malaysian Chinese: Investigation report on the current situation of teaching Chinese as a foreign language in national universities. *Chinese Teaching Journal*, 7, 89-95.
- Gan, K. C., Loh, D. E. F., Eng, S. B., Soo, Y. P., & Lai, Y. Y. (2021). Motivation in foreign language learning among Malay undergraduates in a Malaysian public university. *International Journal of Academic Research in Business and Social Sciences*, 11(7), 162-168. https://doi. org/10.6007/IJARBSS/v11-i7/10432
- Goh, Y. S., Lee, C. C., & Ngo, K. L. (2014). Public speaking to enhance oral Mandarin proficiency. *Social and Management Research Journal*, 11(1), 49-60. https://doi.org/10.24191/smrj. v11i1.5232
- Harun, Z., Hamzah, F. M., Mansor, S., Mahmud, A. S., Hashim, H., Sultan, M. T. S., Nik Mohamed, N. M. Z., Ibrahim, M. D., Hasini, H., Saad, M. R., & Ismail, A. R. (2021). COVID-19 effects on students' teaching and learning perspectives in Malaysian varsities. *Pertanika Journal of Social Sciences & Humanities*, 29(4), 2729-2748. https://doi.org/10.47836/pjssh.29.4.34
- Heng, B. C. (2021). Enhancing learning through the multimodal teaching approach in Chinese-as-asecond language classrooms. *Journal of Creative Practices in Language Learning and Teaching*, 9(1), 20-46.
- Heng, B. C., Cheong, C. Y. M., & Taib, F. (2017a). Instructional proxemics and its impact on classroom teaching and learning. *International Journal of Modern Languages and Applied Linguistics*, 1(1), 69-85. https://doi.org/10.24191/ ijmal.v1i1.7637

- Heng, B. C., Cheong, C. Y. M., & Taib, F. (2017b). The impact of teacher immediacy on the teaching and learning of Chinese as a second language. *Jurnal Kurikulum & Pengajaran Asia Pasifik*, 5(4), 1-15.
- Heng, B. C., Taib, F., & Cheong, C. Y. M. (2017). Constructing interpersonal meaning via teacher talk in Chinese as a second language classrooms: An appraisal analysis. *Journal of Modern Languages, 27*, 24-47.
- Heng, B. C., Tan, J. Y. Y., Neo, Y. F., & Teoh, S. H. (2022). Attitudes and motivation of nonnative Chinese language learners towards learning Chinese language. *International Journal of Academic Research in Business and Social Sciences*, 12(12), 943-962. https://doi. org/10.6007/IJARBSS/v12-i12/15596
- Hoe, F. T., & Tan, T.G. (2007). Huáyŭwén zuòwéi dì sān yǔwén (wàiyǔ) zài Măláixīyà Mălái dàzhuān xuéfũ Mă lā Gōngyì Dàxué de jiàoxué. [Teaching and learning Chinese as a third language at University Technology MARA]. Táiwān huá yǔwén jiàoxué, 2, 48-61. https://doi.org/10.7083/ TCASL.200712.0048
- Hu, Y. (2019, December 11). Chinese language learning surges globally. *Global Times*. https:// www.globaltimes.cn/content/1173033.shtml
- Ismail, S. A. M. M., Karim, A., & Mohamed, A. R. (2018). The role of gender, socioeconomic status, and ethnicity in predicting ESL learners' reading comprehension. *Reading & Writing Quarterly*, 34(6), 457-484. https://doi.org/10.1080/105735 69.2018.1462745
- Johns, A. (1991). English for specific purposes: Its history and contribution. In M. Celce-Murcia (Ed.), *Teaching English as a second or foreign language* (pp. 67-77). Heinle & Heinle.
- Kumaran, A. K., Chong, G. L., Vasuthavan, E. S., Vijayarajoo, A. R., & Teoh, J. T. (2021). Alternative tool to engage learners in comprehending written forms in Mandarin. *INSIGHT Journal*, 8(1), 26-46.

- Lam, K. C., Ang, L. H., Hoe, F. T., & Ting, H. L. (2023). Subjective and objective needs analysis of Mandarin learners. *International Journal of Chinese Education*, 12(1). https://doi. org/10.1177/2212585X221144897
- Lam, K. C., Suib, N. A., Hoe, F. T., & Wee, S. P. (2020). Faktor pemilihan kursus bahasa Cina dan bahasa Jepun: Satu kajian perbandingan. *MANU*, 31(1), 153-176. https://doi.org/10.51200/manu.vi.2096
- Lee, P. L., & Jaganathan, P. (2020). Investigating CFL learners' dependency on Pinyin in the acquisition of vocabulary meaning. *Pertanika Journal of Social Sciences & Humanities*, 28(S2), 217-232.
- Lew, Y. L., Kaur, N., & Wong, H. C. (2022). Taskbased language teaching involving authentic situations at a Malaysian institution of higher learning. *JIRSEA*, 20(1), 53-75.
- Li, W., & Gong, Y. (2022). Agency in the nexus of identity and social network: Understanding the second language socialization experiences of international students in China. *Journal of Language, Identity & Education,* 1-20. https:// doi.org/10.1080/15348458.2022.2092484
- Liu, W. (2023). The theory of second language development for international students. *Journal* of Multicultural Education, 17(3), 367-378. https://doi.org/10.1108/JME-08-2022-0106
- Low, H. L. (2014). Do MFL learners in Malaysia need 'Mandarin for Travelling'? *Procedia – Social* and Behavioral Sciences, 134, 29-33. https://doi. org/10.1016/j.sbspro.2014.04.221
- Low, H. L. (2015). Why is Mandarin needed by MFL learners in Malaysia? *Global Journal for Research Analysis*, 4(12), 269-271.
- Low, H. L. (2021). Developing the Mandarin e-Module of "Small Talk at Workplace" for MFL learners in Malaysia. *International Journal of Academic Research in Business and Social Sciences*, 11(4), 1371-1383. https://doi.org/10.6007/IJARBSS/ v11-i4/9836

- Ma, X., Gong, Y., Gao, X., & Xiang, Y. (2017). The teaching of Chinese as a second or foreign language: A systematic review of the literature 2005-2015. Journal of Multilingual and Multicultural Development, 38(9), 815-830. https://doi.org/10.1080/01434632.2016.1268146
- Mas-Alcolea, S., & Torres-Purroy, H. (2022). Discourses of foreign language development in study abroad: Social networks and other intervening factors. *Foreign Language Annals*, 55(2), 494-516. https://doi.org/10.1111/ flan.12612
- Mathew, V. N., & Chung, E. (2021). University students' perspectives on open and distance learning (ODL) implementation amidst COVID-19. Asian Journal of University Education, 16(4), 152-160. https://doi.org/10.24191/ajue.v16i4.11964
- Mori, S., & Gobel, P. (2020). Possible impact of overseas study on language ability and motivation to study English. *English Language Teaching*, 14(9), 32-38. https://doi.org/10.5539/ elt.v14n9p32
- Othman, M. I., Sulaiman, S., Mohd Najib, M. N., & Wan Ismail, W. N. H. (2022). Asian Journal of University Education, 18(4), 894-905. https:// doi.org/10.24191/ajue.v18i4.19994
- Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S....Moher, D. (2021), The PRISMA 2020 statement: An updated guideline for reporting systematic reviews, *BMJ*, *372*, Article n71. https://doi.org/10.1136/bmj.n71
- Pischetola, M., Mølle, J. K., & Malmborg, L. (2023). Enhancing teacher collaboration in higher education: The potential of activity-oriented design for professional development. *Education* and Information Technologies, 28, 7571-7600. https://doi.org/10.1007/s10639-022-11490-x

- Point, R. G., Ng, C.-C., & Ting, S. H. (2021). Perceptions of students learning French as a foreign language in Malaysia. *Trends in* Undergraduate Research, 4(1), f1-12. https:// doi.org/10.33736/tur.3094.2021
- Pranckutė, R. (2021). Web of Science (WoS) and Scopus: The titans of bibliographic information in today's academic world. *Publications*, 9(1), 1-59. https://doi.org/10.3390/publications9010012
- Rahmat, N. H., Sim, M. S., Khin, L. S., & Shy, F. P. (2020). Experiential learning in Mandarin classroom: The case of simulation. *International Journal of Asian Social Science*, 10(4), 171-180. https://doi.org/10.18488/ journal.1.2020.104.171.180
- Sae-thung, J., & Boonsuk, Y. (2022). Chinese speaking strategies as a foreign language: Success stories from Thai higher education. *Anatolian Journal of Education*, 7(2), 157-172. https://doi.org/10.29333/aje.2022.7213a
- Salleh, F. I. M., Md Ghazali, J., Wan Ismail, W. N. H., Alias, M., & Rahim, N. S. A. (2020). The impacts of Covid-19 through online learning usage for tertiary education in Malaysia. *Journal* of Critical Reviews, 7(8), 147-149.
- Sarjidan, M. A. M., & Kasim, A. M. (2023). Trends of academic publications: A case study of Malaysian research universities. Journal of Research Management & Governance, 5(1), 18-29. https://doi.org/10.22452/jrmg. vol5no1.2
- Tan, T. G., Hoe, F. T., & Ho, C. C. (2019). Students' perception of WhatsApp as an effective medium for enhancing listening skill in foreign language learning. *Pertanika Journal of Social Sciences* & *Humanities*, 27(2), 833-845.
- Tan, T. G., Ismail, H. N., Hoe, F. T., & Ho, C. C. (2016). The motivation of undergraduates learning Mandarin as a foreign language. *e-Academia Journal UiTMT*, 5(1), 1-11.

- Tar, M. (2011). Perceived problems associated with French language learning among secondary school student in Nigeria. *Journal of Functional Management*, 4(1), 58-63.
- Teh, H. S., Goh, C. S., & Abas, N. A. (2018). Enhancing Mandarin test results through the innovation of "e-kosa kata" app. *Jurnal Inovasi Malaysia*, 1(2), 69-82.
- Teh, H. S., Siraj, S., & Wong, S. L. (2014). Penilaian kurikulum pengajaran bahasa Mandarin komunikatif: Satu kajian pendekatan iluminatif [Evaluation of a communicative Mandarin teaching curriculum: A study of an illuminative approach]. Jurnal Kurikulum & Pengajaran Asia Pasifik, 2(3), 52-59.
- Teoh, S. H., Heng, B. C., Neo, Y. F., Chan, J. Y. & Tan, J. Y. Y. (2022). Strategies use in Chinese language learning among non-native Chinese language learners in Malaysia. *International Journal of Academic Research in Business and Social Sciences, 12*(11), 2985-3005. https://doi. org/10.6007/IJARBSS/v12-i11/15332
- Ting, H. L., & Lam, K. C. (2021). Educational card game for Chinese character learning. *Voice of Academia*, 17(2), 177-185.
- Toh, L. L., & Chu, H. H. (2015). Promoting thinking skills through interactive character learning model (ICLM) – Chinese character learning using WhatsApp for Malay L3 learners. *Journal* of Modern Languages, 25, 83-106.
- Universiti Teknologi MARA (2017). Pekeliling Timbalan Naib Canselor (Penyelidikan dan Inovasi) [Circular of the Deputy Vice-Chancellor (Research and Innovation)]. https://mitasa.uitm.edu.my/v2/images/hiasan/ PekelilingTNCPIBil3Tahun2017.pdf
- Wang, Y., Chen, Y., Liu, M., & Hu, R. (2018). Growth and quality of Chinese journals from 1949 to 2013. Learned Publishing, 31(3), 185-276. https://doi.org/10.1002/leap.1162

- Wei, W., & Chen, Y. R. (2021). Construction of innovative training model for international students in China under the background of the belt and road initiative. *Education Teaching Forum*, 12(3), 41-44.
- Ylikoski, T., & Kivelä, S. (2017). Spatiality in higher education: A case study in integrating pedagogy, community engagement, and regional development. *International Journal of Innovation and Learning*, 21(3), 348-363. https:// doi.org/10.1504/IJIL.2017.083404
- Ynalveza, M. A., & Shrum, W. M. (2011). Professional networks, scientific collaboration, and publication productivity in resourceconstrained research institutions in a developing country. *Research Policy*, 40(2), 204-216. https:// doi.org/10.1016/j.respol.2010.10.004
- Zanne, S. H., Amali, N. A. K., Rahmat, N. H., Bakar, M. H. A., & Mustafa, N. C. (2022). Investigating online presence in the French online classroom. *International Journal of Academic Research in Business and Social Sciences*, *12*(3), 56-70. https://doi.org/10.6007/IJARBSS/v12-i3/12314
- Zeevi, G., & Mokryn, O. (2023). She is an expert in research field: The signal of recent publications' relevance. Northeast Journal of Complex Systems, 5(1), Article 7. https://doi.org/10.22191/ nejcs/vol5/iss1/7/
- Zhang, J. (2020). Application of information technology in oral Chinese teaching as a foreign language. Proceedings of the 4th International Conference on Culture, Education and Economic Development of Modern Society. https://doi. org/10.2991/assehr.k.200316.190
- Zhou, X. S., Low, H. L., & Goh, Y. S. (2022). Seamless experience of learning across contexts for Chinese vocabulary learning: A pilot study. *International Journal of Academic Research in Progressive Education and Development*, 11(2), 541-550. https://doi.org/10.6007/IJARPED/ v11-i2/13272



SOCIAL SCIENCES & HUMANITIES

Journal homepage: http://www.pertanika.upm.edu.my/

Review Article

Issues and Challenges of Primary Education Toward Implementing Technical and Vocational Education Training to Meet the Fourth Industrial Revolution Demand: A Systematic Literature Review

Latifah Mohd Ali¹, Mohd Fauzi Kamarudin¹, Shajahan Maidin^{2*} and Shafinaz Ismail²

¹Institute of Technology Management and Entrepreneurship, Centre for Language Learning, Universiti Teknikal Malaysia Melaka, 76100 Durian Tunggal, Melaka, Malaysia ²Faculty of Industrial and Manufacturing Technology and Engineering, Universiti Teknikal Malaysia Melaka, 76100 Durian Tunggal, Melaka, Malaysia

ABSTRACT

The present wave of the fourth industrial revolution (4IR) technology and trends is drastically affecting nearly every economic sector and preparing for profound changes in people's lives. The benefits of the technology include higher safety, better decision-making, increased productivity, efficiency, and quality in processes, as well as increased competitiveness. Thus, every effort towards raising awareness of the 4IR should begin early in primary education. This study critically evaluated the literature on the issues and challenges of implementing Technical Vocational Education and Training (TVET) preliminary courses in primary education in Malaysia towards raising awareness of the future 4IR. Using two databases, namely Scopus and Web of Science, the review was conducted in accordance with the ROSES (Reporting Standards for Systematic Evidence

ARTICLE INFO

Article history: Received: 17 April 2023 Accepted: 04 January 2024 Published: 11 June 2024

DOI: https://doi.org/10.47836/pjssh.32.2.07

E-mail addresses:

latifahma9877@gmail.com (Latifah Mohd Ali) mohdfauzi@utem.edu.my (Mohd Fauzi Kamarudin) shajahan@utem.edu.my (Shajahan Maidin) shafinaz.ismail@gmail.com (Shafinaz Ismail) * Corresponding author Syntheses) publishing standard. The findings showed that the role of primary education in facilitating skills development for socioeconomic and technological development for the students was significant. Based on the thematic analysis, two primary themes emerged: a lack of 21st-century skills and support, supplemented by six sub-themes. In addition, the issues and challenges of other countries' primary education in meeting the 4IR demand are also discussed. The paper

ISSN: 0128-7702 e-ISSN: 2231-8534 offered solutions for the issues that arose to fulfil the objective of TVET preparatory courses: to increase pupil awareness of the present 4IR in elementary education in Malaysia.

Keywords: Fourth Industrial Revolution, issues and challenges, primary education, systematic literature review, technical vocational education and training

INTRODUCTION

TVET refers to all forms and levels of education and training that provide knowledge and skills related to occupations in various sectors of economic and social life through formal, non-formal, and informal learning methods in both school-based and work-based learning contexts. Education is essential for economic development, growth, and productivity. Since education is vital to every country, primary education should be the leading platform to expose and develop a child's potential and ability toward specific skills. Early talent identification can help children become experts and competent in their fields, producing more competitive human capital that businesses can use to satisfy the future demands of the fourth industrial revolution (4IR; Ilori & Ajagunna, 2020).

Pre-school, Primary, Secondary, Tertiary, and Post-graduate education are Malaysia's five learning levels. Pre-school education is not universal since wealthier families can send their children to pre-school. Moreover, religious organisations conduct pre-school programmes for children aged four to five. Meanwhile, primary education lasts six years, from seven to twelve. These years of study are known as year 1 through year 6. The UPSR (*Ujian Penilaian Sekolah Rendah*) is a requirement for primary school pupils, which includes Malay Comprehension, Written Malay, English Language, Science, and Mathematics (Bush et al., 2018). After completing elementary school, the students will proceed to secondary school, where they will receive teaching for five years, from Form 1 to Form 5. In secondary school, students must take two exams: Form 3 PT3 (Pentaksiran Tingkatan 3) and Form 5 SPM (Sijil Pelajaran Malaysia). Students who pass after that can enrol in Form 6 or Matriculation Programs to continue their education. Consequently, following their Form 6 or Matriculation courses, students are eligible to continue their education in university courses or tertiary training programs. Universities, both private and public, offer post-secondary education. The private sector and the Malaysian Qualifications Agency (MQA) work together to guarantee that inclusive education is available in public and private schools (Malaysia Qualification Agency, 2017).

Primary education is the fundamental and principal right of every child. According to Porter (2022), primary education is the foundation of the entire education system. Success or failure in primary education affects the whole system. Thus, a solid foundation of primary education is vital for sustainable secondary and tertiary education. The government's responsibility to parents and various communities is its availability and provision. Primary education is intended to help a youngster in many parts of life. Supporting a child is critical in many aspects of life. According to Mogas et al. (2022), elementary education should focus on high principles, overcoming the challenges brought by technological advancements, and instilling national pride in fundamental values and critical thinking. The first six school years in Malaysia are critical for developing these abilities. As a result, a high-quality curriculum framework in elementary education should meet the requirements for achieving these goals.

As a developing country, Malaysia continually improves its education policy and delivery, management, access, and quality. Malaysia Education Plan 2013-2025 seeks to improve access, quality, equity, unity, and efficiency (Kementerian Pendidikan Malaysia, 2013). Schools must provide a quality curriculum structure where supervised learning can accomplish these goals. Students in primary school are taught to think critically, strive for high standards, tackle the challenges posed by technological advances, and develop citizenship with vital values (Oke & Fernandes, 2020).

According to Setyaningsih (2020), technology transformations in the 4IR should also encourage elementary school education institutions to prepare students with the modern ability to face the 4IR challenges. In the era of the 4IR, it is critical to build an education system for cultivating abilities deemed fit for new technical and social situations. Kim et al. (2022) presented the core competencies for the 4IR education in elementary and secondary schools: convergence/insight competency, intelligence information competency, and coexistence/empathy competency. These core competencies can be used to meet the 4IR revolution challenges. According to Menon and Castrillón (2019), current education should prepare students for the demands and challenges of the 4IR. Thus, new approaches to curricula for a more empowering pedagogy for the 4IR are needed.

According to the Malaysia Education Plan 2013-2025, pre-school to postsecondary education is under the Ministry of Education, and the new KSSR is separated into two levels: first level (years one to three) and second level (years four and five). Bahasa Malaysia, English, Mandarin, Tamil, Mathematics, Physical Education, Health Education, Islamic Studies, and Moral Education are examples of Level 1 fundamental courses. Science, technology, the visual arts, and music are all important topic components. As elective courses, Arabic, Chinese, Tamil, Iban, and Kadazan-Dusun are taught. The second level includes 12 basic modules: Bahasa Malaysia, English, Chinese or Tamil (for Chinese or Tamil vernacular schools), Health Education, Mathematics, Physical Education, Islamic studies, Science or Moral Education, History, Visual Art, Music, Design and Technology/Information and Communication Technology.

Additionally, as an elective, students can participate in a language program in Arabic, Chinese, Tamil, Iban, or Kadazan-Dusun. Over the past few years, the education approach of Malaysia has continuously developed, with each new education minister bringing in a new system for the betterment of the country. Still, the nation's educational standards are something that every Malaysian thinks about frequently. When compared to other nations, the competencies of Malaysian graduates and students are lacking (Misni et al., 2020).

Therefore, it is essential to adopt an effective curriculum design that strikes a balance between academic and practical foundations. To fulfil the country's ambitions, primary education must also carefully address several difficulties. Many empirical studies have focused on various issues and challenges supporting TVET in Malaysia, in secondary schools, colleges, and other higher institutions. For example, a study by Bakar and Mahmud (2020) identified profiling of career aspirations and interests of Malaysian lower secondary school students in both TVET and Science, Technology, Engineering, and Mathematics (STEM) fields, where a systematic review was conducted to determine best practices for STEM education efforts in creating and innovating Mathematical mode (N. A. Rahman et al., 2021), issues in secondary school (Minghat & Yasin, 2010), polytechnics challenges (Ahmad et al., 2017) and other vocational schools and institutions. Mukhtar and Ahmad (2015) discuss the competence of the instructors, the roles of TVET leaders in institutions, vocabulary usage in technical colleges for better comprehension, disclosure relating to the quality of the curriculum in TVET

institutions, and training in industries. According to the studies, there is no link between Malaysian primary schools and any TVET-related difficulties mentioned above. A strong foundation is required, starting with elementary school. Bakar and Mahmud (2020) state that children with professional goals in STEM and TVET sectors require assistance as early as primary school.

Likewise, in primary school, empirical studies focus mostly on issues and challenges that the Ministry of Education (MoE) constantly needs to solve. For example, pupils who are receptive to using mathematical computer tools yet receive lower marks (Reed et al., 2010), issues with comprehending curriculum reform (N. H. A. Rahman, 2014), lack of awareness of math primary school teachers in STEM education (Bakirci & Karisan, 2018), challenges on equipping HOTS skills by teachers and pupils in the 21st century (Hassan et al., 2017), using ICT tools in teaching and learning process (Razak et al., 2019), learning disabilities students' needs and for better comprehension (Jalil et al., 2017), and using School-Based Assessment (SBA) in the current schooling system (Veloo & Ali, 2016). Hence, studies on TVET-related issues or challenges in primary education are quite limited and should be addressed immediately by the MoE. This study aims to add to the current body of knowledge by conducting a thorough literature review on the concerns and challenges of elementary education to promote TVET in Malaysia.

A systematic literature review is a method for conducting a more thorough

analysis of the available material. SLR is described by Shaffril et al. (2020) as a method that classifies, selects, and evaluates prior research to address a given question. Before the SLR review process, the procedure or strategy is decided. Other researchers may adopt a similar strategy because SLR is an organised and transparent method for scanning numerous databases. It uses a systematic search strategy that helps researchers answer and focus on specific questions (Xiao & Watson, 2019).

The systematic review includes details on the review technique so others can repeat the inquiry, validate the findings, or evaluate the generality (e.g., keywords used, articles selected). Malaysia needs many skilled workers and experts in the vocational and technical fields to assist the country's development. The Malaysia TVET agenda has been given serious attention since 2019 when a committee at the MOE was established to ensure that the country provides a qualified workforce to meet the industrial demands. The plan involves an industry engagement model, a TVET financing model, matching demand to supply, and strategic collaboration among TVET providers (Subramaniam et al., 2020).

Furthermore, six significant initiatives have demonstrated the path of the TVET empowerment aims. The initiatives include developing a sustainable funding model, creating policies to encourage industrial participation, developing a national TVET branding plan, setting up a TVET collaboration hub, creating a policy to coordinate TVET programs, and developing TVET data (Hussain et al., 2021). However, there is no data on the effectiveness of implementing these initiatives.

Indeed, the role of primary school is to teach basic skills such as psychomotor and cognitive-based skills. Children should be taught positive ethics and moral principles in elementary school to recognise their talents and determine which skills they are more adept at (Rusmin et al., 2020). The curriculum for primary schools was redesigned with a focus on fostering the development of the whole person, learning the necessary skills, instilling moral principles, and doing away with early specialisation (Muzakkir et al., 2022). However, there are still problems that need to be addressed in primary schools to meet the national TVET agendas.

Another attempt by the MoE to expose primary-level students to TVET-related skills was introducing the Rekabentuk dan Teknologi (RBT) course in primary schools in 2014 (Prabu & Nesamalar, 2021). The announcement of 'STEM for All' programs and the application of 21st-century teaching and learning skills recommended by the MOE called the 4C1V (communication, collaboration, critical thinking, creative thinking, and values as well as ethics) have brought greater attention to the use of technology and 21st-century skills efforts (Ramdzan et al., 2022). However, the issues and challenges in implementing these strategies have not yet been explored.

The review was triggered by the fundamental research question, "What are the issues and challenges of implementing TVET preliminary lessons in primary education in Malaysia towards raising awareness of the future 4IR?" The purpose of this study was to address a gap in knowledge by carefully evaluating prior relevant studies to better understand the concerns and challenges of elementary education in Malaysia. Primary education was selected due to several reasons. First, education is commonly understood to benefit economic development, growth, and productivity. Since education is a vital attribute to every country, primary education should be the leading platform to expose and develop a child's potential and ability towards specific skills. Identifying the child's ability from a young age and direction to become experts and competent in respective areas could generate more competitive human capital, which the industries benefit from, indeed catering to the 4IR demands in the future. Second, past empirical data revealed a dearth of information regarding TVETrelated disciplines in Malaysian primary schools.

The present study offered several contributions to knowledge and life practicality. Furthermore, a necessary measure should be taken to prevent any predicament from arising in primary school in the future. Therefore, policymakers, researchers, educational stakeholders, and educators should be able to comprehend and be aware of the issues and challenges in primary education in the TVET-related field, as it is one of the nation's aspirations.

Accordingly, the findings of this study were expected to aid in charting

the course for improvements in primary education, as well as to assist and prepare primary education students to have a solid foundation and acquire TVET-related skills to meet the needs of TVET and, eventually, the demands of the 4IR. Thus, from the perspective of primary education, emergent themes are anticipated to provide insights that will support and promote the Malaysia TVET strategy, thereby educating kids for appropriate TVET-related preparation at an early age to meet future 4IR demands. It would be possible to focus on the areas and content of the studies and narrow down this investigation more.

METHODS

The Review Protocol – Reporting Guidelines for Systematic Evidence Syntheses (ROSES)

The investigation's driving force was ROSES, created specifically for systematic review (Haddaway et al., 2018). ROSES aims to motivate researchers to supply the necessary data at the proper depth. In light of this evaluation process, relevant research questions were developed before beginning their systematic literature review. Next, three components of the systematic search technique, namely eligibility, screening (inclusion and exclusion criteria), and identification, were addressed.

Theoretical Framework: Human Capital Theory

The Human Capital Theory offers a lens through which the integration of TVET introductory lessons in primary education curriculum can be understood in response to the 4IR demands. This theory emphasises that investments in education, particularly in skill development and knowledge acquisition, enhance productivity and economic growth. When applied to primary education, especially in the context of TVET, it underscores the crucial role of early investment in human capital, aligning skill development with the technological advancements characterising the 4IR. This framework allows an assessment of how TVET programs contribute to nurturing the necessary human capital for the 4IR, evaluating the effectiveness of these programs in equipping students with the technical skills, adaptability, and problemsolving abilities essential for the rapidly evolving technological landscape.

By employing the Human Capital Theory as a guiding framework, this systematic literature review aimed to assess the challenges, successes, and implications of implementing TVET in primary education to meet the demands of the 4IR. This framework enables a comprehensive examination of how investments in human capital, specifically through TVET programs, shape the readiness of individuals to engage with and contribute to the technological advancements characterising the 4IR. The review delved into the effectiveness of TVET in nurturing the requisite skills, knowledge, and adaptability crucial for preparing individuals to thrive in the rapidly evolving landscape of the 4IR, as guided by the principles of the Human Capital Theory.

Formulation of Research Questions

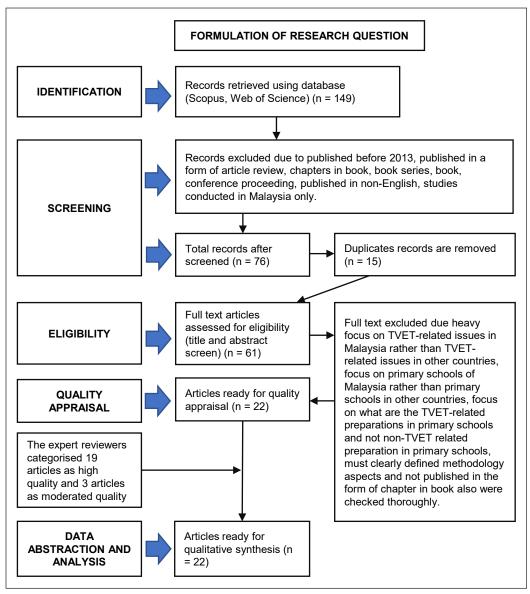
The study's research question was created using Problem, Interest, and Context (PICo). The PICo population, issue, interest, and context were three fundamental components. These ideas served as the foundation for the inclusion of three key elements in the review: issues and challenges (Population/ Problem), Primary Education (Interest), and TVET Malaysia (Context). These elements helped define the main research question: What are the issues and challenges of implementing TVET preliminary lessons in Malaysian primary education to raise awareness of future 4IR?

Systematic Searching Strategies

Three main processes were used in the systematic searching strategy: identification, screening, and eligibility, as shown in Figure 1.

Identification

Identification was an act of seeking out any synonyms, phrases similar to those in the study, or other main keywords, including problems, challenges, primary education, and TVET Malaysia. Its objective was to provide more search options for similar articles to be reviewed in specified databases. An online thesaurus, keywords from prior studies, keywords from Scopus, keywords from specialists, and keywords created based on the study subject were all employed in the identification process (Okoli, 2015). In addition to creating a detailed search string (based on Boolean operators, phrase searching, truncation, wild



Source: Authors' work

Figure 1. The flow diagram of the search strategies

card, and field code functions), the present keywords were optimised on two major databases, Scopus and Web of Science, as shown in Table 1.

These two databases are important in a systematic literature review and have several

advantages. With its multidisciplinary focus, extensive indexing of over 5000 publishers, advanced search capabilities, and quality control over articles, Scopus is a valuable resource for researchers. In contrast, Web of Science is a robust database

Table 1	
The search	strings

Database	Search String
Scopus	TITLE-ABS-KEY (("issues" OR "challenges" OR" concern*" OR "difficulties" OR "problems" OR "troublesome" OR "matters" OR "demand*"OR "lack") AND ("primary education" OR "primary school*" OR "elementary school*" OR "preparatory school*" OR "training school*" OR "trade school*") AND ("TVET" OR "training" OR "employment" OR "work" OR "vocational" OR "technological" OR "job related" OR "industrial" OR "career" OR "mechanical" OR "revolution*" OR "technical" OR "technology" OR "design*" OR "STEM" OR " science" OR "engineering" OR "training" OR "technology" OR "hands-on" OR "Mathematics" OR "manipulative" OR "skills"))
Web of Science	TS= (("issues" OR "challenges" OR" concern*" OR "difficulties" OR "problems" OR "troublesome" OR "matters" OR "demand*"OR "lack") AND ("primary education" OR "primary school*" OR "elementary school*" OR "preparatory school*" OR "training school*" OR "trade school*") AND ("TVET" OR "training" OR "employment" OR "work" OR "vocational" OR "technological" OR "job related" OR "industrial" OR "career" OR "mechanical" OR "revolution*" OR "technical" OR "technology" OR "design*" OR "STEM" OR " science" OR "engineering" OR "training" OR "technology" OR "hands-on" OR "Mathematics" OR "manipulative" OR "skills"))

Source: Authors' work

that provides comprehensive citation data to over 1800 high-impact journals with over a decade of extensive coverage. Whenever appropriate, the combination of keywords such as "concerns and troubles in primary schools", difficulties and problems", "public schools", "elementary schools", "skills", "devices", "tools", "TVET Malaysia", "design", "innovation", "training", "TVET in Malaysia", "technology" and "technical skills" was used via functions of phrase searching and Boolean operator (OR, AND). The search process in Scopus and Web of Science databases yielded 22 articles.

Screening

This study screened all 149 articles by choosing article selection criteria, executed automatically based on the database's sorting process. Therefore, it was difficult to assess all previously published studies. As a result, Okoli (2015) advised researchers to plan their review time. The search revealed limited research studies linked to elementary education concerns and challenges, particularly in promoting TVET-related disciplines in Malaysia. Furthermore, most research reveals various elements of the concerns and challenges of elementary education in Malaysia. However, none of the studies linked the issues and challenges concerning TVET as one of the national agendas.

Journal articles were chosen for ten years (2012-2021) as one of the inclusion criteria, allowing for an adequate view of previous research and publication progression. Only research with real data published in a journal was included to ensure the review's quality. Besides, to minimise misconceptions regarding the issue, only papers published in English were included in the review, and articles published on issues and challenges in Malaysia were included as one of the criteria during the screening process. Table 2 illustrates the inclusion and exclusion criteria. Subsequently, due to their failure to meet the inclusion criteria, 73 articles were excluded. Next, the author found 15 duplicated articles. Finally, the remaining 61 articles were used for the next eligibility process.

Eligibility

Eligibility is the third process in which the authors manually checked the retrieved articles during the eligibility phase to ensure that all the remaining articles (after the screening method) fit the standards. The next step was to read the titles and abstracts of the articles. This process excluded 39 articles for various reasons, such as focusing on TVET-related issues in other countries, non-TVET-related preparation in primary schools, and book chapters rather than journal articles.

Eventually, there were only 22 articles chosen. The criterion was set because of the constant demands in TVET-related fields, which was aligned with IR 4.0 needs. As a result, the MoE has committed to generating 60% of scientific and technology graduates of higher education and secondary education by 2025, compared to 40% of art graduates, as stated in the PPPM 2013–2025 (Kamarulzaman & Hashim, 2013). Since TVET is one of the nation's agendas, preparation and support from primary education should be considered to help students explore career interests in early schooling so that their career aspirations are built based on the actual potential of the students (Bakar & Mahmud, 2020).

Quality Appraisal

Two professionals reviewed the remaining articles to ensure the content was of the highest standard. Experts should categorise the remaining papers into three quality groups: high, middle, and low, according to Shaffril et al. (2020). Reviews should only be done for items with a high or moderate rating. The experts focused on the methods to assess the quality of the papers. Both authors must agree that the papers' quality must be adequate to be included in the review. They investigated discrepancies before deciding which to include or exclude from the evaluation. Four articles with intermediate ranks and 18 articles with high

The menasion and c	xerusion er ner tu	
Criteria	Inclusion	Exclusion
Timeline	2012–2021	< 2012
Document Type	Article Journal (empirical data)	Article review, chapters in the book, book series, book, conference proceeding
Language	English	Non-English
Regions	Malaysia	Not Malaysia

Table 2The inclusion and exclusion criteria

Source: Authors' work

rankings were created using this strategy. All 22 of the remaining items were qualified for the review process.

Data Abstraction and Analysis

The 22 papers were evaluated and studied. Themes and sub-themes were identified by analysing the abstracts of the publications and then reading the full articles (in-depth). Themes on concerns and challenges in elementary education were discovered using qualitative content analysis in the 22 papers linked with the TVET-related subject. Sub-themes were then arranged around the primary topics created via typology by the writers (Table 3). The reviewers did a thematic analysis to identify prior research findings by grouping them and categorising them based on their similarities or relevance (Adams et al., 2021).

Table 3

Themes and the sub-themes on issues and challenges in primary education

Author	Lack	of 21 st Century	y Skills	Lack of Support				
	Life Skills	L earning Skills	Literacy Skills	Inadequate funding resource support	Insufficient training support	Lack of support from stakeholders		
Alalwan et al. (2020)		/	/	/	/	/		
Wasriep and Lajium (2019)	/	/	/	/	/			
Julius et al. (2018)	/	/	/	/				
Abdullah et al. (2020)		/		/	/			
Husin et al. (2017)			/	/		/		
Savita et al. (2017)	/	/	/	/		/		
Hendrik et al. (2020)	/	/	/		/			
Masril et al. (2021)	/	/	/	/				
Ismail et al. (2013)			/	/	/	/		
Tahir et al. (2018)			/	/	/	/		
Hwang et al. (2021)		/	/	/	/	/		
Wong et al. (2021)			/	/		/		
Singh et al. (2020)		/	/		/			
Saif et al. (2021)	/	/	/			/		
Singh et al. (2021)	/	/	/		/	/		
Razak et al. (2019)		/	/	/	/	/		
Kasinathan et al. (2018)		/	/	/		/		
Fadzil and Saat (2014)	/	/	/	/	/	/		
Mohamad et al. (2013)	/		/	/	/			
Kho and Chen (2017)		/	/					
Siew et al. (2014)	/	/	/	/				
Azhar and Azman (2021)						/		

Source: Authors' work

RESULTS AND DISCUSSION

Background of the Selected Article

The review obtained 22 publications, categorised by year and content based on difficulties and challenges in primary education in Malaysia, as well as research questions that drove our search and analysis. None of the 22 articles chosen was published in 2012, one in 2014, four in 2014, none in 2015, one in 2016, one in 2017, three in 2018, five in 2020, and six in 2021. The reviewers observed that nine research employed quantitative methods, eleven employed qualitative methods, and the other two employed a mixed-methods approach. Based on the thematic analysis, two primary themes emerged: a lack of 21st-century skills and support, supplemented by the six sub-themes described below.

Lack of 21st Century Skills

21st-century talents are qualities that current students must have to excel in their employment in the information age. Critical thinking, creativity, collaboration, communication, information literacy, media literacy, technology literacy, flexibility, leadership, initiative, productivity, and social skills are all vital in the Internet age (Thornhill-Miller et al., 2023). These abilities are designed to assist pupils to keep up with the fast-paced nature of today's modern marketplaces. Each talent is unique in how it benefits pupils, yet they all have one trait. These 22 carefully chosen articles highlighted the inadequate understanding of 21st-century abilities among Malaysian primary school pupils and instructors in one or more areas. Therefore, the MoE should act immediately on the issues and challenges in nurturing and promoting these skills among primary education students to prepare to face the rapid changes for unknown future demands and jobs that have yet to be created. The 21stcentury skills also can be categorised into three sub-themes: life skills, learning skills, and literacy skills.

Life Skills. Life skills are also known as career skills. These abilities are relevant to a person's personal life but also relate to professional contexts. The life skills that resemble leadership quality, productivity, and social skills are crucial to be cultivated early. Accordingly, several studies (Fadzil & Saat, 2014; Hendrik et al., 2020; Julius et al., 2018; Masril et al., 2021; Mohamad et al., 2013; Saif et al., 2021; Savita et al., 2017; Siew et al., 2014; Singh et al., 2021; Wasriep & Lajium, 2019) revealed the issues and challenges of primary schools towards instilling these skills among students.

According to Julius et al. (2018), Mohamad et al. (2013), and Wasriep and Lajium (2019), leadership quality is seen as low among primary school students, especially during group work or blended learning lessons initiated in class. Despite the teacher having briefed students on the procedures, no systematic operation is sometimes visible during a school lecture. For example, in the lab during a science lecture, pupils often work alone and do not share the equipment despite teachers assigning group leaders. Besides, instruction by group leaders to take turns in cleaning the working area and appropriately storing tools and apparatus is often ignored by students purposively. Thus, it is important to stop these attitudes and behaviours in children early on to keep them from becoming self-centred, irresponsible individuals and ensure that they eventually follow the rules.

Four studies (Fadzil & Saat, 2014; Saif et al., 2021; Siew et al., 2014; Singh et al., 2021) addressed the issue of low productivity. They found that when teachers use two-dimensional materials for teaching and learning, students' imaginations become abstractive and lacking in creativity. Thus, they could not produce or complete simple original products, projects or draw specimens (Mohamad et al., 2013). Lacking hands-on and practical activities in daily lessons in school leads to incompetency in manipulative skills, eventually affecting productivity (Omar et al., 2020)

Subsequently, social skills are another important skill under the 'life skill' category, and they are necessary for all individuals to use daily to interact, collaborate, and communicate with others (Savita et al., 2017). A person has strong social skills, provides good knowledge, and behaves in social situations, both written and implied rules, when communicating with others. However, enhancement in social skills (Hendrik et al., 2020) among students in primary schools is essential. It is evident that students lack confidence when working in a lab as a team and are not motivated to share their thoughts and opinions during science projects and digital multimedia technology presentations in the classroom (Masril et al., 2021). Likewise, the attitude of the students acting as a passenger and not wanting to emit a word during interaction could worsen the attainment of the group or individual task by the end of the lessons.

Learning Skills. Developing the 4Cscritical thinking, creativity, collaboration, and communication-is essential for students and educators. To succeed in teaching and learning, adapting to and improving upon a modern work environment in the future, educators and students must possess these skills. Nevertheless, these skills still require attention because of the low accomplishment in primary schools. Sixteen out of twenty-two studies (Abdullah et al., 2020; Alalwan et al., 2020; Fadzil & Saat, 2014; Hendrik et al., 2020; Hwang et al., 2021; Julius et al., 2018; Kasinathan et al., 2018; Kho & Chen, 2017; Masril et al., 2021; Razak et al., 2019; Saif et al., 2021; Savita et al., 2017; Siew et al., 2014; Singh et al., 2020; Singh et al., 2021; Wasriep & Lajium, 2019) discussed poor acquisition in learning skills among students and educators.

Deficiency in critical thinking in schools occurs because teachers do not give ample time to think about solving certain problems due to time constraints for the lesson (Kho & Chen, 2017). Similarly, obstacles to critical thinking can also result from a student's self-centred or culturally-centred thinking (Hwang et al., 2021), excessive dependence on feelings or emotions (Abdullah et al., 2020; Hendrik et al., 2020; Julius et al., 2018; Masril et al., 2021; Singh et al., 2020; Wong et al., 2021). It keeps the thinker from being impartial, curious, and broad-minded in the future. Moreover, the students will not apply logic, experience, or common sense to arrive at well-informed conclusions.

Creativity is another high-valued dominant skill under 'Learning Skills" in teaching and learning. Nonetheless, it showed a low impact on students and educators. Students were unable to create simple products or drawings; they additionally displayed low levels of innovation (figural creativity); they had trouble understanding math and graphics; students from vulnerable communities had low levels of creativity; teachers are not creative in how they present the material for their lessons: and there are problems integrating blended learning in the classroom, causing students to lag without having the chance to express their creativity (Hendrik, 2020; Hendrik et al., 2020; Hwang et al., 2021; Mohamad et al., 2013; Saif et al., 2021; Shahali et al., 2017; Siew et al., 2014).

According to Savita et al. (2017), Tahir et al. (2018), and Wong et al. (2021), collaboration skills between educators and students are crucial for fostering positive relationships and encouraging mutual engagement in the teaching and learning process in the classroom. Administrators need to address problems like incompetent teachers and disruptive student behaviour immediately to prevent further degradation of the final product. Consequently, communication skills are essential for all stakeholders involved in education. However, the lack of two-way interaction hints at poor learning outcomes. Likewise, collaboration should be initiated through peer work, teamwork, discussion, and sharing sessions, not individual-based tasks (Alalwan et al., 2020). Fadzil and Saat (2014), Kasinathan et al. (2018), Razak et al. (2019), and Saif et al. (2021) asserted that communication and a good rapport among stakeholders, specifically between students and educators, are very important.

Literacy Skills. Literacy skills, which include information literacy, media literacy and technology literacy, are skills acquired by the present generation in the world of the modern arena. It focuses on technology and how students and educators can discern facts obtained and separate the misinformation that floods the internet. Information Literacy is the skills needed to find, retrieve, analyse, and use information. Literacy skill is a basic and must-have skill for students in primary school (Fadzil & Saat, 2014 Husin et al., 2017; Hwang et al., 2021; Kho & Chen, 2017; Mohamad et al., 2013; Razak et al., 2019; Siew et al., 2014; Singh et al., 2020; Tahir et al., 2018; Wasriep & Lajium, 2019).

Although they are important skills for students and educators, the government's effort to impart knowledge concerning these skills is still challenging. Twenty articles highlighted these issues (Alalwan et al., 2020; Fadzil & Saat, 2014; Hendrik et al., 2020; Husin et al., 2017; Hwang et al., 2021; Ismail et al., 2013; Julius et al., 2018; Kasinathan et al., 2018; Kho & Chen., 2017; Masril et al., 2021; Mohamad et al., 2013; Razak et al., 2019; Saif et al., 2021; Savita et al., 2017; Siew et al., 2014; Singh et al., 2020; Singh et al., 2021; Tahir et al., 2018; Wasriep & Lajium, 2019; Wong et al., 2021).

As a result, obstacles to students' literacy skills were left undiagnosed, such as hearing or vision issues, a lack of role models because no one in the family or household stresses the value of education (for B40 and vulnerable students), poor manipulative skills and poor laboratory management during science experiments and projects, a lack of exposure to data analysis, and inadequate training for problem-solving in science learning and mathematical reasoning during the lesson due to limited resources and time constraints.

The capacity to access, analyse, evaluate, and produce media is often referred to as media literacy. Television, radio, internet, newspapers, magazines, books, billboards, video games, music, and all other media should all be able to interpret the complex information received. However, several issues regarding this skill were discussed in five studies, such as unstable internet connection, especially in rural schools, teachers' readiness towards utilising mobile learning in the classroom, challenges in conducting advanced computer vision skills, 3D modelling, desktop web or mobile programming, the use of two-dimensional materials in place of three-dimensional materials in the classroom, which hinders students' ability to think creatively since the concepts and ideas being taught-such as "air pressure," "current flow," and photosynthesis—are too complicated and resemble mere abstractions (Abdullah et al., 2020; Ismail et al., 2013; Julius et al., 2018; Singh et al., 2021; Wong et al., 2021).

Subsequently, technology literacy skills are also quite challenging for educators and students in primary schools. Even though most schools are encouraged to use the technology-based approach in teaching and learning, few issues have arisen regarding technology literacy skills, and five studies discussed the matter (Alalwan et al., 2020; Kasinathan et al., 2018; Masril et al., 2021; Saif et al., 2021; Savita et al., 2017). Lack of exposure to cutting-edge technological tools like virtual reality and augmented reality, a lack of support for educational robots in the classroom, and the gap between urban and rural schools' technology integration due to inadequate facilities are all issues that educators and students must deal with. Adding technology to gamification is exciting and entertaining (Mee et al., 2021). However, it can be difficult for students from low-income families. The Bring Your Device (BYOD) policy worries parents about safety concerns and issues with uncontrollable, limited supervision when students use technology-based tools in the classroom.

The Implication of a Lack of 21st-century Skills. The 21st-century skills found in this study can be categorised into three sub-themes: life skills, learning skills, and literacy skills. The life skills are leadership quality, productivity, and social skills. Learning skills such as critical thinking, creativity, collaboration, and communication. Literacy skills include information literacy, media literacy, and technology literacy. It is insufficient to prepare children with basic literacy skills such as reading, writing, and arithmetic to meet the demands of the 21st century to overcome the issues and challenges of implementing TVET preliminary courses in primary education in Malaysia towards raising awareness of the future 4IR. They should also be nurtured in critical thinking, problem-solving, good communication, and collaboration. This ability can be trained at the primary educational stage. The implication of lacking 21st-century skills in primary school children will result in their inability to face the coming 4IR global community challenges. In addition, this condition implies that children will lag in adopting science and technology compared to other countries.

Furthermore, another implication could be that teachers with strong critical thinking, problem-solving, creativity, communication, and cooperation capabilities could provide primary school children with a learning environment that is more open to inquiry for positive student attitude development. The literature review also shows that 21stcentury competency methods of instruction are not successfully implemented currently. The causes include a lack of integration of 21st-century competencies in curriculum and assessment and inadequate teacher preparation to implement new teaching and learning practices. Another implication could be that when teachers engage in more teaching and learning activities incorporating 21st-century abilities in the curriculum, this could also develop a positive learning environment for primary school children's skills and attitude development.

Lack of Support

Primary education is a fundamental level of education for every child to begin. Support from a variety of sources is therefore continuously required to guarantee that the school's administration and the MoE are appropriately handling every part of the institution. However, several issues arose, including lack of support as the main theme and sub-themes, namely lack of funding and resource support, insufficient training support, and lack of collaboration among stakeholders. There were 20 out of 22 studies that displayed issues concerning a lack of support in primary schools (Abdullah et al., 2020; Alalwan et al., 2020; Azhar & Azman, 2021; Husin et al., 2017; Hwang et al., 2021; Ismail et al., 2013; Julius et al., 2018; Kasinathan et al., 2018; Masril et al., 2021; Mohamad et al., 2013; Razak et al., 2019; Saif et al., 2021; Savita et al., 2017; Siew et al., 2014; Singh et al., 2020; Singh et al., 2021; Tahir et al., 2018; Wasriep & Lajium, 2019; Wong et al., 2021).

Inadequate Funding and Resources Support. A crucial problem that directly affects student success is the school budget. The financing-related concerns were covered in seventeen articles. A discrepancy in education is caused by lower student accomplishment in schools with less funding, which are frequently unable to provide fewer classrooms and better programs. Expenses on technology-based (augmented reality and virtual reality) modelling, tools, equipment, apparatus, and devices are expensive and require much maintenance. A limited allocation of funding by the government leads to ineffectiveness and slow progress in attaining knowledge or skills (Alalwan et al., 2020; Fadzil & Saat, 2014; Julius et al., 2018; Kasinathan et al., 2018; Mohamad et al., 2013; Wasriep & Lajium, 2019).

Inadequate resources are other challenges primary schools face due to lack of funding, such as inadequate environmental resources and low device adaptability due to low cost and restricted instructional design materials, including technology integration, project-based learning techniques, and evaluation.

Additionally, some materials do not appear appealing to the pupils and fail to adjust to educational settings or experiences (Alalwan et al., 2020; Wong et al., 2021). Similarly, intended money for rural schools showed that there are fewer facilities offered, no technical support is offered to address issues that arise during the class, ICT tools are poorly managed, and they require continual maintenance to ensure that teaching and learning proceed smoothly every day in the schools (Abdullah et al., 2020; Alalwan et al., 2020; Hwang et al., 2021; Ismail et al., 2013; Masril et al., 2021; Mohamad et al., 2013; Razak et al., 2019; Savita et al., 2017; Siew et al., 2014; Tahir et al., 2018).

Insufficient Training Support. Teachers and administrators require regular training opportunities to keep up with their game. Even the greatest instructors and school personnel will fall behind if they do not continue to strive for excellence to enhance their career requirements for future demands. In addition, administrators and teachers are urged to enhance their skills and acquire in-depth knowledge in the field of education. Thus, primary school teachers face challenges due to certain factors in gaining training support, and the issues were disclosed by 10 out of 22 research studies.

Masril et al. (2021) and Wasriep and Lajium (2019) believe high-quality development is in educators' self-efficacy. Teachers need skills to get pupils involved in the lesson and actively participate. Teachers are encouraged to train and take short courses to enhance their school skills and maintain motivation. Issues on workloads such as clerical work demand at the workplace, no administration support, ineffective tools and devices to teach, and teachers' knowledge of comprehending science and mathematics concepts without training or exposure lead the teachers under pressure (Husin et al., 2017; Ismail et al., 2013; Masril et al., 2021; Mustam & Adnan, 2019; Razak et al., 2019; Singh et al., 2020; Tahir et al., 2018; Wasriep & Lajium, 2019).

Besides, training and support are needed for an educator to gain technical skills in handling the laboratory, attracting students to stay focused during the lesson. Lack of focus and attention while using devices allows students to navigate to other websites and apps without the teacher's permission (Alalwan et al., 2020; Mohamad et al., 2013).

In addition, teachers' attitudes were also reported as a failure to commit to and comply with the school regulations. Many educators lack the drive to research further information on teaching careers. The teachers were losing out on information by missing the monthly workshops organised by the school administration to increase teachers' understanding (Mohamad et al., 2013; Razak et al., 2019; Singh et al., 2020).

Meanwhile, administrators, specifically novice school heads and teachers, revealed their issues and challenges in primary school, such as lack of training in the program to handle in school and less opportunity to attend any short courses, workshops, and forums. Furthermore, there was hardly any sharing session with other primary school heads organised by MoE to ease the doubts among the school heads or other administration staff. School heads usually put effort into applying for short courses or workshops merely to upskill their professional development to improve their headship quality (Husin et al., 2017; Tahir et al., 2018).

Subsequently, the uncontrollable emotional interference of the school heads is also mentioned as a challenge to run the school efficiently. Negative views or actions may lead to strained relationships with fellow school personnel and impact the organisation's overall performance. Therefore, constant training is needed, particularly for novice school heads, as they are new leaders in the new school environment, and they need to be supported continuously due to forthcoming matters in school, for instance, parent demands, MoE policy reform, problematic teachers, and student's behaviours.

Lack of Support from Stakeholders.

Stakeholders in education include anybody interested in the welfare and success of a school or its students, including administrators, teachers, staff, students, parents, families, community members, local business leaders, elected officials, school board members, and NGOs. While collaboration between those possessing knowledge and experience in student learning is necessary, several barriers may make it challenging. Twelve researchers covered the sub-themes of lack of support and collaboration among stakeholders.

Lack of collaboration skills in primary school is a common issue- particularly in rural schools. They are hardly heard or assisted by nearby communities, industries, private agencies, or NGOs, such as low computer literacy, low academic attainment, and learning difficulties due to no exposure to technological devices offered by stakeholders for the schools. Budgeted financing did not help resolve problems, even though the government had provided funds to operate the remote school. Due to the unwelcoming environment and uncomfortable facilities, students, especially those from B40 families and the vulnerable community, are more likely to skip class and become truants, which increases their risk of dropping out of school. In short, enhancement is required in CSR programs by industries nearby, corporate companies or communities.

Moreover, the government should be attentive to the imminent consequences of neglecting rural schools. Thus, government and corporate companies should collaborate, sharing burdens and ideas to provide necessities and help rural schools with academic programs. Accordingly, CSR initiatives should be through long-term service, not merely one-off help. With that, other children could benefit in the future (Azhar & Azman, 2021; Husin et al., 2017; Hwang et al., 2021; Kasinathan et al., 2018; Razak et al., 2019; Saif et al., 2021).

Similarly, significant support from school administrators and parents/teachers is necessary to foster students' interest in academic success and address their diverse behaviour. However, several articles revealed problems regarding a lack of collaboration and support from parents to school and support from school heads to teachers. Teachers are under pressure due to not getting help in terms of welfare and demand extra classes after school hours. Moreover, many educators and administrators feel that there are not enough hours in the school day for sharing sessions because the Professional Learning Community (PLC) does not exist. Parents disregard school records, absentee notices, kid dropout rates, and teacher's request for class experiments. They also refuse to collaborate and show no support during parent-teacher conferences.

Parents hardly prepare children with things needed for school projects and lessons, indicating no collaboration between parents, school heads, and teachers. Furthermore, it seems teachers are struggling alone to meet the objectives. In summary, the collaboration among parents, teachers, head teachers, and society will significantly impact education. Teachers' financial strain in the classroom may be reduced by sponsoring pricey equipment, spaces, and supplies for instruction and learning. In the upcoming years, administrators will be in favour of organising and providing youngsters with thorough knowledge with the assistance of schoolteachers (Alalwan et al., 2020; Azhar & Azman, 2021; Fadzil & Saat, 2014; Hwang et al., 2021; Ismail et al., 2013; Saif et al., 2021; Savita et al., 2017; Tahir et al., 2018; Wong et al., 2021).

The Implication of Lack of Support

The lack of support found in this study can be categorised into three sub-themes: inadequate funding, insufficient training, and deficiency of collaboration among the stakeholders. A discrepancy in education is caused by lower student accomplishment in schools with less funding. The implication of a limited allocation of funding by the government could steer to ineffectiveness and slow progress in attaining knowledge or skills among primary school children. Therefore, students, particularly those from poor backgrounds, are at risk of dropping out of school because they lose interest in attending school due to the unfriendly atmosphere and are discomforted by the

facilities provided in the school. Thus, the implication of partnership with parents, teachers, head teachers, and society will make a difference in school.

Sponsoring devices, facilities, and tools for teaching and learning purposes could ease teachers' burdens. Likewise, the implication of parents' and teachers' partnership, as well as school heads' support, could move towards nurturing interest in academic achievement and solving the issue of various misbehaviours of students in school. Besides, training and support are needed for teachers to gain technical skills, thus attracting students to be active during the lesson. In addition, school heads need to be continuously supported with training due to forthcoming matters in school, such as parents' demands, MoE policy reform, problematic teachers, and students' misbehaviours.

Issues and Challenges of Primary Education in Other Countries to Meet the Fourth Industrial Revolution Demand

Na (2021) explored what primary school teachers believe about the learning contents of primary science education in South Korea for the 4IR. According to the findings, many teachers said the existing learning materials are unsuitable for the 4IR and should be updated. Many teachers stated that the subject's learning content did not reflect the features of the 4IR and suggested a few methods to embrace technological advancements, such as utilising project learning methods, introducing software education, and safety education.

Ilori and Ajagunna (2020) examined how the 4IR influences education at all levels. They discovered that introducing smart communication systems incorporating the internet, artificial intelligence, virtual reality, digital textbooks, and robots has changed how and what is learned in schools. As a result, they argued that curriculum creation and evaluation must keep up with technology changes, dynamics, and skills needed in the 21st century. Furthermore, they added that examples of 4IR innovations today include Airbnb, cyber-security, Uber, cloud services, 3D printers, artificial intelligence, robots, driverless automobiles, drone technology, and machine learning. However, many institutions do not include these components in their curriculum structures.

Oke and Fernandes (2020) investigated the African educational sector's preparation for the 4IR. Semi-structured interviews were used to acquire information about the readiness and adoption of the 4IR from 33 key stakeholders. The findings revealed that even though 4IR can improve students' learning experiences and revolutionise the workplace, the current education system is unprepared for the 4IR. The findings also show that the educational sector can harness 4IR innovations through research and teaching to improve learners' experiences; nevertheless, this may necessitate considerable improvements in education curriculum as well as funding.

Children in elementary school are renowned for being digitally aware, multitaskers, and active through playing, imagining, singing, and enjoying themselves in groups. Teachers in the 21st century may be adaptable to technology, bewitching, creative, and caring. Indriani et al. (2019) defined the design of innovation learning within the framework of the 4IR. Characteristics of 21st-century learning include HOTS, ICT, and literacy in the learning process. The active learning model that should be emphasised is project- and problem-based learning. The results show that for elementary school students to be 21st-century competent, four key factors must be considered: the traits of elementary school students as members of the 21stcentury generation, the characteristics of 21st-century teachers, the traits of 21st century learning itself and the consideration of active learning models that foster student creativity.

An instructional robotics workshop using an Arduino robot was conducted by Shipepe et al. (2022) in a Namibian elementary school in 2022, using educational robotics, which has proven to be a field that facilitates computational thinking and design thinking. The findings revealed that children without programming experience are able to apply both computational and design thinking skills. The researchers suggest that this method can be used in schools to help elementary school students apply computational and design thinking to get ready for the 4IR technologies.

According to R. Rahman et al. (2019), education is the most effective strategy for shaping proper human behaviour and preparing individuals for the 4IR. They investigated the new literacy ideas to be emphasised in primary education in Indonesia, namely technology literacy and data literacy. The results showed that for teachers to be well-versed in the concepts, they need to be incorporated into every class activity. Ayanwale et al. (2022) investigated mathematics teachers' willingness to accept 4IR skills to improve their pedagogy and learning. They found that math teachers are ready to embrace the 4IR era's diversified abilities and possibilities. The study has consequences for school administrators, mathematics teachers, and educational stakeholders in terms of policy development in the direction of 4IR. It would contribute to successfully applying the 4IR in mathematics education, necessitating creativity, complex problemsolving, and social and system abilities.

In Catalonia, 37 primary and secondary school principals were interviewed by Mogas et al. in 2022. Thematic analysis concentrating on management systems, inclusivity, sustainability, and technical and pedagogical advances reveals that schools are far from using cutting-edge technologies. The 4IR's influence depends on the technology's level of maturity and usability, as well as stakeholders and policymakers, even though schools are not yet equipped to handle it.

Software education is required to promote computational thinking via experience in spontaneously addressing issues in daily life. According to Lee et al. (2018), it is desirable to begin software education at the age of five to build the abilities necessary for the future of society. Furthermore, it is vital to exchange knowledge with friends, and problemsolving abilities are required through communication techniques, attitudes, and teamwork.

Media literacy is a fundamental skill children need in the 4IR era because they are highly adaptable and capable. Primary school pupils' media education is crucial (Jeong, 2021). They look at the conversation in Korean society. Based on the findings, there are numerous media educational options, particularly for English and coding education, and primary school pupils use many handphones or other digital devices to provide effective media education. The time has come to work harder at enhancing education using media in an elementary school environment that supports it. Most of the literature above indicates that primary education in other countries is not well suited to meet the current demands of the 4IR, resulting from a lack of engagement of the various stakeholders in curriculum structures and learning material. It is believed that children who have not been exposed to technological changes from the early stage will have challenges and discomfort in learning when the technology is included in the learning process later. However, the findings indicate that the children and teachers are willing to accept 4IR skills embedded in their teaching and learning process.

As the resources for transformative learning are already overwhelming, the 4IR is expected to significantly change how primary school children are taught and what they must learn. Schools will increasingly become hubs for producing and incubating innovation, with excellent learning, teaching, and knowledge impartation. Jobs will be scarce for those lacking the necessary abilities, while those having the necessary skills will need to keep up with the rate of technological advancement or risk being left behind. Thus, all stakeholders and policymakers should take the necessary actions to meet the 4IR demands from the early stage of primary education.

CONCLUSION

The literature review reveals that the TVET preparatory courses now offered in elementary education in Malaysia and other nations are poorly structured to increase awareness of the upcoming 4IR. The primary education scenario should adapt to the advancements and developments of the 4IR to align with 21st-century education. To accomplish the aim of TVET preparatory courses to increase awareness of the current 4IR in Malaysian primary education, studies on the 22 articles revealed problems and difficulties with primary education. Lack of support and 21st-century skills are the two main themes extracted. Six sub-themes are then thoroughly identified under the main theme: inadequate funding, inadequate training, incompetent literacy skills, low learning skills, lack of life skills, and stakeholder collaboration. Besides, the 22 research studies also reveal that none of the studies relate to the primary schools' issues and challenges to the TVET field. By analysing the issues and challenges, the issues can be determined to motivate stakeholders in the policy-making process of Malaysia's education system to plan to address the issues and challenges and create a suitable curriculum that aligns with the needs, capabilities, and interests of the country's primary schools. Information on the specific areas and research topics that should be the main focus of future studies. particularly in the area of primary education in Malaysia, which supports the Fourth Industrial Revolution by raising children's awareness from an early age, can also be determined. Eventually, this will prepare teachers to embrace technologies in the teaching and learning process that will, in turn, assist them in focusing on developing the student's creativity, knowledge, and various skills rather than being occupied with too many clerical tasks.

Furthermore, by recognising problems and obstacles in elementary education, the involved parties could plan and come up with appropriate solutions. The 21st-century skills include life skills that help develop a career, learning skills primarily taught in the classroom, technology-integrated literacy skills, and the use of cutting-edge tools and devices in the classroom that help expose the students to the realities of the modern world. Furthermore, Malaysia's approach to education has evolved over the past few years, with every new education minister introducing new systems for the nation's benefit. Still, the nation's educational standards are something that every Malaysian thinks about frequently. There is a lack of students and graduates compared to other countries. Thus, primary education needs to handle various issues properly to realise the nation's ambitions. Addressing the problems and challenges at the elementary education level points to holding a solid foundation early in children's schooling. In short, to achieve its goal of becoming a high-income nation, Malaysia must propel its output expansion. Similarly, it should abandon the prior low-cost labour approach, which relies primarily on foreign workers. Education plays a crucial role in creating the required human capital. Regretfully, despite substantial financial outlays, educational quality is inadequate. So far, technical and professional education and training have contributed only slightly to the fundamental elements of the educational system. However, it loses the opportunity to cultivate individuals, which might have a significant long-term impact. As a result, the MoE should have major responsibility for resolving problems and obstacles, as elementary school is the foundational level of education where children build their abilities, values, and skills prior to enrolling in the secondary level.

Implications for Practice

From the results obtained, two main themes were discussed. The themes are anticipated to provide insights into primary schools' issues and challenges in raising awareness of the future 4IR technologies. In addition, the results of this literature review are expected to aid in setting the course for improvements in primary education in Malaysia. Furthermore, this research emphasises that investments in education, particularly in skill development and knowledge acquisition, enhance productivity and economic growth. When applied to primary education, especially in the context of TVET, it underscores the crucial role of early investment in human capital development, aligning skill development with the technological advancements characterising the 4IR.

The first main theme is the lack of 21st-century skills, with the sub-themes of lack of life skills, low learning skills, and incompetent literacy skills. The life skills are leadership quality, productivity, and social skills. Learning skills such as critical thinking, creativity, collaboration, and communication. Literacy skills include information literacy, media literacy, and technology literacy. The lack of 21st-century skills in primary school children will result in their inability to face the coming 4IR technological global community challenges and lag in adopting science and technology compared to other countries. Thus, children should be nurtured in critical thinking, problem-solving, good communication, and collaboration.

The issues and challenges regarding the degree of inclusion, preparation, and practice of TVET principles in current primary education to raise awareness of the 4IR technologies could not be identified. The existing primary curriculum structures are unsuitable and do not reflect features of the 4IR technologies, which are embedded and seen as unprepared for the 4IR. The curriculum structures should be updated to embrace technological advancement. The active learning model should be emphasised, as well as project-based learning and problem-based learning, HOTS, ICT, and literacy in the learning process. Thus, from the practical point of view, when the issues and challenges presented in this study are addressed systematically by all the stakeholders, primary education will be developed. Malaysia will be one country that embraces 4IR changes quickly and effectively.

The lack of integration of 21st-century competencies in curriculum and assessment and inadequate teacher preparation to implement new teaching and learning practices should also be addressed. With strong critical thinking, problem-solving, creativity, communication, and cooperation capabilities, teachers could provide primary school children with a learning environment that is more open to inquiry to develop positive student attitudes. Additionally, by introducing 21st-century skills into the curriculum more, instructors can foster a pleasant learning environment that supports the development of the skills and attitudes of primary school students. Accordingly, 21st-century learning requires children to be creative and have the ability to solve problems systematically. As a result, computer literacy and software education are crucial for fostering computational thinking as well as for enhancing creative and problem-solving abilities. They could be used in RBT courses and are relevant to STEM and computer science education.

RBT subjects aim to stimulate and create creative, critical, and innovative human capital by emphasising the thinking skills of primary school children. Teachers' skills, knowledge, and pedagogical skills in RBT and STEM education should also be developed to meet the aim. Due to the technology changes, dynamics, and skills needed in the 21st century to embrace the 4IR, the curriculum should also be updated to include subjects that introduce the internet, artificial intelligence, digital textbooks, virtual reality, robots, 3D printers, drone technology and machine learning in primary schools. In addition, programming, coding, and media literacy are fundamental skills children need in the 4IR.

The second main theme is the lack of support, which includes sub-themes of inadequate funding, insufficient training, and lack of collaboration among the stakeholders. A limited allocation of funding by the government could steer to ineffectiveness and slow progress in attaining knowledge or skills among primary school children. Thus, partnership with parents, teachers, head teachers, and society will make a difference in the school. Sponsoring devices, facilities, and tools for teaching and learning purposes could ease teachers' burdens and solve various student issues in school. Furthermore, training and support are needed for teachers to gain more advanced technical skills, thus attracting students to be active during the lesson.

In addition, the findings can also be considered to have instrumental impacts that influence the development of the policy,

practice, or shape legislation. Therefore, policymakers such as MoE officers, school administrators, and other stakeholders have roles to play in ensuring ample preparation at the primary education level to raise awareness of the future 4IR technologies through TVET preliminary subjects such as RBT and other relevant subjects. MoE might scrutinise ways to enhance the delivery of STEM education, RBT, and other primary school subjects to expose the students to 4IR technologies and increase their understanding of productive and skilled human capital. In addition, MoE should develop policies to educate and comprehend the stakeholders involved by providing proper facilities, materials, good internet connection in schools, and teacher training. It motivates the stakeholders involved and enables the teaching and learning process to be executed as planned. In addition, by enhancing the top and bottom managerial positions in education, programme execution planning, and facility needs, MoE, senior education managers, and other related stakeholders should work together to fill the gaps and shortcomings.

Limitations and Recommendations for Future Studies

The issues and challenges that the primary schools confront in raising awareness of the future 4IR through TVET preliminary courses in Malaysia must be examined further and supported by further evidence. In Malaysia, research on TVET challenges and concerns has focused on secondary schools, polytechnics, technical schools, and other institutions, but none has addressed the country's elementary schools. As a result, this study provides a new perspective on the topic from the perspective of elementary education, which enriches the research community. With relevance to TVET and 4IR, it can also be said that there has not been much research done on the problems and difficulties concerning primary school. By using a qualitative method and focusing on the experiences and viewpoints of various TVET stakeholders, mainly from the education line, a more distinctive contribution to the field of primary education to meet the 4IR demands could be made. Indeed, the richness of the data allows for detailed data analysis and allows researchers to delve deeply into the social and subjective lives of the participants. Additionally, interviews with all the relevant stakeholders should be conducted to enable them to express their insights and experiences on TVET, the school administration, and the overall education system. In doing so, changes can be made to the strategic actions to ensure that teachers and students in primary education are exposed to TVET and know future job market demands.

This study offers suggestions for implementors and policymakers to increase awareness of the function of primary schools. Doing so would achieve one of the country's goals: meeting the national TVET agendas in line with the 4IR needs. In addition, by enhancing the top and bottom managerial in education, program execution planning, and facility needs, TVET stakeholders should work together to fill the gaps and shortcomings, especially in primary schools. Moreover, the MoE might scrutinise ways to enhance the delivery of TVET-related courses such as STEM, RBT, and other primary school elective subjects to better expose the students to occupational terms and increase their understanding of productive and skilled human capital.

Future studies may also focus on various educational levels nationwide to take a more in-depth look at the issue. Fortunately, this study offers a foundation to guide the study's future information by gathering data specifically from the primary education level. The study creates several paths for more research. The findings of this study need to be refined and further elaborated on through more research. First, many problems still need to be addressed or improved upon, despite the main themes of primary schools' concerns and challenges faced by assisting TVET in Malaysia and how improvisation can be made to overcome the obstacles. Information from upcoming studies and research will highlight issues with the complexity of the educational system, management's failure to address issues, teachers' attitudes and workload in schools, infrastructure, and facilities issues. It will also draw attention to the difficulties in implementing some policies, like introducing RBT courses, STEM thinking, and altered curricula from upper to lower school levels. They are vital in priming elementary school students for early education to help TVET in Malaysia become cognizant of 4IR technologies.

ACKNOWLEDGMENTS

This work was supported by the Faculty of Industrial and Manufacturing Technology and Engineering, Universiti Teknikal Malaysia Melaka (UTeM).

REFERENCES

- Abdullah, A. H., Mun, S. H., Mokhtar, M., Ashari, Z. M., Jumaat, N. F., Ali, D. F., Samah, N. A., & Abdurrahman, M. S. (2020). Using active learning with smart board to enhance primary school students' higher order thinking skills in data handling. *Universal Journal of Educational Research*, 8(10), 4421-4432. https:// doi.org/10.13189/ujer.2020.081009
- Adams, A., Feng, Y., Liu, J. C., Stauffer, E. (2021). Potentials of teaching, learning, and design with virtual reality: An interdisciplinary thematic analysis. In B. Hokanson, M. Exter, A. Grincewicz, M. Schmidt, & A. A. Tawfik (Eds.), *Intersections across disciplines* (pp. 173-186). Springer, Cham. https://doi.org/10.1007/978-3-030-53875-0_14
- Ahmad, A., Sirajuddin, P. T. S., & Mohamed, A. H. (2017). The effectiveness of training: Equipping and enhancing ICT knowledge and skills among polytechnic lecturers in producing quality highly skilled graduates. *Advanced Journal of Technical* and Vocational Education, 1(3), 1-5.
- Alalwan, N., Cheng, L., Al-Samarraie, H., Yousef, R., Alzahrani, A. I., & Sarsam, S. M. (2020). Challenges and prospects of virtual reality and augmented reality utilization among primary school teachers: A developing country perspective. *Studies in Educational Evaluation*, 66, Article 100876. https://doi.org/10.1016/j. stueduc.2020.100876
- Ayanwale, M. A., Ndlovu, M., & Oladele, J. I. (2022). Mathematics education and the fourth industrial revolution: Are the high school mathematics teachers ready? In *Mathematics Education in*

Africa: The Fourth Industrial Revolution (pp. 77-96). Springer International Publishing. https://doi.org/10.1016/j.stueduc.2020.100876

- Azhar, A., & Azman, A. (2021). Corporate social responsibility in educational programme among Malaysian primary schools: Perspectives from corporate companies in Malaysia. *Studies of Applied Economics*, 39(1), 1-12. https://doi. org/10.25115/eea.v39i1.4281
- Bakar, A. Y. A., & Mahmud, M. I. (2020). Profiling of aspiration and interest towards STEM and TVET careers among lower secondary students: A Malaysian case study. *Journal for the Education* of Gifted Young Scientists, 8(1), 489-500. https:// doi.org/10.17478/jegys.669034
- Bakirci, H., & Karisan, D. (2018). Investigating the preservice primary school, Mathematics and Science Teachers' STEM awareness. *Journal* of Education and Training Studies, 6(1), 32-42. https://doi.org/10.11114/jets.v6i1.2807
- Bush, T., Hamid, S. A., Ng, A., & Kaparou, M. (2018). School leadership theories and the Malaysia education blueprint: Findings from a systematic literature review. *International Journal of Educational Management*, 32(7), 1245-1265. https://doi.org/10.1108/IJEM-06-2017-0158
- Kementerian Pendidikan Malaysia. (2013). Executive Summary: Malaysia Education Blueprint 2013-2025 (Preschool to Post-Secondary Education). (2013). Kementerian Pendidikan Malaysia. https://www.pmo.gov.my/wpcontent/uploads/2019/07/Malaysia-Education-Blueprint-2013-2025.pdf
- Fadzil, H. M., & Saat, R. M. (2014). Enhancing STEM education during school transition: Bridging the gap in science manipulative skills. *Eurasia Journal of Mathematics, Science and Technology Education*, 10(3), 209-218. https:// doi.org/10.12973/eurasia.2014.1071a
- Haddaway, N. R., Macura, B., Whaley, P., & Pullin, A. S. (2018). ROSES RepOrting standards for

Systematic Evidence Syntheses: pro forma, flow-diagram and descriptive summary of the plan and conduct of environmental systematic reviews and systematic maps. *Environmental Evidence*, 7, Article 7. https://doi.org/10.1186/ s13750-018-0121-7

- Hassan, M. N., Mustapha, R., Yusuff, N. A. N., & Mansor, R. (2017). Development of higher order thinking skills module in science primary school: Needs analysis. *International Journal* of Academic Research in Business and Social Sciences, 7(2), 624-628.
- Hendrik, B. (2020). Robotic technology for figural creativity enhancement: Case study on elementary school. International Journal of Advanced Computer Science and Applications, 11(1). https://doi.org/10.14569/IJACSA.2020.0110166
- Hendrik, B., Ali, M. N., & Nayan, N. M. (2020). Validity of figural creativity model development based on robotic learning concept. *Intenational Journal of Advance and Applied Science*, 7(11), 102-109. https://doi.org/10.21833/ ijaas.2020.11.011
- Husin, N. S., Abd Hamid, R., Abd Aziz, N., Saoula, O., & Azizi, S. (2017). The effect of emotional intelligence on job performance among educators in Malaysia. *International Journal of Recent Technology and Engineering*, 8(3), 7860-7863. https://doi.org/10.35940/ijrte.C6549.098319
- Hussain, M. A. M., Zulkifli, R. M., Kamis, A., Threeton, M. D., & Omar, K. (2021). Industrial engagement in the technical and vocational training (TVET) system. *International Journal of Learning, Teaching and Educational Research*, 20(12), 19-34. https://doi.org/10.26803/ IJLTER.20.12.2
- Hwang, S., Waller, R., Hawes, D. J., & Allen, J. L. (2021). The influence of antisocial behavior and callous-unemotional traits on trajectories of school engagement and achievement in South-Korean children. *Journal of Youth*

and Adolescence, 50, 788-802. https://doi. org/10.1007/s10964-021-01414-2

- Ilori, M. O., & Ajagunna, I. (2020). Re-imagining the future of education in the era of the fourth industrial revolution. *Worldwide Hospitality* and Tourism Themes, 12(1), 3-12. https://doi. org/10.26803/IJLTER.20.12.2
- Indriani, F., Hidayah, N., AlQisan, & Okfitri, N. N. (2021). Innovative learning era industrial revolution 4.0 in optimizing 21st century competence elementary school students. In Proceedings of the Second Asia Pacific International Conference on Industrial Engineering and Operations Management (pp. 3147-3157). IEOM Society International. https://ieomsociety.org/ proceedings/2021indonesia/570.pdf
- Ismail, I., Azizan, S. N., & Azman, N. (2013). Mobile phone as pedagogical tools: Are teachers ready? *International Education Studies*, 6(3), 36-47. https://doi.org/10.5539/ies.v6n3p36
- Jalil, R. A., Tasir, Z., & Salleh, S. M. (2017). RMATHs: Mobile based numeracy learning applications for students with learning disabilities. *Advanced Science Letters*, 23(6), 5551-5555. https://doi. org/10.1166/asl.2017.7419
- Jeong, S. J. (2021). A semantic network analysis of research trends on media education of elementary school students. *Frontier Computing: Proceedings of FC 2020*, 395-404. Springer, Singapore. https://doi.org/10.1007/978-981-16-0115-6_41
- Julius, E., Mun, S. H., Abdullah, A. H., Mokhtar, M., & Suhairom, N. (2018). Using digital smart board to overcome higher order thinking skills learning difficulties in data handling among primary school students. *International Journal* of Interactive Mobile Technologies, 12(7), 43-59. https://doi.org/10.3991/ijim.v12i7.9644
- Kamarulzaman, W. B., & Hashim, R. (2013). Pelan Pembangunan Pendidikan Malaysia (PPPM)

2013-2025: Unity Among Students [Malaysia Education Blueprint 2013-2025: Unity Among Students]. SSRN. https://doi.org/10.2139/ ssrn.2302609

- Kasinathan, V., Mustapha, A., Hasibuan, M. A., & Abidin, A. Z. Z. (2018). First discovery: Augmented reality for learning solar systems. *International Journal of Integrated Engineering*, 10(6), 149-154. https://doi.org/10.30880/ ijie.2018.10.06.021
- Kho, L. S., & Chen, C. J. (2017). Effects of different student response modes on science learning. *Interactive Learning Environments*, 25(8), 996-1008. https://doi.org/10.1080/10494820.201 6.1242080
- Kim, C. M., Ahn, J., Noh, D. W., Moon, J. S., & Kim, S. B. (2022). A study on core competencies for elementary and secondary education in the era of the fourth industrial revolution. *Journal of Digital Contents Society*, 23(11), 2159-2170. https://doi.org/10.9728/dcs.2022.23.11.2159
- Lee, K. H., Koh, E., Hong, C., Lee, Y., Moon, E., & Cho, J. (2018). New curriculum of software education for 5-years-old children. *Journal of Advanced Research in Dynamical and Control Systems*, 10(14), 374-381.
- Malaysia Qualification Agency. (2017). Malaysia Qualification Framework (MQF; 2nd ed.). https://www.mqa.gov.my/new/document/ mqf/2021/MQF%20Ed%202%2002102019%20 updated%2017022021.pdf
- Masril, M., Ambiyar, A., Jalinus, N., Ridwan, R., & Hendrik, B. (2021). Robotic education in 21st century: Teacher acceptance of Lego Mindstorms as powerful educational tools. International Journal of Advanced Computer Science and Applications, 12(2), 119-126. https://doi.org/10.14569/IJACSA.2021.0120216
- Mee, R. W. M., Pek, L. S., Von, W. Y., Ghani, K. A., Shahdan, T. S. T., Ismail, M. R., & Rao,

Y. S. (2021). A conceptual model of analogue gamification to enhance learners' motivation and attitude. *International Journal of Language Education*, *5*(2), 40-50. https://doi.org/10.26858/ijole.v5i2.18229

- Menon, K., & Castrillón, G. (2019). Reimagining curricula for the fourth industrial revolution. *The Independent Journal of Teaching and Learning*, 14(2), 6-19.
- Minghat, A. D., & Yasin, R. M. (2010). Sustainable framework for technical and vocational education in Malaysia. *Procedia-Social and Behavioral Sciences*, 9, 1233-1237. https://doi.org/10.1016/j. sbspro.2010.12.312
- Misni, F., Mahmood, N., & Jamil, R. (2020). The effect of curriculum design on the employability competency of Malaysian graduates. *Management Science Letters*, 10(4), 909-914. https://doi.org/10.5267/j.msl.2019.10.005
- Mogas, J., Palau, R., Fuentes, M., & Cebrián, G. (2022). Smart schools on the way: How school principals from Catalonia approach the future of education within the fourth industrial revolution. *Learning Environments Research*, 25(3), 875-893. https://doi.org/10.1007/s10984-021-09398-3
- Mohamad, M. M., Sulaiman, N. L., Lai, C. S., & Salleh, K. M. (2013). The composite of students' characteristic and cognitive dimension in vocational education. *Global Journal of Business* and Social Science Review, 1(2), 28-39.
- Mukhtar, M. I., & Ahmad, J. (2015). Assessment for learning: Practice in TVET. Procedia - Social and Behavioral Sciences, 204, 119-126. https:// doi.org/10.1016/j.sbspro.2015.08.124
- Mustam, A. A., & Adnan, M. (2019). Perception of primary mathematics teachers on STEM-oriented teaching and learning. *Journal of Physics: Conference Series, 1227*, Article 012009. https:// doi.org/10.1088/1742-6596/1227/1/012009

- Muzakkir, Hussin, Z., & Razak, R. A. (2022). Teachers' beliefs towards character education curriculum in primary school: A systematic literature review. *Education 3-13*, 1-15. https:// doi.org/10.1080/03004279.2022.2142478
- Na, J. (2021). Elementary school teachers' conception of the learning content of elementary science education subject required in the 4th industrial revolution era. *Journal of Science Education*, 45(1), 90-104. https://doi.org/10.21796/ JSE.2021.45.1.90
- Oke, A., & Fernandes, F. A. P. (2020). Innovations in teaching and learning: Exploring the perceptions of the education sector on the 4th industrial revolution (4IR). *Journal of Open Innovation: Technology, Market, and Complexity*, 6(2), Article 31. https://doi.org/10.3390/joitmc6020031
- Okoli, C. (2015). A guide to conducting a standalone systematic literature review. *Communications of* the Association for Information Systems, 37(1), 879-910. https://doi.org/10.17705/1CAIS.03743
- Omar, M. K., Zahar, F. N., & Rashid, A. M. (2020). Knowledge, skills, and attitudes as predictors in determining teachers' competency in Malaysian TVET institutions. Universal Journal of Educational Research, 8(3), 95-104. https://doi. org/10.13189/ujer.2020.081612
- Porter, L. (2022). Application of teaching, research and teaching objectives and national education policy in improving the quality of primary education. *Journal of Research in Vocational Education*, 4(4), 1-4. https://doi.org/10.53469/ jrve.2022.04(04).01
- Prabu, S. N., & Nesamalar, M. K. (2021). Students' perception towards teaching and learning of design and technology subject in English. *Malaysian Journal of Social Sciences and Humanities*, 6(8), 422-435. https://doi. org/10.47405/mjssh.v6i8.970
- Rahman, N. A., Rosli, R., Rambely, A. S., & Halim, L. (2021). Mathematics teachers' practices of

STEM education: A systematic literature review. *European Journal of Educational Research*, *10*(3), 1541-1559. https://doi.org/10.12973/eujer.10.3.1541

- Rahman, N. H. A. (2014). From curriculum reform to classroom practice: An evaluation of the English primary curriculum in Malaysia [Doctoral dissertation, University of York]. White Rose eTheses Online. https://etheses.whiterose. ac.uk/7511/
- Rahman, R., Sakti, A. W., Widya, R. N., & Yugafiati, R. (2019). Elementary education literacy in the era of Industrial Revolution 4.0. In Proceedings of the Second Conference on Language, Literature, Education, and Culture (ICOLLITE 2018; pp. 190-193). Atlantis Press. https://doi.org/10.2991/icollite-18.2019.41
- Ramdzan, Z., Hamzah, M. I., & Zulkifli, H. (2022). (2022). 21st-century learning in Islamic education. *Journal of* Pharmaceutical Negative Results, 13(Special Issue), 4221-4231. *https:// doi.org/10.47750/pnr.2022.13.S07.529*
- Razak, N., Ab Jalil, H., & Ismail, I. (2019). Challenges in ICT integration among Malaysian public primary education teachers: The roles of leaders and stakeholders. *International Journal of Emerging Technologies in Learning*, 14(24), 184-205. https://doi.org/10.3991/ijet.v14i24.12101
- Reed, H. C., Drijvers, P., & Kirschner, P. A. (2010). Effects of attitudes and behaviours on learning mathematics with computer tools. *Computers & Education*, 55(1), 1-15. https://doi.org/10.1016/j. compedu.2009.11.012
- Rusmin, L., Hasan, S., La Rabani, M. M., & Suardika, I. K. (2020). The role of civic education in the student moral development in elementary school: A descriptive study. *Universal Journal of Educational Research*, 8(12), 6405-6414. https:// doi.org/10.13189/ujer.2020.081206
- Saif, A. S., Mahayuddin, Z. R., & Shapi'i, A. (2021). Augmented reality based adaptive and

collaborative learning methods for improved primary education towards fourth industrial revolution (IR 4.0). *International Journal of Advanced Computer Science and Applications*, *12*(6), 614-623. https://doi.org/10.14569/ IJACSA.2021.0120672

- Savita, K. S., Muniandy, M., Nur'Ain, Z., & Mehat, M. (2017). A mobile based environmental education for primary schoolchildren in Malaysia. In 2017 International Conference on Research and Innovation in Information Systems (ICRIIS; pp. 1-6). IEEE. https://doi.org/10.1109/ ICRIIS.2017.8002452
- Setyaningsih, E. (2020). Adapting elementary school curriculum innovation in line by 4IR and cultures. In Proceedings of the 2nd Educational Sciences International Conference (ESIC 2019; pp. 81-91). Atlantis Press. https://doi. org/10.2991/assehr.k.200417.019
- Shaffril, H. A. M., Ahmad, N., Samsuddin, S. F., Samah, A. A., & Hamdan, M. E. (2020). Systematic literature review on adaptation towards climate change impacts among indigenous people in the Asia Pacific regions. *Journal of Cleaner Production*, 258, Article 120595. https://doi. org/10.1016/j.jclepro.2020.120595
- Shahali, E. H. M., Ismail, I., & Halim, L. (2017). STEM education in Malaysia: Policy, trajectories and initiatives. *Asian Research Policy*, 8(2), 122-133.
- Shipepe, A., Uwu-Khaeb, L., De Villiers, C., Jormanainen, I., & Sutinen, E. (2022). Colearning computational and design thinking using educational robotics: A case of primary school learners in Namibia. *Sensors*, 22(21), Article 8169. https://doi.org/10.3390/s22218169
- Siew, N. M., Chong, C. L., & Chin, K. O. (2014). Developing a scientific creativity test for fifth graders. *Problems of Education in the 21st Century*, 62, 109-123. https://doi.org/10.33225/ pec/14.62.109

- Singh, P., Hoon, T. S., Nasir, A. M., Ramly, A. M., Rasid, S. M., & Meng, C. C. (2021). Card game as a pedagogical tool for numeracy skills development. *International Journal* of Evaluation and Research in Education, 10(2), 693-705. https://doi.org/10.11591/ijere. v10i2.20722
- Singh, P., Hoon, T. S., Nasir, N. A. M., Han, C. T., Rasid, N. S. M., & Bzh, J. (2020). An analysis of students' mathematical reasoning and mental computation proficiencies. *Universal Journal of Educational Research*, 8(11), 5628-5636. https:// doi.org/10.13189/ujer.2020.081167
- Subramaniam, M., Loganathan, N., & Noordin, M. K. (2020). TVET education for students in Malaysia: A systematic literature review. *Journal of Social Transformation and Education*, 1(1), 63-74.
- Tahir, L. M., Jamal, A. H. M. A., Yusof, S. M., Ali, M. F., Hassan, Z., & Hamid, M. Z. A. (2018). "I employed my own strategy": Exploring primary headteachers' organisational and professional socialisations. *Malaysian Journal of Learning* and Instruction, 15(1), 229-265.
- Thornhill-Miller, B., Camarda, A., Mercier, M., Burkhardt, J.-M., Morisseau, T., Bourgeois-Bougrine, S., Vinchon, F., El Hayek, S., Augereau-Landais, M., Mourey, F., Feybesse, C., Sundquist, D., & Lubart, T. (2023). Creativity, critical thinking, communication, and collaboration: Assessment, certification, and promotion of 21st century skills for the future of work and education. *Journal of Intelligence*, *11*(3), Article 54. https://doi.org/10.3390/ jintelligence11030054
- Veloo, A., & Ali, R. M. (2016). Teachers' challenges in the implementation of school based assessment in physical education. In B. Mohamad (Ed.), *Challenge of ensuring research rigor in soft sciences* (Vol. 14 - European Proceedings of Social and Behavioural Sciences; pp. 737-743). Future Academy. https://doi.org/10.15405/ epsbs.2016.08.104

- Wasriep, M. F., & Lajium, D. (2019). 21st century learning in primary Science subject via flipped classroom method–A teacher's perspective. *International Journal of Recent Technology* and Engineering, 8(2), 952-959. https://doi. org/10.35940/ijrte.B1088.0982S919
- Wong, S. Y., Liang, J. C., & Tsai, C. C. (2021). Uncovering Malaysian secondary school students' academic hardiness in science,

conceptions of learning science, and science learning self-efficacy: A structural equation modelling analysis. *Research in Science Education*, *51*, 537-564. https://doi.org/10.1007/ s11165-019-09908-7

Xiao, Y., & Watson, M. (2019). Guidance on conducting a systematic literature review. *Journal* of Planning Education and Research, 39(1), 93-112. https://doi.org/10.1177/0739456X17723971



SOCIAL SCIENCES & HUMANITIES

Journal homepage: http://www.pertanika.upm.edu.my/

Gender Vulnerability and Resistance in Selected Malayalam Movies *The Great Indian Kitchen* and *Jaya Jaya Jaya Hey*

Sumathra Subramani and Rashmi Rekha Borah*

School of Social Sciences and Languages, Vellore Institute of Technology, Chennai, Tamil Nadu 600127, India

ABSTRACT

The insidious trauma of intimate partner violence affects women in the global context. This study intends to analyse the intimate partner violence and resistance of women in the select Malayalam movies The Great Indian Kitchen (2021) and Jaya Jaya Jaya Hey (2022). Previous literature encapsulates the exploitation of women under patriarchal dominance in the global context. The research gap that the study wants to explore is the element of self-defence instinct and endurance in women to question the atrocity of domestic violence and patriarchal terrorism. In pursuing the argument, the authors discuss the daughters-inlaw's ability to resist gender stereotypes through silence and separation to enhance their autonomy. This study uses a detailed qualitative textual analysis method to underscore the rising voice of female characters against the dominance of hetero-patriarchal society in the select Malayalam movies The Great Indian Kitchen (2021) and Jaya Jaya Jaya Jaya Hey (2022). As an analytical framework, the researchers draw upon Evan Stark's theory of Coercive Control and Hagelin's Concept of Resistant Vulnerability to demonstrate the gender disparities and power politics of patriarchy in familial relations. The results underline the resistance of the daughters-in-law to the coerciveness of the patriarchy through agency. This article limits its focus only on the suppression of educated married women, especially daughters-in-law, and not on other female characters who are suffering under patriarchy.

ARTICLE INFO

Article history: Received: 22 August 2023 Accepted: 15 January 2024 Published: 11 June 2024

DOI: https://doi.org/10.47836/pjssh.32.2.08

E-mail addresses: sumathra.s2021@vitstudent.ac.in (Sumathra Subramani) rashmirekha.borah@vit.ac.in (Rashmi Rekha Borah) * Corresponding author *Keywords:* Coercive control, gender stereotyping, gender vulnerability, insidious trauma, power politics and resistance

INTRODUCTION

Vulnerability refers to an engendered or unprotected condition with inherent elements of risk and resilience (Havrilla, 2017); on the other hand, resistance is the opposite of vulnerability, and it is a response to real or perceived challenges to established power hierarchies (Flood et al., 2021). However, vulnerability and resistance are interconnected phenomena, where "resistance leads to vulnerability, and vulnerability (the sense of exposure implied by precarity) leads to resistance, vulnerability is not exactly overcome by resistance but becomes a potentially effective mobilising force in political mobilisations" (Butler, 2016, p. 15). Traditionally, vulnerability is portrayed on screen and in books with regard to images of a female body. Female characters are often projected as timid and helpless in critical situations. However, women must strive to escape marginalisation and subjection to prove their ability in other areas of life.

Movies like The Great Indian Kitchen (2021) and Jaya Jaya Jaya Jaya Hey (2022) underline the transition of subjugated women from vulnerability to resistance. The rationale behind the movie selection is a critical focus on narratives that showcase daughters-in-law's resistance against the "sentimental vulnerability"1 of women (Hagelin, 2013, p. 13). This paper interprets the intricate relationship between vulnerability and resistance, originating from the critical issues of coercive control. The violence committed against women by their partners and family members is discussed in detail through the protagonists of the movies The Great Indian Kitchen

(2021) and Jaya Jaya Jaya Jaya Hey (2022). The study explores the gap between the strong feminist characters who attain agency through silence and separation. The selected movies interpret women's economic independence as a way to redefine their societal identity. At the beginning of the movie, the daughters-in-law are projected in a typical patriarchal setting, where they try to overcome gender stereotypes and domination to achieve their goals.

This study examines the coercive control of intimate partners and their tactics to "intimidate, isolate, humiliate, exploit, regulate, and micromanage women's enactment of everyday life" (Stark, 2009, pp. 171-172). The physical and psychological violence against women under the patriarchal system exhibits the insidious trauma of married women in society. Insidious trauma underscores the sufferings of women and marginalised people in the global context. The women in the selected movies are emotionally and psychologically disturbed by the activities of their partners. According to Cantueso-Urbano (2022), women do not have the power to change the system which enslaves them, yet the act of resistance gives them agency. Since we rely on the system, it is impossible to overthrow it. The daughtersin-law in both movies are controlled by their partners and family members, yet unfollowing their rules and norms gives them the agency to have a voice and redefine their identity. The female characters in both movies undergo insidious trauma rendered by their partners and family members in

¹ Sentimental Vulnerability shows that women are more susceptible to pain and injury than men, and it is written that pain and damage are crippling to the female subject (Hagelin, 2013).

day-to-day life. Coercive behaviour and intimate partner violence are not noted seriously unless and until the victims are hurt gravely (Stark, 2009).

The study uses the concepts of Coercive Control and Resistant Vulnerability to emphasise the suffering and resistance of women in society. The concept of Coercive Control elaborates on the intimate partner violence of partners and insidious trauma endured by women in the typical family setting. Meanwhile, Resistant Vulnerability discusses the resistance of vulnerable people against the powerful. This study uses the resistant vulnerability of women in a patriarchal society to establish their identity. Resistance can be expressed in various means possible. Both the daughters-in-law's characters express their intolerance to the atrocity of partner violence by separation. Thus, the victimisation of women leads to the transition from servility to resistance is emphasised.

LITERATURE REVIEW

Background Study of the Film

The oppressive cultural norms in India pave the way for intimate partner violence, domestic violence and emotional violence in the course of marriage for women (Jeyaseelan et al., 2015). They are merely treated as toys and sexual objects for the pleasure of men. According to Martin (1981), married women are considered their partners' properties in his work *Battered Wives*. Women are sexually and emotionally abused and traumatised in marriage, which unfortunately runs through almost all cultures, traditions and customs to enforce the power of husbands over their wives (Mshweshwe, 2020). Here, the media plays a significant task; it communicates the evils in society through movies.

The movies The Great Indian Kitchen (2021) and Java Java Java Java Hey (2022) have positioned women in the submissive state under patriarchy at the beginning. It mirrors the unconstitutional authorisation of in-laws and the patriarchal dominance of the husband in the family. In marital homes, women are doubly marginalised and adhere to abuses and exploitation by family members (Krishnaja & Jose, 2022). They are restricted to the kitchen in a fixed space, following the orders of the male patriarch. Food is used as a material culture to project the dominance of male supremacy and to conquer the private space of women (Alex & Justin, 2022). The prevalence of male supremacy and a common belief that women should stay subservient to men contributes to partner violence. The power to restrict or control the interaction of women with family, friends and society is a subtle form of partner violence, which is the major concern of this research.

The study incorporates the Coercive Control theory to address the humiliation, hurt, and isolation of daughters-in-law in the movies to address intimate partner violence and gender stereotypes. Coercive control inhibits women from seeking help from government organisations and family members, which leads to mental health disorders. According to a cross-sectional survey conducted in Mumbai with the data of National Family Health Surveys-3 (2005-2006) and 4 (2015-2016) reports that informal help-seeking has declined compared to formal help-seeking of women in 2021 (Kanougiya et al., 2022). The major factors which prevent women from seeking help are injury, emotional abuse, history of violence, alcohol consumption by husband, health care access and economic situation (Dehingia et al., 2022). Meanwhile, the select Malayalam movies The Great Indian Kitchen (2021) and Jaya Jaya Jaya Hey (2022) use resistance to dismantle the longsustaining gender injustice in relationships by questioning patriarchal supremacy.

These movies challenge the invisibility of domestic violence prevailing in the private space and the social constraints restricting women from achieving their dreams. It features women as individuals who strive for their dreams and emancipation. In the movies Ishq (2019) and The Great Indian Kitchen (2021), Augustine and Issac (2023) portray the transcendence of women from the given space to the acquired space, which challenges traditional patriarchal ideologies. The women's transition from a place of servility to a created space as a liberation from familial and community ties embodies the powerful act of resistance. Women's resistance builds their real self, the counter-image of the earlier subservient state. To overcome the dominance of patriarchy, women should take hold of their bodies or gain autonomy over them, which will give them the agency to resist (Rajah & Osborn, 2022). This study explores the

role of society, culture, and family, which unconsciously influence women to gain autonomy over their bodies for resistance. Therefore, the study analyses the abuse and violence against women through the theory of Coercive Control and Resistant Vulnerability, which remains an underresearched area that needs consideration.

THEORETICAL FRAMEWORK Coercive Control and Resistant Vulnerability

Violence against women and girls affects one in three women throughout their lifetime (Suri et al., 2022). It includes domestic violence or intimate partner violence in all forms (physical, sexual, and emotional) against women in all settings, from rural to urban areas. Children who witness the intimate partner violence of their parents develop aggressive behaviour and intimate partner violence in adulthood (James-Hawkins et al., 2018). The aggressive behaviour thus formed becomes a form of coercive control in a relationship to subjugate the partner to erode their selfesteem and autonomy. Stark has introduced the theory of Coercive Control to illustrate the aggressive behaviour of men against women in all areas of life. The perpetrators use controlling tactics or violence in severe forms on women frequently to entrap them as subordinates. Coercive control is a technique used in intimate relationships to oppress partners, which emphasises the "deliberate and malevolent qualities to define them as criminals" (Stark, 2009, p. 200). However, the perpetrators may use many other techniques; the core element of coercive control is to have control over the victim's emotional, psychological and sexual autonomy.

The emotional behaviour of the victims is controlled and monitored in a way that isolates them from the sources of support (parents, friends and law). They are deprived of daily necessities like food, medicine, and communication and enforce rules for everyday conduct. The nature of control is detrimental, instilling fear and cutting down the victim's autonomy and agency. Men deploy coercive control on women to prevent them from escaping through a pattern of rules like "stalking, cyberstalking, beepers, cell phones, and other means... surveillance and behavioural regulation" (Stark, 2009, p. 208). Most probably, the prevalence of coercive control is typically hidden from the view of society due to its covert nature. It can be identified only through the behaviour of the victims, and it is commonly mistaken as the problem is with the women.

Another remarkable feature of coercive control is the gender norms that govern the relationship, such as financial decisions, confining women within the kitchen and monitoring their expenditures, which gives the feeling of uncertainty in married life. The most crucial controlling tactics illustrated by Stark in intimate partner violence are gender norms and stereotypes. Most husbands micromanage their wife's household work, nurturance of children, and love-making process to subordinate them. The restriction of social space, employment, and opportunities are dealt with in the movies in relation to the Theory of Coercive Control.

Hagelin (2013) argues that there are three kinds of vulnerable characters projected on the screen by contemporary popular culture they are the "traditionally vulnerable female body, the female character overcoming vulnerability through masculinised aggression, and a third body that I will label 'resistant vulnerability'" (p. 3). The traditional vulnerability of women, which she calls 'sentimental vulnerability,' shows women as vulnerable to injury, hurt, and pain. The second kind of vulnerability, which she argues is the one who fights back through masculinised aggression, is subdivided into two types: rape revenge heroines and objectified heroines in the films. The third kind of vulnerability, which Hagelin labels as 'Resistant Vulnerability', incorporates both vulnerability and resistance, "the openness and susceptibility associated with vulnerability and the counterintuitive frisson of resistance-embodies what I call 'resistant vulnerability'" (p. 3).

According to Hagelin's Concept of Resistant Vulnerability, "vulnerability needn't be gendered female and we alter our basic assumption that suffering body is vulnerable and needs our pity and protection" (Hagelin, 2013, p. 4). In the movie Jaya Jaya Jaya Jaya Hey (2022), Jaya's husband Rajesh gets injured by Jaya's attack, which suggests that the suffering body is not always vulnerable and does not need our pity and emotion. In Jaya's case, she resists the patriarchal regime, suppressing her womanhood but not the vulnerable individual. Here, Jaya's transformation or the "act of resisting the patriarchal regime by violating the conventional form assigned to her in the male-made community is... not expected in accordance with the patriarchal ideology" (Alenezi, 2022, p. 6). So, this paper sticks to the point that women are not always passive and vulnerable; they will resist the supremacy of patriarchy at a certain point. As Hydén (2005) states, "[e]nding a violent relationship means dissociating powerfully from the violence" (p. 172). Separation is also a form of resistance that the traumatised and subjugated women use to rescue themselves from the batterers. In the movies The Great Indian Kitchen (2021) and Jaya Jaya Jaya Jaya Hey (2022), the daughters-in-law use separation as their mode of resistance to overcome the violence committed by their partners. Thus, the study uses the Resistant Vulnerability concept to interpret women's transition from vulnerability to resistance.

MATERIALS AND METHODS

Research Questions

- To what extent does the relationship between coercive control and insidious trauma affect married women in the hetero-patriarchal (discrimination against women and LGBT people) society?
- 2. How do the selected movies underline women's transition from vulnerability to resistance?

3. How are women affected by gender stereotypes and power politics of patriarchy in familial relations?

Methodology

The study explores the coercive behaviour of men and resistance of married women in the contemporary Malayalam movies The Great Indian Kitchen (2021) and Jaya Jaya Jaya Jaya Hey (2022). The movies are selected with a focus on the characters (daughtersin-law, their husbands, and in-laws), theme, and plot to interpret the main concern of the research, i.e., to examine the intimate partner violence and resistance of women in relation to the theories. Thus, the study uses exploratory research to analyse patriarchal dominance and women's empowerment in films. The study uses textual analysis to closely observe and understand the everyday resistance of female characters in the movies through their words, thoughts, and actions to redefine their identity. The study uses Stark's notion of Coercive Control and Hagelin's Resistant Vulnerability as a theoretical framework to analyse women's transition in the films.

Materials

The two Malayalam movies, *The Great Indian Kitchen* (2021) and *Jaya Jaya Jaya Jaya Hey* (2022) are selected to project the susceptibility and resistance of subjugated married women in the patriarchal society. These movies give ample space for analysing men's dominance and coercive control over women. It signals the transition of women from subordination to empowerment. The protagonists in these movies invoke the viewers to view the vulnerability of women critically. The movies deconstruct the character of battered women as brave and strong to resist their subordination by successfully achieving their goals in different fields. It is significant to know the transition of gender vulnerability of women from subjugation to resistance and to bring home the point that women need not always be victims.

ANALYSIS AND DISCUSSION

Trauma of Women: Behind the Closed Doors

This discussion explores the violence committed against married women in some households as a tradition from the past. The culture of subordination of married women by their partners and family members induces torment and trauma in women. In the movie The Great Indian Kitchen (2021), the daughter-in-law's character is dually affected by her husband's egoistic tendencies and father-in-law's supremacy. When she serves tea for her father-in-law, he says, "I haven't brushed and.... I haven't got my brush dear," Her husband replies, "Just get it for him; he is our dad..." (Baby, 2021, 0:21:52-0:22:06). Her husband humiliates her emotion rather than supporting her. It portrays men as the face of the family and power; on the other hand, women are seen as properties of men. Women's objective is to serve, respect and carry on the lineage of men (Hallagan, 2012). Her choice of action is interrupted by her father-in-law in almost every aspect. He tries to convince

her to follow his ideology, just like his wife. For instance, he does not allow the women in the family to use a gas stove and washing machine but insists they use firewood to cook and wash clothes by hand instead. The highly conservative ideals of her husband and his family do not allow her to be anything but a maid. *The Great Indian Kitchen* (2021) demonstrates the struggle faced by women in society. Her father-inlaw also restricts her from applying for jobs, thinking it would tarnish the family's reputation. His power highlights the perils of the subtle yet pervasive abuse masquerading as protection.

Raj et al. (2006), in their article, detail the dominance of in-laws (forced servitude) as:

One of the most common forms of abuse perpetrated by in-laws... every mention of this type of abuse was at the hands of the mother-inlaw ... starts early in the marriage when the daughter-in-law first came home and lived with her in-laws, and then it would continue through visits once the woman no longer lived with her in-laws (p. 942).

Through his words, the viewers can apprehend the indirect force of patriarchy enforced by her father-in-law. The film *The Great Indian Kitchen* (2021) also illustrates that the father-in-law exercises forced servitude, not necessarily by the mother-in-law. Male vehemence and dogmatism subjugate women corporeally and psychologically to carry forward the same message to the following generations to repress the future generations of women in the kitchen (United Nations Children's Fund, 2000). The continuous non-violent abuse induces trauma in the protagonist, which can be seen throughout her regular activities and in the background sounds as well.

Moreover, the protagonist's husband considers her an object and sexually exploits her every night to satisfy his lust. When a woman gets married, it is presumed that her husband has the right to have unrestricted sexual access to her (Khan & Hussain, 2008). Male privilege is a social advantage offered to men which gives them the unearned power and right to exploit women (Pepin, 2016). The sexual violence committed by the protagonist's husband could not be projected to her family members. The social stigma forbids her from complaining about the evil acts of her husband. Thus, she becomes fragile and defeated due to her emotional vulnerability. In intimate partner violence, "the victim's susceptibility to injury is a function of the degree to which her capabilities for defence, resistance, escape, or to garner support have been disabled by a combination of exploitation, structural constraints, and isolation" (Stark, 2009, p. 205).

The eternal process of gender stereotyping can also be seen in the movie Jaya Jaya Jaya Jaya Hey (2022), where the protagonist, Jaya, starts her married life under the sovereignty of her husband. She is physically and psychologically affected by her husband, Rajesh. He dominates her as well as his family members. Jaya is physically harmed by her husband, who tries to control and tame her. She pacifies him by adjusting to his desires despite being unaccustomed to them. He repeats his abuse by saying, "You are no one to teach me; you should talk to me properly" (Das, 2022, 0:41:43-0:41:52). The scene in the movie shows that the men do not cook, do not wash their clothes, do not pick up their things, do not adjust to the scenarios. The husband abuses his wife several times for 'mishandling the watch', 'washing his clothes' or cooking something else, which is not his usual preference. Rajesh uses violence and coercive control as a technique to dominate his wife. Stark (2012) states that regulating the everyday common activities of women begins from the default role as a mother and homemaker to a sexual partner and runs along with monitoring victims' access to money, food and transport and also on their dress, cleanliness, cooking and performing sexually.

The perpetrators misunderstand the patience of victims, which persuades them to continue their sovereignty over them. The disadvantage of coercive control is the hidden agenda of the perpetrator. The victim's traumatic behaviour underscores it, and society devalues her as if the "problem is with her" (Stark, 2009, p. 210). It leads to Battered Women's Syndrome² (Walker, 1979). In the first stage, the "batterer expresses hostility without violence, and the woman tries to

² Battered women Syndrome- is a psychological trauma battered women endure in abusive relationships due to physical, psychological and sexual abuse by their partners (Rothenberg, 2003).

placate him" (Rothenberg, 2003, p. 776). In the second stage, "the batterer's aggression is unleashed and an assault on the woman occurs," and in the third stage, "the batterer tries to make up for what he has done by convincing his partner of his love for her" (Rothenberg, 2003, pp. 776-777). These set of behaviours hinder women from leaving their abusive partners, and also cultural constraints force them to sustain an abusive and traumatic relationship. The perpetrators use this situation as a strategy to imprison women in the house. They are isolated, manipulated and micro-regulated by their husbands. Their regrets control the decisionmaking power of victims. In Jaya's case, Rajesh apologises for his mistake in a way that creates an image of a lovable character. The kindness hinders Jaya's decision; it changes her into a vulnerable woman and leads to an "emotional career."3 (Smith et al., 2002, p. 1209).

Rajesh has stereotypical ideas about women that embody patriarchal ideals and influence him to serve the existing patriarchal hegemony he strives to uphold. Jaya is constantly degraded for her activities and desires; he berates her by saying that his work is more important than her emotions. From this, it is established that "women are considered more communal and less agentic than men" (Eagly & Valerie, 1984, p. 736). Their household work and emotions are devalued and rejected. The gender stereotyping sows the seeds for resistance; still, his continuous verbal and physical abuses lead her to confront him.

In Java Java Java Java Hey (2022), both coercive control and patriarchal terrorism or intimate terrorism are exercised on Java. Her husband tries to impose his "power and control techniques, including violence, to dominate one's partner and impose broad control over the relationship" (M. P. Johnson & Leone, 2005, p. 323). This type of violence is called Patriarchal Terrorism, introduced by M. P. Johnson (1995). The husband's aggressive behaviour is considered the normal tendency of men and is facilitated by masculine sociocultural discourses. M. P. Johnson states that the main aim of patriarchal terrorism is to gain control over their partner, especially by male partners, in the form of physical violence, economic subordination, and emotional violence. In Jaya's case, her families urge her to adjust to Rajesh's behaviour, i.e. to bear the violence inflicted upon her by Rajesh. On average, she is beaten up more than 40 times in a span of six months. Further, Rajesh impregnates Jaya through manipulation, pretending to be a lovable husband, which ruins her emotionally. M. P. Johnson and Ferraro (2000) state that perpetrators not only use physical violence but also emotional, psychological and verbal violence to manipulate and control their female partners. Rajesh abused Jaya emotionally to take control of her and to position his male entitlement.

³ Battering had an "emotional career," which included "women's subjective impressions of their experience, such as emotions of guilt and humiliation, a conflict between fear and affection, a loss of hope, love, and closeness, as well as growing loneliness and pessimism" (Smith et al., 2002, p. 1209).

Women are bound within the family circle in the name of culture, tradition and custom. In the selected movies, the family members abuse the daughter-in-law's identity in the name of culture and family tradition. In The Great Indian Kitchen (2021), the protagonist is treated as an uncultured person in an orthodox family, and Jaya from Jaya Jaya Jaya Jaya Hey (2022) is considered a candid woman by her family members. The daughters-in-law in both movies try to regain their identity, which is destroyed in their married lives. Their husbands and family members dominated the women in both the movies in the name of family, tradition and culture. The gender disparities and violence traumatise the daughters-in-law in different ways, like the messy detritus of their meals to be cleared away by the women. The drumstick and the leaking kitchen sink are small and subtle objects that become powerful metaphors for the daughter-in-law's character in the movie The Great Indian Kitchen (2021). In Jaya's case, the repetition of verbal and physical abuse and later consoling her through movie outings with her husband worsens her sanity. Their voices are silenced, and their aims and ambitions are never considered worthy of discussion. The husbands in both movies use psychological attacks and gender stereotypes as techniques to weaken the resistance and self-esteem of women (Sharp, 2014). The coercive control of their partners in both movies provokes daughters-in-law to resist systemic patriarchal violence.

In the selected movies, gender stereotyping is continued by men to dominate

women. In The Great Indian Kitchen (2021), the protagonist's husband marries a second wife, and he says, "My life till now was actually a rehearsal, our life from now on will rectify those mistakes, isn't it ... " (Baby, 2021, 01:34:36-01:34:45). The ugly face of misogyny and hypocrisy continues when the husband keeps his sipped coffee mug unwashed. The second wife seems to meet the first one's fate, and the cycle repeats. In Java Java Java Java Hey (2022), Rajesh's elder brother projects systemic patriarchal violence through Rajesh. He motivates Rajesh to impregnate Jaya to assert control over her in the name of motherhood. The gender stereotype is perpetuated in the movies, as the men uphold the patriarchal tradition of subordination over women. Therefore, the marginalisation and gender stereotyping motivate women towards resistance.

Resistant Vulnerability of Women

The daughters-in-law in the movies *The Great Indian Kitchen* (2021) and *Jaya Jaya Jaya Jaya Hey* (2022) are screened as vulnerable characters; however, in the later stage of the movie, it is shown how and in what circumstances they had to become agentic. It is commonly believed in patriarchal societies that wives should be submissive to their husbands, so intimate partner violence is considered a common occurrence. This norm is devised by the patriarchal society "to legitimate the domination of men and to marginalise women as second sex" (Mas'udah, 2020, p. 3). The reoccurring violence further reinforces the submissiveness of women, and at a later stage, it leads to resistance. In *The Great Indian Kitchen* (2021), the protagonist agrees with the routine life of her husband's house. However, the family's beliefs on menstruation as impurity induce a sense of revolt in her. This incident invokes the beginning of the transition phase in the protagonist's life.

Besides these incidences, when she touches her husband to help him while he accidentally falls from the bike, he pushes her down with hatred. He says, "Go away. Don't you know you should not touch the pilgrims during this time?" (Baby, 2021, 1:21:26-1:21:30). The incidents which support forced segregation during menstruation and women's subordination infuriate the protagonist to resist the hegemony of men. The issues mentioned above traumatise her to become resistant. The domination and ill-treatment crush the protagonist's self-esteem and autonomy. These kinds of discrimination during menstruation infuriate her to offend the abusers. She opposes and unbinds herself from the subjugation of male chauvinism as a liberated woman by "throwing off the collected sink water on the faces of her husband and her father-in-law" (Baby, 2021, 1:30:18-1:30:24).

Women in traditional Indian families are confined in the space of the kitchen and tied to their husbands (Anuar & Asl, 2022); they become resistant by walking away from the house without any argument to achieve their dream of becoming dance teachers. Sometimes, silence and separation

are used as modalities of resistance to achieve liberty. In the movie The Great Indian Kitchen (2021), the daughter-inlaw's character does not use violence or aggression to show her resistance except for one day when she splashes the dirty water beneath the sink on her husband and father-in-law. She has been deeply affected by the way she was treated the previous day during her periods when she was deemed untouchable. However, on the sixth day of her period, she is considered a clean woman to brew up some tea for the devotees of Sabarimala. It provokes her to break the sociocultural discourse of patriarchy through separation. Even though she walked away from the house silently. She symbolically throws away the tag of subordination, which retains women in the kitchen. Ultimately, "she steps down from a car as an independent woman into the dance class as a dance teacher" (Baby, 2021, 1:33:36-1:34:20). Her dream of becoming a dance teacher and regaining her identity shows her resistance.

The concept of Resistant Vulnerability, a term coined by Hagelin in 2013, has been precisely underscored in the movie *The Great Indian Kitchen* (2021), which shows the protagonist's transition from vulnerability to resistance. For Hagelin, women will be resilient in certain phases where she does not expect pity or protection from others. The daughter-in-law in *The Great Indian Kitchen* (2021) endures married life's physical, psychological and emotional pain, which turns her into a new woman. The metamorphosis of being other to her 'self' denotes women's resistance to marginalisation and oppression. She is affected by the changes in her life, which traumatises her into a vulnerable position, yet she uses her susceptibility to resist by transforming her perilous reality (Navarro-Tejero, 2022).

Jaya in Jaya Jaya Jaya Jaya Hey (2022) is characterised as a resistant and as well as vulnerable woman in the movie. Jaya's struggle under the colonisation of patriarchy invokes "the secret or underground resistance which emerges" in her is "hunted and violated on sexual, physical and mental levels" by her husband (Zakarriya, 2019, p. 2). Jaya uses karate (self-defence) to resist the physical violence of Rajesh. As a next level of control, Rajesh uses sentiment as a tool where he disguises himself as a lovable husband to impregnate Jaya; this shows his evilness and coercive control over his wife. The society accepts the belligerent behaviour of men. Nevertheless, "when a woman finds her way to transition, she will be thwacked by society" (A. G. Johnson, 2005, p. 5). The miscarriage and the verbal abuses by her family members induce the protagonist to transition or liberation from the subjugation of her husband.

Jaya resists the action of the family and husband by silently walking out of the hospital and her marriage by paying the hospital bill through her gold *mangal sutra* (nuptial chain). She gains autonomy over her soul and body through separation. She takes over a chicken farm and becomes economically independent. She registers her success in business and life through her conversation with Rajesh about the chicken farm inside the court's premises. In this way, she resists and redefines her identity as an entrepreneur. Butler et al. (2016) claim that resistance is the possibility that emerges from vulnerability. Here, the protagonist uses her vulnerability as a possible opportunity to achieve agency.

CONCLUSION

The paper portrays the trauma endured by the daughters-in-law in the movies The Great Indian Kitchen (2021) and Jaya Jaya Jaya Jaya Hey (2022) and resistance through the analytical framework of Evan Stark's Coercive Control and Resistant Vulnerability under the patriarchal dominance of their husband's families. This paper presents the role of movies in articulating the insidious trauma experienced by some married women in India. The major focus of the study is how the daughters-in-law's characters are transformed from subjugation to emancipation. The transformation of protagonists from the precarious condition of vulnerability to empowerment gives them identity and confidence in life. The daughter-in-law character from the movie The Great Indian Kitchen breaks down the wall of patriarchal hegemony by exiting from the marriage to become a dance teacher. In the movie Java Java Java Java Hey, Jaya establishes the poultry farm on her own to prove her independence. The independence gives her a new identity and helps her realise her "self."

Implication of the Study

This study shows how gender differences and stereotypes in the family affect women in a greater range due to culture and religion. The empowerment of daughters-in-law in the findings creates awareness for the victims to raise their voices against the oppressor for their rights. These movies will provide a new dimension for the victims of patriarchy to gain agency. As Gondolf argued, "severe violence did not leave a battered woman feeling helpless but instead gave her access to a variety of coping mechanisms, finally transforming her into a "survivor" (Rothenberg, 2003, p. 780).

Limitations and Recommendations for Future Studies

This paper sticks to movies to explore the implications of media texts in society. The study restricts its focus on the gender and identity of educated married women in the analysis. The precarious condition of the girl child in the movie *Jaya Jaya Jaya Jaya Hey* by her parents is omitted. Further, the study recommends exploring the resistant vulnerability of men under the heteropatriarchal normative using trauma theories in contemporary movies for future studies.

ACKNOWLEDGEMENTS

The authors thank the Vellore Institute of Technology Chennai, India, for their support and wish to pursue this research. The authors also thank the renown *Pertanika Journal of Social Science and Humanities reviewers* for their observations and suggestions.

REFERENCES

- Alenezi, M. (2022). Hester's resistance against the patriarchal society: A postcolonial reading of the *Scarlet Letter. Ars Aeterna*, 14(1), 1-9. https:// doi.org/10.2478/aa-2022-0001
- Alex, G. J., & Justin, B. (2022). Slamming the door: Reinventing kitchen narratives in contemporary Indian movies. SARE: Southeast Asian Review of English, 59(2), 7-19. https://doi.org/10.22452/ sare.vol59no2.3
- Anuar, N. A. N., & Asl, M. P. (2022). Gender, resistance, and identity: Women's rewriting of the self in Chitra Banerjee Divakaruni's Before We Visit the Goddess. *Pertanika Journal of Social Sciences & Humanities*, 30(3), 1201-1221. https://doi.org/10.47836/pjssh.30.3.15
- Augustine, S., & Issac, S. V. (2023). Shifting between place and space: The transforming power of women in selected films. *Assonance*, 23, 548-554.
- Baby, J. (Director). (2021). The Great Indian Kitchen [Film]. Mankind Cinemas, Symmetry Cinemas, Cinema Cooks.
- Butler, J. (2016). Rethinking vulnerability and resistance. In J. Butler, Z. Gambetti, & L. Sabsay (Eds.), *Vulnerability in resistance* (pp. 12-27). Duke University Press. https://doi. org/10.1215/9780822373490-002
- Butler, J., Gambetti, Z., & Sabsay, S. (2016). Introduction. In J. Butler, Z. Gambetti, & L. Sabsay (Eds.), *Vulnerability in resistance* (pp. 1-11). Duke University Press. https://doi. org/10.1215/9780822373490-001
- Cantueso-Urbano, E. (2022). Growing resilient in Irish Magdalene Laundries: An analysis of the justice for Magdalenes' Oral History Project (2013) and Kathy O'Beirne's Autobiography Kathy's story: A childhood hell inside the Magdalen Laundries (2005). In M. I. Romero-Ruiz & P. Cuder-Domínguez (Eds.), Cultural representations of gender vulnerability and

resistance: A Mediterranean approach to the Anglosphere (pp. 15-32). Springer International Publishing. https://doi.org/10.1007/978-3-030-95508-3_2

- Das, V. (Director). (2022). *Jaya Jaya Jaya Jaya Hey* [Film]. Cheers Entertainment.
- Dehingia, N., Dey, A. K., McDougal, L., McAuley, J., Singh, A., & Raj, A. (2022). Help seeking behavior by women experiencing intimate partner violence in India: A machine learning approach to identifying risk factors. *PloS One*, *17*(2), Article e0262538. https://doi.org/10.1371/ journal.pone.0262538
- Eagly, A. H., & Valerie, J. S. (1984). Gender stereotypes stem from the distribution of women and men into social roles. *Journal of Personality* and Social Psychology, 46(4), 735-754. https:// doi.org/10.1037/0022-3514.46.4.735
- Flood, M., Dragiewicz, M., & Pease, B. (2021). Resistance and backlash to gender equality. *Australian Journal of Social Issues*, 56, 393-408. https://doi.org/10.1002/ajs4.137
- Hagelin, S. (2013). *Reel vulnerability: Power, pain,* and gender in contemporary American film and television. Rutgers University Press.
- Hallagan, D. (2012). Patriarchy and militarism. *Verbum, 10*(1), Article 15.
- Havrilla, E. (2017). Defining vulnerability. Madridge Journal of Nursing, 2(1), 63-68. https://doi. org/10.18689/mjn-1000111
- Hydén, M. (2005). 'I must have been an idiot to let it go on': Agency and positioning in battered women's narratives of leaving. *Feminism* & *Psychology*, 15(2), 169-188. https://doi. org/10.1177/0959353505051725
- James-Hawkins, L., Cheong, Y. F., Naved, R. T., & Yount, K. M. (2018). Gender norms, violence in childhood, and men's coercive control in marriage: A multilevel analysis of young men

in Bangladesh. *Psychology of Violence*, 8(5), 580-595. https://doi.org/10.1037/vio0000152

- Jeyaseelan, V., Kumar, S., Jeyaseelan, L., Shankar, V., Yadav, B. K., & Bangdiwala, S. I. (2015). Dowry demand and harassment: Prevalence and risk factors in India. *Journal of Biosocial Science*, 47(6), 727-745. https://doi.org/10.1017/ S0021932014000571
- Johnson, A. G. (2005). *The gender knot: Unraveling our patriarchal legacy*. Temple University Press.
- Johnson, M. P. (1995). Patriarchal terrorism and common couple violence: Two forms of violence against women. *Journal of Marriage and Family*, 57(2), 283-294. https://doi.org/10.2307/353683
- Johnson, M. P., & Ferraro, K. J. (2000). Research on domestic violence in the 1990s: Making distinctions. *Journal of Marriage and Family*, 62(4), 948-963. https://doi.org/10.1111/j.1741-3737.2000.00948.x
- Johnson, M. P., & Leone, J. M. (2005). The differential effects of intimate terrorism and situational couple violence: Findings from the National Violence Against Women Survey. *Journal of Family Issues*, 26(3), 322-349. https://doi. org/10.1177/0192513X04270345
- Kanougiya, S., Sivakami, M., Daruwalla, N., & Osrin, D. (2022). Prevalence, pattern, and predictors of formal help-seeking for intimate partner violence against women: Findings from India's crosssectional National Family Health Surveys-3 (2005–2006) and 4 (2015–2016). *BMC Public Health*, 22, Article 2386. https://doi.org/10.1186/ s12889-022-14650-3
- Khan, A., & Hussain, R. (2008). Violence against women in Pakistan: Perceptions and experiences of domestic violence. Asian Studies Review, 32(2), 239-253. https://doi. org/10.1080/10357820802062181
- Krishnaja, T. S., & Jose, S. (2022). Traversing familial interlocks: Debunking gendered space in Thappad

and The Great Indian Kitchen. *Quarterly Review* of Film and Video, 41(3), 418-431. https://doi.or g/10.1080/10509208.2022.2131342

Martin, D. (1981). Battered wives. Volcano Press.

- Mas'udah, S. (2020). Resistance of women victims of domestic violence in dual-career family: A case from Indonesian society. *Journal of Family Studies*, 28(4), 1580-1597. https://doi.org/10.10 80/13229400.2020.1852952
- Mshweshwe, L. (2020). Understanding domestic violence: Masculinity, culture, traditions. *Heliyon*, 6(10), Article e05334. https://doi. org/10.1016/j.heliyon.2020.e05334
- Navarro-Tejero, A. (2022). A trans journey towards resistance: Vulnerability and resilience in the dystopian narrative of Manjula Padmanabhan. In M. I. Romero-Ruiz & P. Cuder-Domínguez (Eds.), *Cultural representations of gender* vulnerability and resistance: A Mediterranean approach to the Anglosphere (pp. 207-226). Springer International Publishing. https://doi. org/10.1007/978-3-030-95508-3 12
- Pepin, J. R. (2016). Nobody's business? White male privilege in media coverage of intimate partner violence. *Sociological Spectrum*, 36(3), 123-141. https://doi.org/10.1080/02732173.2015.1108886
- Raj, A., Livramento, K. N., Santana, M. C., Gupta, J., & Silverman, J. G. (2006). Victims of intimate partner violence more likely to report abuse from in-laws. *Violence Against Women*, 12(10), 936-949. https://doi.org/10.1177/1077801206292935
- Rajah, V., & Osborn, M. (2022). Understanding the body and embodiment in the context of women's resistance to intimate partner violence: A scoping review. *Trauma, Violence,* & Abuse, 23(5), 1461-1477. https://doi. org/10.1177/1524838021995941

- Rothenberg, B. (2003). "We don't have time for social change" cultural compromise and the battered woman syndrome. *Gender & Society*, 17(5), 771-787. https://doi.org/10.1177/0891243203255633
- Sharp, S. (2014). Resisting religious coercive control. Violence Against Women, 20(12), 1407-1427. https://doi.org/10.1177/1077801214557956
- Smith, P. H., Thornton, G. E., DeVellis, R., Earp, J., & Coker, A. L. (2002). A population-based study of the prevalence and distinctiveness of battering, physical assault, and sexual assault in intimate relationships. *Violence Against Women*, 8(10), 1208-1232. https://doi. org/10.1177/107780120200801004
- Stark, E. (2009). Coercive control: The entrapment of women in personal life. Oxford University Press.
- Stark, E. (2012). Looking beyond domestic violence: Policing coercive control. Journal of Police Crisis Negotiations, 12(2), 199-217. https://doi. org/10.1080/15332586.2012.725016
- Suri, S., Mona, & Sarkar, D. (2022). Domestic violence and women's health in India: Insights from NFHS-4. Observer Research Foundation.
- United Nations Children's Fund. (2000). Domestic violence against women and girls. *Innocenti Digest*. https://www.unicef.ca/sites/default/files/ imce_uploads/DISCOVER/OUR%20WORK/ ADVOCACY/DOMESTIC/POLICY%20 ADVOCACY/DOCS/digest6e.pdf
- Walker, L. E. (1979). *The battered woman*. Harper & Row.
- Zakarriya, J. (2019). Vulnerability, resistance and sexuality in revolutionary Egypt. Women's Studies International Forum, 77, Article 102291. https://doi.org/10.1016/j.wsif.2019.102291



SOCIAL SCIENCES & HUMANITIES

Journal homepage: http://www.pertanika.upm.edu.my/

Predictability Effect of Arabic Stress Pattern in English Lexical Stress Production by Arab EFL Undergraduates

Samah Yaslam Saleh Baagbah and Paramaswari Jaganathan*

School of Languages, Literacies and Translation, Universiti Sains Malaysia, 11800 Penang, Malaysia

ABSTRACT

The present study investigates the effect of Arabic lexical stress predictability in producing English lexical stress by Yemeni EFL undergraduates and native Hadhrami Arabic (HA) speakers. The study involved the participation of 69 Yemeni EFL undergraduates with two varying levels of English proficiency. Additionally, 10 American native speakers were included to evaluate the correct production of English stress patterns by the Yemeni EFL undergraduates. The authors adopt the Metrical Theory and the Stress Typology Model to underpin the grounds of this study. Data from the study were collected through a production experiment using individual recording sessions for each participant reading 84 English real and nonce words. The differences between stressed and unstressed syllables were measured using phonetic cues ratios, vowel duration, intensity, and fundamental frequency (F0), analysed through PRAAT software. The findings suggest that the production of English lexical stress by Yemeni EFL undergraduates is influenced by HA. However, the predictability of the Arabic stress pattern does not always trigger errors in producing English lexical stress by Yemeni EFL undergraduates. Findings indicate that Yemeni EFL undergraduates are more attentive to vowel weight, especially when the ultimate syllable incorporates a tense vowel. It stands in contrast to the conventional approach of syllable structure, which places a more pronounced emphasis on instructing English vowels among Arab ELF learners as a result of Arabic dialectal variation.

ARTICLE INFO

Article history: Received: 13 September 2023 Accepted: 11 January 2024 Published: 10 June 2024

DOI: https://doi.org/10.47836/pjssh.32.2.09

E-mail addresses:

samahyess@gmail.com (Samah Yaslam Saleh Baagbah) parames@usm.my (Paramaswari Jaganathan) * Corresponding author *Keywords:* English lexical stress, L1 phonological system, PRAAT, stress pattern predictability, Yemeni EFL learners

INTRODUCTION

Pronunciation challenges can be attributed to the wrong production of segmental features (consonants and vowels) and suprasegmental features (rhythm, stress, intonation) of the English language (Al-Thalab et al., 2018; Ghosh & Levis, 2021; Ladefoged & Johnson, 2015). In EFL settings, the likely identification of English segmental pronunciation errors by EFL learners is a longstanding goal in teaching English pronunciation (Rehman et al., 2022). English suprasegmental features play an essential role in English language pronunciation. While research has demonstrated the impact of English suprasegmental features on speech intelligibility, their teachability in ELF contexts remains uncertain and rather ignored, especially in the EFL context (Lewis & Deterding, 2021; Maghrabi, 2021; Nguyen & Hung, 2021).

Several studies have speculated on the significance of the stress pattern in English speech (Field, 2005; Flege & Bohn, 1989; Fry, 1959; Ghosh & Levis, 2021; Guo, 2022; Jenkins, 2002; Ladefoged & Johnson, 2015; Lai, 2008; Lee et al., 2019; Levis, 2018; Misfer & Busabaa, 2019; Zhang et al., 2008; Zuraiq & Sereno, 2021). According to their findings, mastering the production of English stress patterns improves the intelligibility of English oral communication. Nonetheless, English stress patterns are deemed to be difficult aspects to pronounce correctly by EFL/ESL learners, affecting their speaking competence and comprehension (Ali & Abdalla, 2021; Jung & Rhee, 2018; Saha & Mandal, 2018; Zuraiq & Sereno, 2021). Previous research has thoroughly documented the difficulties in producing English lexical stress by EFL/ ESL learners with an emphasis on the impact of the L1 phonological system (Jeong et al., 2020; Modesto & Barbosa, 2019; Tuan, 2018; Zuraiq & Sereno, 2021).

Researchers have identified areas of difficulty by applying linear and nonlinear phonological theories. The location of stress patterns influenced by the L1 stress pattern was the main area of debate between linear and non-linear phonological theories. Simply put, linear phonology, as presented in Chomsky and Halle's (1968) work through English Sound Pattern Theory (ESP), implies that differences between English and learners' L1 stress patterns cause a negative interference where learners place the stress pattern based on their mother tongue's stress rules. Meanwhile, non-linear phonology arose to address the gaps left by linear phonology, in which the phenomena of stress pattern are described based on feet and syllables to include a greater scale of languages, as shown in the works of Liberman and Prince (1977) and Hayes (1980), the Metrical Theory (MT). Hayes (1980) suggested that areas of difficulty in producing stress patterns can be predicted based on five parameters: (1) directionality, (2) quantity sensitivity, (3) boundedness, (4) extrametricality, and (5) dominance.

Thus, researchers pointed out that lexical stress manifests itself based on each language-specifics regarding the placement of the lexical stress (Jeong et al., 2020; Modesto & Barbosa, 2019; Saha & Mandal, 2018; Tuan, 2018; Zuraiq & Sereno, 2021). Literature shows that difficulties in producing English lexical stress increase among Arab EFL learners because lexical stress is relatively predictable in Arabic (Ali & Abdalla, 2021; Helal, 2014; Khazneh, 2015; Koffi, 2021; Zuraiq & Sereno, 2021). The fixed predictability of the stress pattern in Arabic leads to difficulty producing the unpredictable nature of stress patterns in English (Albadar, 2018; Al-Thalab et al., 2018; Zuraiq & Sereno, 2021). Moreover, English has no simple rules or regularities for which syllable receives the primary stress (Levis, 2018). In other words, English words of more than one syllable may be stressed on any syllable. Thus, words with more than one syllable may have the primary stress on the first, second, third, or fourth syllables, such as 'photograph, inde 'pendent, and main tain. Free-stress languages (such as English) are typically contrasted with fixedstress languages (such as Arabic), in which the same syllable is always stressed in most of the Arabic words (Albadar, 2018; Ali & Abdalla, 2021; Al-Thalab et al., 2018; Helal, 2014; Zuraiq & Sereno, 2021).

Literature Review

The phonological impact of the Arabic phonological system in producing English stress patterns is the focus of research on English lexical stress production (Ali & Abdalla, 2021; Anani, 1989; Ghaith, 1993; Helal, 2014; Khazneh, 2015; Youssef & Mazurkewich, 1998). The main emphasis was on the pattern of the syllable structure, which changes the place of the Englishstressed syllable based on Arabic stress rules. As a result, the researchers attempted to investigate the preferred position of the primary stress (antepenultimate, penultimate, and ultimate) in producing English lexical stress as influenced by Arabic syllabic rules. Syllable structure and weight are important determinants that change the primary stress location in English and Arabic (Ali & Abdalla, 2021; Levis, 2018). In English, syllables can be considered heavy if they consist of a tense vowel (referred to as VV in this paper to differentiate between tense and short vowels) or are closed by consonant or consonant clusters (Levis, 2018).

However, this rule is not regular in all English words; for example, almond / 'a:mond/ and attend / o'tend / have a final syllable structure CVCC that is heavy in attend and light in almond. Therefore, Arab EFL learners are assumed to correctly place the English lexical stress on syllable structure patterns that share similar stress rules as in Arabic. However, difficulties are perceived to be increased when English primary stress falls in a syllable that appears heavy but is unstressed. Although this result appears convincing in indicating areas of difficulties that Arab EFL learners face when producing English lexica stress, the results of the prior studies were inconsistent. Based on the findings of prior studies (Ali & Abdalla, 2021; Al-Khulaidi, 2017; Altmann, 2006; Altmann & Kabak, 2015; Anani, 1989; Aziz, 1980; Ghaith, 1993; Maghrabi, 2021; Younes, 1984; Youssef & Mazurkewich, 1998), errors in English lexical stress production by Arab EFL learners were attributed to unpredictable patterns in English, which resulted in fixed challenges of English stress patterns produced by Arab EFL learners. Meanwhile, this assumption might not be accurate, as studies by Helal (2014), Almbark et al. (2014), and Khazneh (2015) revealed contradictory results.

Several Arab EFL/ESL studies may have implemented the ESP to examine the difficult areas Arab EFL/ESL learners face in producing English lexical stress depicted in the earlier studies by Aziz (1980), Anani (1989), Younes (1984), Ghaith (1993), Youssef and Mazurkewich (1998) and the later years also focused on a similar vein of thought by Altmann (2006), Al-Khulaidi (2017), Ali and Abdalla (2021), and Maghrabi (2021) studies. Therefore, researchers reported that Arab learners encounter most of the difficulties with the penultimate syllable because it is mostly stressed in Arabic unless a closed heavy syllable exists in the ultimate syllable like CVCC (Ali & Abdalla, 2021; Al-Khulaidi, 2017; Al-Thalab et al., 2018; Altmann, 2006; Maghrabi, 2021). On the contrary, Helal (2014) and Khazneh (2015) have partially agreed with the findings of the mentioned studies and contradicted others. Helal (2014) and Khazneh (2015) used MT to explain the errors that Arab EFL/ESL learners face in producing English lexical stress. Their results demonstrated that stress pattern similarities and differences between L1 and English cannot be used merely to predict English lexical stress difficulty areas.

Helal (2014) and Khazneh (2015) found that the presence of extrametrical syllables in English and the quantity-sensitivity (weight of a syllable) that Arabic and English share—which is fixed in Arabic and unpredictable in English—are related

to errors in stress patterns made by Arab EFL/ESL learners in English. Thus, in contrast to the findings of Maghrabi (2021), Khazneh (2015) revealed that most Syrian Arab EFL learners could shift the primary stress of English to the second syllable. Yemeni Arab EFL learners, among other EFL learners, struggle to produce clear and accurate English pronunciation (Al-Tamimi et al., 2020). This condition becomes more prevalent when producing the English suprasegmental features, especially when producing English lexical stress. According to Al-Khulaidi (2017), the wrong placement of lexical stress is one of the reasons for the unintelligibility of English speech in Yemeni EFL learners. This issue poses a significant challenge for Yemeni EFL learners, resulting in communication breakdowns with speakers from different language backgrounds (Al-Khulaidi, 2017; Al-Tamimi et al., 2020; Motair & Abdulwahab, 2018).

Regardless of the need to investigate the type of errors Arab EFL learners face in the production of English Lexical stress, researchers from different contextual backgrounds have asserted the importance of studying the dialectal variation of the participants involved in studying lexical stress production (Guo, 2022; Kallio et al., 2022). That is because some regional dialects manifest different phonology systems, which result in various findings. Studying the stress pattern of the dialectal variation may also enhance the grounds of the Metrical theory and Stress Typology Model. The current study examines the production of English lexical stress by Yemeni EFL undergraduates who speak Hadhrami Arabic (HA).

Similarities and differences exist between English and HA stress and syllabic rules (Bamakhramah, 2010). Words such as reception /ri'sepfən/ in English and / sa:ħíbkum/' your friend" in HA display the same syllable patterns as CV.CVC. CVC, where the primary stress falls at the penultimate syllable. This similarity can also be found in other syllables, such as CV.CVV.CVC, CCV.CV.CVVC, CCV. CVC, CVC.CV and CVV.CVC. However, stress patterns can be different between English and HA based on the structure of the syllable-for instance, the Arabic word /taa'wuus/ "peacock" CVV.CVVC, and the English word "carpool" / ka:rpu:l/ CVVC. CVVC have different syllable patterns. The primary stress falls on penultimate in carpool and on ultimate in taawuus. Therefore, it can be anticipated that Yemeni EFL learners (who speak HA) will make errors because primary stress always falls at the ultimate syllable when it consists of a tense vowel. In trisyllabic words that contain CV.CVV.CVC, CVC.CVC.CVC, Arab EFL learners tend to place stress on the antepenultimate syllables. For example, the primary stress horizon /hə'raız n/ and consensus /kən'sensəs/are mostly shifted from the penultimate to the antepenultimate as /'həraizən/. Khazneh (2015) reported that most Syrian EFL learners produced the first syllable with a full vowel in trisyllabic words. Despite that, the penultimate syllable is always stressed in trisyllabic words in HA when there is no long vowel in the ultimate

syllable. This stress rule needs to be studied to understand the tendency to place the primary stress on Yemeni EFL learners who speak the HA dialect.

Concerning the MT, the HA permits extrametrical syllables, which is opposed to other Arabic dialects that have studied the production of lexical stress by Arab EFL learners, as in Helal (2014) and Khazneh (2015). English extrametrical syllables are assumed to increase difficulties in correctly assigning stressed syllables by Arab EFL learners. In HA, the ultimate syllable with tense vowels is always stressed regardless of the tense vowels in the other syllable at a word level. This fixed rule in HA may lead to further challenges. Therefore, there is a need to highlight this issue to understand the challenges that might be encountered by Hadhami Yemeni EFL learners and other Arab EFL learners who speak similar Arabic dialects that share the same rule as the Meccan Arabic dialect. In addition, results may induce further findings that may support the premises of the MT. Due to differences in stress patterns among Arabic dialects, the producibility of stress patterns in Arabic cannot be generalised. Therefore, there is a need to investigate the effect of dialectal stress patterns when differences exist to ensure more reliable data, as recommended by Koffi (2021) and Guo (2022).

Furthermore, earlier studies have examined the production of English lexical stress by Arab EFL learners using real English words produced by a few participants (Anani, 1989; Ghaith, 1993; Youssef & Mazurkewich, 1998; Younes, 1984). Khazneh (2015) explained that a small sample size might reduce the generalizability of the findings. Al-Thalab et al. (2018) indicated that using a nonce (unreal) and unfamiliar real word as stimuli is necessary to investigate English's prosodic structure underlying stress placement. After Altmann's (2006) study, reliable studies have been conducted to investigate the perceptual ability of Arab learners to experience English lexical stress (Albadar, 2018; Al-Thalab et al., 2018). On the other hand, the recent studies that examined the production of English lexicalisation by Arab speakers replicated the methods that have frequently been criticised for using small sample sizes and real English words.

In addition, previous studies used production tasks to investigate the ability of learners of English to produce English lexical stress. However, most of these studies used acceptability ratings to reach the results at phonetic or phonological levels. That is to say, raters assessed data as they listened to the production of the samples (Ali & Abdalla, 2021; Al-Khulaidi, 2017; Cheng & Zhang, 2015; Jaiprasong & Pongpairoj, 2020; Khazneh, 2015; Liu, 2017; Tuan, 2018). However, recent scholars such as Koffi (2021) emphasised using phonetic software analysis of the acoustic measurement to understand the production of English stress patterns by EFL/ESL learners. That is because relying on human judgement to assess the production of English suprasegmental features does not always provide precise results as technological software, such as PRAAT software (Koffi, 2021; Pennington & Rogerson-Revell, 2019). Therefore, the study aims to investigate the effect of Arabic lexical stress predictability in producing English lexical stress by Yemeni EFL undergraduates, as well as native speakers of Hadhrami Arabic (HA).

METHODS

The current study follows the causalcomparative designs study where data are collected and analysed statistically. The study employs a stimulus consisting of 84 words (42 were disyllabic real and nonce words +, and 42 were trisyllabic real and nonce words) used in the production task. The stimuli were adapted from the study of Al-Thalab et al. (2018). However, word selection was modified by another evaluation panel to ensure the implementation of the HA stress pattern, as shown in Appendix A. Each test word was inserted in carrier sentences, such as "I say thunder again", to control the phonetic measurements as produced by the participants.

A production experiment involved two participants from the experimental group comprising 69 Yemeni EFL undergraduate students who speak the Hadhrami Arabic dialect. Participants were further divided into two subgroups within this group: (1) 38 intermediate and (2) 31 advanced learners, ensuring accurate and normalised data results. The second group (the comparison group) comprises ten male and female English American speakers. Based on the design employed in the current study, the production of English lexical stress by American speakers was involved in gauging the measurements of the nonce words, which are used to reduce the effect of familiarity. That is to say, the researcher was not concerned with the output of American speakers as the study's independent variables did not influence them. Instead, the researcher aimed to analyse the accurate placement of primary stress in nonce words produced by American speakers.

Procedures of the Study

Before the experiment started, each respondent was told that all tested words were nouns. They were also instructed to read at normal speed. Once the respondent sat on the chair and got ready, the researcher asked the respondent to look at the stimuli and ask questions if they had any. Each respondent was recorded individually. Words were then extracted from the sentences in wave files and analysed acoustically with the help of a trained phonetician using a computer program called PRAAT Software.

Phonetic Measurement

Three phonetic measurements were taken for each vowel in each syllable for disyllabic and trisyllabic English words: duration, fundamental frequency (F0), and intensity. The phonetic cues were taken to identify the placement of the primary stress produced by the native speakers and the Yemeni EFL undergraduates. Each disyllabic and trisyllabic word was divided according to the syllables to measure vowel duration, vowel intensity, and F0 as produced by each participant. The study conducted the Hypothetical Production Measurements scoring scheme adapted from the study of Lin (2018) to indicate the stressed vowel in each word, which gives each vowel a syllable score with regard to each phonetic cue. For example, the English word *thunder* consists of two syllables/' $\theta_{\Lambda n.da}$ / and stress falls at the penultimate syllable. Measurements of the first syllable are 0.082 for duration millisecond (ms), 68 decibels (dB) for intensity and 154 hertz (hz) for F0. Measurements of the second syllable are 0.046 for duration, 66 for intensity and 104 for F0. The score ranged from 3 to 1. This process was repeated for all three cues of each syllable. These three scores were added again to become the final score for the stressed syllable. The vowel that received the highest final score was determined to be the stressed syllable.

RESULTS

The Yemeni EFL undergraduates scored higher correct responses when English and HA share similar stress patterns. The total number of correct responses by intermediate and advanced Yemeni EFL undergraduates is 97. Meanwhile, the Yemeni EFL undergraduates scored a total of 71 incorrect answers. Only 23 were incorrect responses that displayed similar stress patterns between both variances, as explained in Table 1. It indicates that the predictability of the HA stress pattern actively influences the assignment of stressed syllables in English words. However, findings show that some errors cannot be traced back due to the predictability of the HA stress patterns.

	HA Predictability	Incorrect	Correct	Total
Different	Count	48	30	78
	% within HA (%)	61.5	38.5	100.0
	% within Score (%)	67.6	30.9	46.4
	% of Total (%)	28.6	17.9	46.4
Similar	Count	23	67	90
	% within HA (%)	25.6	74.4	100.0
	% within Score (%)	32.4	69.1	53.6
	% of Total (%)	13.7	39.9	53.6

Table 1Summary of the results

Source: Authors' work

The following descriptive results show more detailed findings based on the stress position within a word. Results of American speakers are not provided here because HA influence does not affect their production of English stress. Nevertheless, they are added to Appendices to measure the stressed syllable in nonce words.

Descriptive Results of HA Stress Pattern Effect

Overall, results from Tables 2 and 3 show that the Yemeni EFL undergraduates mostly placed the stress at the penultimate syllable in words that share similar stress patterns, with stressed syllables getting higher scores than the unstressed syllable. For instance, the word *valley* has the primary stress at the penultimate syllable. Therefore, phonetic measurements of the word *valley* recorded a duration of 0.112 ms, an intensity of 70 dB, and an F0 of 138 Hz in the stressed syllable (Table 2). Nevertheless, the unstressed syllable recorded 104 ms, 60 dB, and 106 Hz by the intermediate group. However, there are four incorrect responses: (1) *captain*, (2) *bamtain*, (3) *defect*, *and* (4) *degict*, in the production of the intermediate Yemeni EFL undergraduates. For example, stress was cued at the penultimate syllable with 0.084 ms, 66 dB, and 149 Hz in the stressed syllable and 0.111 ms, 66 dB, 154 in the ultimate syllable of the word *captain*.

The advanced group also scored correct responses in most of the words unless for the nonce words bamtian and degict, which result from unfamiliarity with words, as seen in Table 3. For instance, the nonce word degict scored 0.099 ms, 67 dB, 142 Hz in the stressed syllable and 0.104 ms, 69 dB, 156 Hz in the unstressed syllable. These measurements indicate the wrong placement of the English primary stress. However, all the incorrect responses are related to differences between HA and English stress patterns. This result emphasises the negative transfer from HA to produced stress patterns in English. Nevertheless, the negative transfer is not the only reason for increasing the number of incorrect answers. Some errors can be attributed to the incorrect reduction of the vowels, as in valance.

1/0 0 0 0 0 SC S \sim 4 3 \mathbf{c} 4 3 ŝ \mathbf{c} 3 3 \mathbf{c} S S 9 9 2 S 9 5 9 9 9 9 9 9 4 3 ES (CVV.CVVC) (CVVC.CVC) (CVV.CVVC) CVC.CVVC) (CV. CVVC) (CVC.CVC) (CVC.CVC) (CVC.CVC) (CV.CVCC) (CV.CVV) (CV.CVC) (CV.CVC) (CV.CV) HA Transcription /ˈkiːpiːs/ (CVV.CVVC) (CVV.CVVC) (CVVC.CVC) CVC.CVVC) CV. CVVC) (CVC.CVC) CVC.CVC) (CVC.CVC) (CV.CVCC) /'væ.lbmz/ /'pai.reid/ (CV.CVC) /'dʒi:l.ni/ (CV.CVV) (CV.CVC) 'lansa(r)/ /'bæmtın/ 'kædʒi:n / /na:r.biŋ/ /ˈmeɪbɪŋ/ /'mAf.tm/ /ˈdʒæ.ni/ (CV.CV) /imaz// /spzit/ EN Mufting Kagiene Nerbing Mabing keybease Bamtain Valomes Pitrade Jeelney Zomey Luncer Word Sozet Janey SC 1/0 0 0 Results of the intermediate group in disyllabic words at the penultimate ND Ľ 3 ŝ \mathcal{C} Ś Ś 3 3 ŝ 3 3 3 3 3 S 9 9 9 9 9 9 9 9 2 9 9 9 4 4 (CVV.CVVC) (CVV.CVVC) (CVC.CVC) (CVV.CVC) (CVC.CVC) (CVC.CVC) (CVC.VVC) (CVC.VCC) (CVC.CV) (CV.CVC) (CV.CV) (CV.CV) (CV.CV) HA Transcription (CVV.CVVC) (CVV.CVVC) (CVC.CVC) (CVV.CVC) CVC.VVC) CVC.CVC) CVC.CVC) CVC.VCC) /'mʌn.i/ (CVC.VC) /'nai.treit/ (CV.CVC) /'rei.siŋ/ /væl.ans/ //ki:.bo:d/ (CV.CV) 'non.dar/ /'kæf.i:n/ /'kæp.tm/ /'mel.tm/ / na:.siŋ/ (CVC.V) (CVC.V) /'rvk.it/ /'dei.tə/ /'væl.i/ EN Keyboard Thunder Nursing Captain Caffeine Nitrate Racing Rocket Melting Valance Word Money Valley Data

Arabic Stress Pattern in English Lexical Stress Production

Table 2

ыне
ntiı
(co)
3
ole
ab

	Transcription	iption	LS	ST UN SC	SC		Transe	Transcription	ST UN	Ð
word	EN	HA	Я	Я	1/0	word	EN	HA	R	
Vanguard	/'væn.ga.rd/ (CVC.CVVCC)	/ˈvæn.ga.rd/ (CVC.CVVCC) (CVC.CVVCC)	4	S	0	Vangoid	/'vængoid (CVC.CVVC)	(CVC.CVVC)	ę	
Journey	/'dʒ3:.ni/ (CVV.CV)	(CVV.CV)	9	б	1	Degict	/'didʒikt/ (CV. CVCC)	(CV. CVCC)	4	
Raba	'rerbə (CV.CV)	(CV.CV)	9	б	1	Defect	/'difekt/ (CV.CVCC)	(CV.CVCC)	9	

I 0 0 0

Table 3

Pertanika J. Soc. Sci. & Hum. 32 (2): 535 - 561 (2024)

Would VI	Transcr	iscription	\mathbf{ST}	NN	SC	Moud	Transcription	ription	\mathbf{ST}	N	SC
n in w	EN	HA	R	Я	1/0	nina	EN	HA	R	R	1/0
Valley	/'væl.i/ (CVC.V)	(CV.CV)	9	en .	-	Pitrade	/'pai.reid/ (CVV.CVVC)	(CVV.CVVC)	3	9	0
Money	/'mʌn.i/ (CVC.V)	(CV.CV)	9	б	1	Sozet	/svzit/ (CV.CVC)	(CV.CVC)	9	б	1
Rocket	/'rɒk.ɪt/ (CVC.VC)	(CVC.CV)	9	ξ	1	Kagiene	'kædʒi:n / (CV. CVVC)	(CV. CVVC)	4	2	0
Nitrate	/'nai.treit/ (CVV.CVVC)	(CVV.CVVC)	б	9	0	Jeelney	/'dʒi:l.ni/ (CVVC.CVC)	(CVVC.CVC)	2	4	1
Data	/'deı.tə/ (CV.CV)	(CV.CV)	9	ŝ	1	Zomey	/'zɒmi/ (CV.CVV)	(CV.CVV)	9	б	-
Thunder	/'θʌn.dər/ (CVC.CVC)	(CVC.CVC)	9	ŝ	-	Nerbing	/na:r.biŋ/ (CVC.CVC)	(CVC.CVC)	9	\mathfrak{c}	1
Nursing	/'n3:.suj/ (CV.CVC)	(CV.CVC)	9	б	1	Mabing	/ˈmeɪbɪŋ/ (CV.CVC)	(CV.CVC)	9	б	1

Samah Yaslam Saleh Baagbah and Paramaswari Jaganathan

Pro/M	Transcription	ription	\mathbf{ST}	NN	SC	Moud.	Transcription	ription	LS	N	SC
	EN	HA	Я	R	1/0	nina	EN	HA	R	В	1/0
Racing	/'rei.siŋ/ (CVV.CVC)	(CVV.CVC)	9	ε	-	Mufting	/'mʌf.tŋ/ (CVC.CVC)	(CVC.CVC)	S	4	
Caffeine	/'kæf.i:n/ (CVC.VVC)	(CVC.VVC)	б	9	0	Luncer	'l\nsa(r)/ (CVC.CVC)	(CVC.CVC)	9	$\tilde{\mathbf{\omega}}$	-
Captain	/ˈkæp.tm/ (CVC.CVC)	(CVC.CVC)	4	S	0	Janey	/'d3æ.ni/ (CV.CV)	(CV.CV)	9	$\tilde{\mathbf{\omega}}$	-
Melting	/'mel.tnj/ (CVC.CVC)	(CVC.CVC)	9	б	1	keybease	/'ki:pi:s/ (CVV.CVVC)	(CVV.CVVC)	4	5	0
Valance	/'væl.əns/ (CVC.VCC)	(CVC.VCC)	б	9	0	Bamtain	/'bæmtin/ (CVC.CVVC)	(CVC.CVVC)	4	5	0
Keyboard	/ˈkiː.bəːd/ (CVV.CVVC)	(CVV.CVVC)	4	S	0	Valomes	/ˈvæ.lɒmz/ (CV.CVCC)	(CV.CVCC)	б	9	0
Vanguard	/'væn.ga:rd/ (CVC.CVVCC)	(CVC.CVVCC)	б	9	0	Vangoid	/'vængoid (CVC.CVVC)	(CVC.CVVC)	3	9	0
Journey	/'dʒ3:.ni/ (CVV.CV)	(CVV.CV)	9	б	1	Degict	/ˈdidʒikt/ (CV. CVCC)	(CV. CVCC)	4	5	0
Raba	'rerba (CV.CV)	(CV.CV)	2	4	1	Defect	/'di:.fekt/ (CV.CVCC)	(CV.CVCC)	б	9	0

Arabic Stress Pattern in English Lexical Stress Production

Tables 4 and 5 illustrate the result of the disyllabic words where stress is located at the ultimate syllable by Yemeni EFL undergraduates. Most tested words share similar stress patterns between both variants, except for the word *success* and its nonce counterpart *diskus*, which share different stress patterns where the ultimate syllable does not include a tense vowel. Measurements of the word *success* were 0.098 ms, 69 dB, 158 Hz in the unstressed syllable and 0.094 ms, 68 dB, 132 Hz in the stressed syllable in the intermediate group.

Tables 6 and 7 illustrate the result of the trisyllabic words where stress is located at the antepenultimate syllable as produced by Yemeni EFL undergraduates. Results in Table 6 show different types of stress patterns, which cannot all be regarded as HA stress pattern predictability. Some words were given a score of 0, which can be highlighted in this table because of HA transfer, for example, merchandise, signature, pesticide, galaxy, and fortunate. On the contrary, the intermediate Yemeni EFL undergraduates scored correct responses in words that do not follow HA's structure, such as leadership, scenery, melody, dignity, pharmacy and feederchip. The stress in these words falls at the antepenultimate syllable, which contrasts with the stress patterns of HA. This result reduces the effect of HA

Table 4

	(Inte	rmediate)			
Word	Transci	ription	Μ	easurem	ent
word	EN	HA	ST	UN	SC
Sardine	/saːrˈdiːn/ (CVVC. CVVC)	(CVVC.CVVC)	3	6	1
Darceal	/da:r.ˈsi:l/ (CVC. CVVC)	(CVC.CVVC)	3	6	1
Success	/səkˈses/ (CVC. CVC)	(CVC.CVC)	6	3	0
Campaign	/kæm'pein/ (CVC. CVVC)	(CVC.CVVC)	3	6	1
Nineteen	/ˌnaɪnˈtiːn/ (CVC. CVVC)	(CVC.CVVC)	4	5	1
Machine	/məˈʃiːn/ (CV.CVVC)	CV.CVVC)	3	6	1
Campoyed	/kæmˈpoɪd/ (CVC. CVVC)	(CVC.CVVC)	3	6	1
Noilteen	/ˌnoɪlˈtiːn/ (CVVC .CVVC)	(CVVC.CVVC)	3	6	1
Rarsine	/ ra: 'si:n/ (CVV. CVVC)	(CVV.CVVC)	3	6	1
Diskus	/dəkˈses/ (CVC. CVC)	(CVC.CVC)	6	3	0

Results of the intermediate group in disyllabic words at the ultimate

Source: Authors' work

		(Advanced)			
Word	Transo	cription	Μ	leasureme	nt
woru	EN	HA	ST	UN	SC
Sardine	/sa:r'di:n/		3	6	1
	(CVVC.CVVC)	(CVVC.CVVC)			
Darceal	/da:r.'si:l/		3	6	1
	(CVC.CVVC)	(CVC.CVVC)			
Campaign	/kæm'peɪn/		3	6	1
	(CVC.CVVC)	(CVC.CVVC)			
Nineteen	/ nam'ti:n/		3	6	1
	(CVC.CVVC)	(CVC.CVVC)			
Machine	/məˈʃiːn/		3	6	1
	(CV.CVVC)	CV.CVVC)			
Campoyed	/kæm'poɪd/		4	5	1
	(CVC.CVVC)	(CVC.CVVC)			
Noilteen	/_noɪlˈtiːn/		3	6	1
	(CVVC.CVVC)	(CVVC.CVVC)			
Rarsine	/_ra:'si:n/		3	6	1
	(CVV.CVVC)	(CVV.CVVC)			
Success	/sək'ses/		4	5	0
	(CVC.CVC)	(CVC.CVC)			
diskus	/dək'ses/		6	3	0
	(CVC.CVC)	(CVC.CVC)			

Table 5
Results of the advanced group in disyllabic words at the ultimate

Source: Authors' work

Table 6

Results of the intermediate group in trisyllabic words at the antepenultimate

	Antepenult	imate Stress (intermed	iate)			
Word	Transo	cription		Measu	rements	
word	EN	HA	ST1	UN2	UN3	SC
Leadership	/ 'li:dəʃɪp / (CVV.CV.CVC)	(CVV.CV.CVC)	9	5	4	1
Scenery	/ 'siːnəri/ (CV.CV.CV)	CV.CV.CV	7	8	3	0
Merchandise	/'mɜ:tʃəndaɪs / (CV.CVC.CVVC)	(CV.CVC.CVVC)	6	4	8	0
Signature	/ 'sɪɡnətʃə(r)/ (CVC.CV.CVC)	(CVC.CVC.CVC)	4	9	5	0
Pesticide	/ 'pestisaid / (CVC.CV.CVVC)	(CVC.CV .CVVC)	4	5	9	0
Valentine	/ 'væləntaın / (CV.CVC.CVC)	(CVC.CV .CVVC)	6	3	9	0
Pharmacy	/ 'faːrməsi / (CVC.CV.CV)	(CV.CV.CV)	9	6	3	1
Fortunate	/ 'fɔ:tʃənət / (CVV.CVC.VC)	(CVV.CVC.VC)	5	9	4	0

	Antepenult	imate Stress (intermed	iate)			
Word	Transo	cription		Measu	rements	
word	EN	HA	ST1	UN2	UN3	SC
Dignity	/ ˈdɪɡnəti /		8	7	5	1
	(CVC.CV.CV)	(CVC.CV.CV)				
Melody	/ 'melədi /		9	5	4	1
	(CV.CV.CV)	(CV.CV.CV)				
Galaxy	/'gæl.ək.si/		6	9	3	0
· ·	(CVC.VC.CV)	(CV.CVC.CV)				
Vacapsy	/'vækəpsi/		6	9	3	0
	(CV.CVC.CV)	(CV.CVC.CV)				
Septiride	/'septiraid/		7	3	8	0
	(CVC.CV.CVVC)	(CVC.CV.CVVC)				
Sobsature	/ˈsɒbsətʃə(r)/	· · · · · · · · · · · · · · · · · · ·	6	9	3	0
	(CVC.CV.CVC)	(CVC.CVC.CVC)				
Bargary	/ˈbɑːɡəri/	· · · · · · · · · · · · · · · · · · ·	9	6	3	1
8 0	(CV.CV.CV)	(CV.CV.CV)				
Detsity	/'detsəti/		9	5	4	1
	(CV.CV.CV)	(CV.CV.CV)	-	-		-
Benefit	/'benɪfɪt/		9	5	4	1
	(CV.CV.CVC)	(CV.CV.CVC)	-	-		-
Perefy	/'piːrəfi/	(=	9	6	3	1
1 01 01 9	(CV.CV.CV)	(CV.CV.CV)	-	0	5	1
Ferculate	/ˈfɜːrkələt/	()	5	9	4	0
1 er culuite	(CVC.CV.CVC)	(CVC.CV.CVC)	5			Ŭ
Feederchip	/ˈfiːdətʃɪp/	()	9	6	3	1
r couci onip	(CVV.CV.CVC)	(CVV.CV.CVC)	-	0	5	-
Rarchandise	/'ra:t[əndais/	()	6	3	9	0
	(CV.CVC.CVC)	(CV.CVC.CVVC)	v	5	/	0
Nolentide	/'npləntaid/	(6	3	9	0
	(CV.CVC.CVVC)	(CV.CVC.CVVC)	Ū.	5	/	0
Semofy	/'seməfi/	(2	8	7	3	1
~ chiroly	(CV.CV.CV)	(CV.CV.CV)	Ũ	,	5	1
Bameset	/'bemiset/	(0.1.0.1.0.1)	9	5	4	1
Damoset	(CV.CV.CVC)	(CV.CV.CVC)	,	5	т	1

Table 6 (continue)

Source: Authors' work

Table 7

Results of the advanced group in trisyllabic words at the antepenultimate

	Antepe	nultimate Stress (advar	nced)			
Word	Transcription			Stresse	d Vowel	
woru	EN	HA	ST	UN2	UN3	SC
Leadership	/ 'li:dəʃɪp / (CVV.CV.CVC)	(CVV.CV.CVC)	9	5	4	1
Scenery	/ 'siːnəri/ (CV.CV.CV)	CV.CV.CV	7	8	3	0

Table 7 (continue)

		nultimate Stress (advan	ccu)	~		
Word	Transcription				d Vowel	
	EN	HA	ST	UN2	UN3	SC
Merchandise	/ˈmɜːtʃəndaıs /		6	3	9	0
	(CV.CVC.CVVC)	(CV.CVC.CVVC)				
Signature	/ˈsɪɡnətʃə(r)/		4	9	5	1
	(CVC.CV.CVC)	(CVC.CVC.CVC)				
Pesticide	/ 'pestisaid /		6	3	9	0
	(CVC.CVVC)	(CVC.CV.CVVC)				
Valentine	/ 'væləntaın /	(/	8	3	7	1
	(CV.CVC.CVC)	(CVC.CV.CVVC)	0	5	,	-
Pharmacy	/ 'faːrməsi /	(0,000,000,00)	9	6	3	1
1 nai macy	(CVC.CV.CV)	(CV.CV.CV))	0	5	1
Fortunate	/ 'fɔːtʃənət /	(CV.CV.CV)	9	5	4	1
rortunate	(CVV.CVC.VC)	(CULCUCUC)	9	5	4	1
D: :/		(CVV.CVC.VC)	0	-	_	
Dignity	/ 'dɪɡnəti /		9	7	5	1
	(CVC.CV.CV)	(CVC.CV.CV)				
Melody	/ 'melədi /		9	5	4	1
	(CV.CV.CV)	(CV.CV.CV)				
Galaxy	/ˈgæl.ək.si/		9	3	6	1
	(CVC.VC.CV)	(CV.CVC.CV)				
Vacapsy	/'vækəpsi/		6	9	3	0
1.1.1	(CV.CVC.CV)	(CV.CVC.CV)	, i i i i i i i i i i i i i i i i i i i			÷
Septiride	/'septiraid/	(0.1101.0101)	7	3	8	0
Septime	(CVC.CV.CVVC)	(CVC.CV.CVVC)	,	5	0	0
Cale a trans	· · · · · · · · · · · · · · · · · · ·	(CVC,CV,CVVC)	(9	3	0
Sobsature	/ˈsɒbsətʃə(r)/	(CUC CUC CUC)	6	9	3	0
	(CVC.CV.CVC)	(CVC.CVC.CVC)				
Bargary	/'ba:gəri/		9	6	3	1
	(CV.CV.CV)	(CV.CV.CV)				
Detsity	/'detsəti/		9	6	3	1
	(CV.CV.CV)	(CV.CV.CV)				
Benefit	/'benɪfɪt/		9	5	4	1
	(CV.CV.CVC)	(CV.CV.CVC)				
Perefy	/'piːrəfi/		9	6	3	1
	(CV.CV.CV)	(CV.CV.CV)	-	Ũ	U	
Ferculate	/ˈfɜːrkələt/	(01.01.01)	5	9	4	0
rerculate	(CVC.CV.CVC)	(CVC.CV.CVC)	5	2	4	0
F J I.* .		(CVC, CV, CVC)	0	(2	1
Feederchip	/ˈfiːdətʃɪp/		9	6	3	1
	(CVV.CV.CVC)	(CVV.CV.CVC)				
Rarchandise	/'raːt∫əndaıs/		6	3	9	0
	(CV.CVC.CVC)	(CV.CVC.CVVC)				
Nolentide	/'nɒləntaɪd/		9	3	6	1
	(CV.CVC.CVVC)	(CV.CVC.CVVC)				
Semofy	/ˈseməfi/		9	6	3	1
·	(CV.CV.CV)	(CV.CV.CV)				
Bameset	/'bemiset/		9	5	4	1
1741110301	(CV.CV.CVC)	(CV.CV.CVC)	,	5		1

Source: Authors' work

stress pattern predictability, which does not allow stress at the antepenultimate syllable.

Table 7 shows similar results compared to the previous table, except that the advanced group produced the stress correctly at the antepenultimate in words like signature, fortunate, pacific, nolentide, and pacific. Fortunate, for example, scored 0.097 ms, 69 dB, 143Hz, 0.094 ms, 66 dB, 138 hz, 0.114 ms, 67 dB and 124 Hz in each syllable, respectively. Some errors are related to the HA effect, such as changing the place of stress to the ultimate where the tense vowel is located. However, the primary stress was incorrectly placed in another syllable, which does not include the pattern of HA. For example, the word Vacapsy recorded 0.070 ms, 67 dB, 131 Hz in the stressed syllable, 0.114 ms, 71 dB, 138 Hz in the unstressed syllable, and 0.064 ms, 57 dB, 117 Hz in the unstressed syllable.

Results in Table 8 show several incorrect primary stress placements that cannot be related to the predictability of HA stress patterns, such as in *pacific, synopses,* and *magnetic. Synopses*, for instance, scored 0.099 ms, 72 dB, 202 Hz, 0.098 ms, 70 dB, 170 Hz, 0.082 ms, 67 dB and 143 Hz for each syllable separately. This result indicates that Yemeni EFL undergraduates wrongly stress the antepenultimate syllable, although the stress pattern is similar to HA in the word *synopses* (CV.CVC.CVC). Other incorrect responses, however, can be traced to the effect of HA stress patterns such as *byhontide* and *pelogonide*. Moreover, the intermediate Yemeni EFL undergraduates scored correct responses in *vanilla, nosila, recording*, and *defender*.

Table 9 shows the responses by the advanced group, where the primary stress is located at the penultimate. Fewer incorrect responses are shown in this table compared to the antepenultimate stress. The HA stress pattern mainly influences correct and incorrect placement of English lexical stress. Yet, the Yemeni EFL undergraduates stress the vowel incorrectly to the antepenultimate in *synopsis* and *synoksuf*, which cannot be related to the effect of HA.

Table 8

Results of the intermediate group in trisyllabic words at the penultimate

		Penultimate Stress (in	termedia	ite)		
Wend	Transc	ription		Measu	rement	
Word	EN	HA	UN1	ST2	UN3	SC
Vanilla	/ vəˈnɪlə / (CV.CV.CV)	(CV.CV.CV)	6	9	3	1
Pacific	/ pəˈsɪfik / (CV.CV.CVC)	(CV.CV.CVC)	9	6	3	0
Peroxide	/ pəˈrɒksaɪd / (CV. CVC .CVVC)	(CV.CVC.CVVC)	6	3	9	0
Defender	/dɪˈfendə(r)/ (CV.CVC.CVC)	(CV.CVC.CVC)	6	9	3	1
Recording	/ rɪˈkɔːdɪŋ / (CV.CVV.CVC)	(CV.CVV.CVC)	6	9	3	1

		Penultimate Stress (in	termedia	ite)		
Word	Transc	ription		Measu	rement	
Word	EN	HA	UN1	ST2	UN3	SC
Byzantine	/ bai'zæntain / (CVV. CVC .CVVC)	(CVV.CVC.CVVC)	9	5	4	0
Magnetic	/mægˈnet.ɪk/ (CVC. CVC .VC)	(CVC.CVC.VC)	9	6	3	0
Nosila	/nəˈsɪlə/ (CV.CV.CV)	/nəˈsɪlə/ (CV. CV .CV)	9	6	3	0
Subnetic	/sʌbˈnetɪk/ (CVC.CV.CVC)	(CVC. CV .CVC)	9	6	3	0
Rerarging	/rɪˈrɑːrɡɪŋ/ (CV.CVV.CVC)	(CV.CVV.CVC)	3	9	6	1
Mamigic	/məˈmɪdɜɪk/ (CV.CV.CVC)	(CV.CV.CVC)	9	6	3	0
Byhontide	/bai'hɒntaɪd/ (CVV. CVC .CVVC)	(CVV.CVC.CVVC)	9	5	4	0
Pelognide	/pəˈlɒgnaɪd/ (CV. CVC .CVVC)	(CV.CVC.CVVC)	9	3	6	0
dedanfer	/dɪˈdænfə(r)/ (CV.CVC.CVC)	(CV.CVC.CVC)	6	9	3	0
Consensus	/kənˈsen.səs/ (CVC. CVC .CVC)	(CVC.CVC.CVC)	9	6	3	0
Synopsis	/sɪˈnɑːp.sɪs/ (CV. CVC .CVC)	(CV.CVC.CVC)	9	6	3	0
Komsensus	/kəmˈsen.səs/ (CVC. CVC .CVC)	(CVC.CVC.CVC)	9	6	3	0
Synoksuf	/sɪˈnɑːk.sɪf/ (CV. CVC .CVC)	(CV.CVC.CVC)	9	6	3	0

Table 8 (continue)

Source: Authors' work

Table 9

Results of the advanced group in trisyllabic words at the penultimate

	Penu	ltimate Stress (Advance	ed)			
Word	Transc	cription		Measu	rement	
word	EN	HA	UN1	ST2	UN3	SC
Vanilla	/ vəˈnɪlə /		6	9	3	1
	(CV.CV.CV)	(CV.CV.CV)				
Pacific	/ pəˈsɪfɪk /		9	6	3	1
	(CV.CVC)	(CV.CVC)				
Peroxide	/ pəˈrɒksaɪd /		6	3	9	0
	(CV.CVC.CVVC)	(CV.CVC.CVVC)				
Defender	/di fendə(r)/		6	9	3	1
	(CV.CVC.CVC)	(CV.CVC.CVC)				
Recording	/ rɪˈkəːdɪŋ /		6	9	3	1
	(CV.CVV.CVC)	(CV.CVV.CVC)				

	Penu	ltimate Stress (Advance	ed)			
Word	Transc	ription		Measu	irement	
word	EN	HA	UN1	ST2	UN3	SC
Byzantine	/ baɪˈzæntaɪn /		9	5	4	0
	(CVV.CVC.CVVC)	(CVV.CVC.CVVC)				
Magnetic	/mægˈnet.ɪk/		9	6	3	0
	(CVC.CVC.VC)	(CVC.CVC.VC)				
Nosila	/nəˈsɪlə/	/nəˈsɪlə/	9	6	3	1
	(CV.CV.CV)	(CV.CV.CV)				
Subnetic	/sAb'netik/		7	8	3	1
	(CVC.CV.CVC)	(CVC.CVC)				
Rerarging	/rɪˈraːrgɪŋ/		3	9	6	1
	(CV.CVV.CVC)	(CV.CVV.CVC)				
Mamigic	/məˈmɪdɜɪk/		9	6	3	0
	(CV.CV.CVC)	(CV.CVC)				
Byhontide	/bai'hontaid/		9	5	4	0
	(CVV.CVC.CVVC)	(CVV.CVC.CVVC)				
Pelognide	/pəˈlɒgnaɪd/		4	9	5	1
	(CV.CVC.CVVC)	(CV.CVC.CVVC)				
dedanfer	/dɪˈdænfə(r)/		6	9	3	1
	(CV.CVC.CVC)	(CV.CVC.CVC)				
Consensus	/kənˈsen.səs/		9	6	3	0
	(CVC.CVC.CVC)	(CVC.CVC.CVC)				
Synopsis	/sɪˈnɑːp.sɪs/		9	6	3	0
	(CV.CVC.CVC)	(CV.CVC.CVC)				
Komsensus	/kəmˈsen.səs/		6	9	3	0
	(CVC.CVC.CVC)	(CVC.CVC.CVC)				
Synoksuf	/sɪˈnɑːk.sɪf/		9	6	3	0
	(CV.CVC.CVC)	(CV.CVC.CVC)				

Table 9 (continue)

Source: Authors' work

Result of Pearson Chi-Square and Cramer's V

A Pearson Chi-Square test was conducted to determine if there is a relationship between the HA stress pattern and the assignment of stressed syllables when producing English lexical stress by Yemeni EFL undergraduates. Table 10 displays the results of the Pearson Chi-Square test, showing whether there is any significant association between the HA stress pattern and the production of English lexical stress. Results of the Chi-Square test show strong evidence of a relationship between the HA stress pattern and the production of English lexical stress (Chi-Square = 22.172, df = 1, *P*<0.005).

DISCUSSION

Disyllabic Words

Overall, the results found evidence supporting the view that HA stress pattern predictability affects assigning the location of the primary stress in the production of

Pearson Chi-Square Test					
	Value	df	Asymptotic Significance (2—sided)	Exact Sig (2-sided)	Exact Sig (1-sided)
Pearson Chi-Square	22.172ª	1	0.001		
Continuity Correction ^b	20.722	1	0.001		
Likelihood Ratio	22.614	1	0.001		
Fisher's Exact Test				0.000	0.000
N of Valid Cases	168				

Table 10
<i>Results of the Pearson Chi-Square test</i>

Notes. $^{a} = 0$ cells (0.0%) have an expected count of less than 5. The minimum expected count is 32.96; $^{b} =$ computed only for the 2×2 table.

Source: Authors' work

English lexical stress patterns. That is to say, HA's stress pattern strongly affects placing English primary stress in English words, as produced by the Yemeni EFL undergraduates. More precisely, the Yemeni EFL undergraduates have mostly assigned the primary stress correctly in the stressed syllable when HA share the same stress patterns in English. This result supports the positive transfer from HA to English production of stress patterns.

With regard to literature, the method of collecting the tested instruments focused on the areas of the predicated difficulties, which contradicts the assumption of the Stress Typology Model by Altmann (2006). Thus, findings reported in most previous studies showed that Arab EFL learners encounter difficulties in placing the English lexical stress without attaining to areas that may not be challengeable for Arab EFL learners. The results of the two Yemeni participant groups in this study show that they were more likely to stress the vowel at the penultimate syllable in disyllabic and trisyllabic words. This result goes in line with the past studies of Ali and Abdalla (2021), Khazneh (2015), Altmann (2006) and Anani (1989). On the contrary, other critical results appeared to contradict these findings. Both groups of the Yemeni EFL undergraduate reported errors in stressing the correct vowel at the penultimate syllables.

Regarding the placement of English lexical stress as affected by HA stress patterns, the Yemeni EFL undergraduates tend to correctly place the primary stress in vowels at the penultimate syllable in disyllabic words more than in the trisyllabic words. For example, words like valley, money data, thunder, nursing, racing, melting, janey, raba, sozet, jeelney, zomey, nurbing, mabing, muffting and luncer, were all stressed at the penultimate syllable correctly. It can be interpreted as a transfer of the HA stress rule, which emphasises the stressed vowel at the penultimate as soon as there is no diphthong or a tense vowel in the ultimate syllable. Inversely, two words violated this rule, as in *captain* and *bamtain*. The Yemeni EFL undergraduate placed the primary stress at the ultimate syllable of *captain* and *bamtain* because they contain two vowels at the autographic level /ai/; however, the English transcription of the word *captain* manifests the two vowels as schwa /'kæp.tən/. It can be concluded that Yemeni EFL undergraduates got confused with the constitute /ai/, except for the advanced group who correctly placed the stress at the penultimate in the word *captain*.

In contradiction to the stress rule of Classical Arabic, the Yemeni EFL undergraduates preferred to locate the primary correctly at the penultimate when it has an open syllable, as in sozet, racing and mabin (CV.CVC). Classical Arabic manifests stress at the final syllable if the penultimate contains an open syllable and the ultimate has a closed syllable (CV. CVC). Khazneh (2015) reported that Arab EFL learners stress the final syllable if it contains a closed syllable (CV.CVC). The same result was also evident in the study of Ali and Abdalla (2021), who found that Arab Iraqi learners of English place stress on closed syllables more than on open syllables. This result emphasises the notion of investigating the dialectal effect of a learner more than their standard language to come up with more accurate results, as Jung and Rhee (2018) suggested. It is adequate evidence that can be related to the effect of the HA, which does not manifest closed syllables with consonant clusters as heavy syllables. Another study may test these results in verbs to show the cruciality of this finding.

By contrast to the similarity of stress patterns, the Yemeni EFL undergraduates

place the penultimate stress incorrectly to the ultimate syllable in disyllabic words, as in keyboard, keybease, vangoid, nitrate, caffeine, kagien and paritade. This result is associated with differences in stress rules between English and HA, as the rest of the stimuli contain tense vowels at the final syllable. As a result, the study shows that the Yemeni EFL undergraduates tended to emphasise the penultimate syllable and were drawn to stressing the location of the tense vowel at the final syllable. Nevertheless, the incorrect placement of stress in the word nitrate /'nai.treit/ contrasted the result of the word rotate /rou'test/ in the study of Maghrabi (2021), as both words consist of two tense vowels in each syllable. Maghrabi reported frequent errors in words that contain two tense vowels in disyllabic words. Saudi EFL learners change the vowel to the penultimate, where the primary stress is at the ultimate; this is a contrary interpretation of the Metrical Theory. Nonetheless, the result of word nitrate supports the findings of Khazneh (2015), stating that when a word contains two tense vowels, the Syrian EFL learners' stress pattern showed a tendency toward changing the quality of the vowel in the second syllable.

Moreover, words such as *Degict* and *Defect* as nouns (CV.CVCC) have stress at penultimate syllables. This stress pattern has been regarded as one of the most challenging patterns where EFL/ESL learners scored a high rate of errors in the production and perception of English lexical stress studies (Albadar, 2018; Al-Thalab et al., 2018; Khazneh, 2015; Zuraiq & Sereno,

2021). This error was reported to occur due to the Arabic stress pattern that considers (CV. CVCC) as a superheavy syllable which attracts stress at the word level (Al-Thalab et al., 2018; Khazneh, 2015). The trochaic (CV.CVCC) foot does not exist in the HA system; thus, the Yemeni EFL undergraduates commit the same errors, except the advanced group who successfully produced the primary stress, the penultimate syllable. The Yemeni EFL undergraduates produced Degict and Defect with an extra vowel after as /'di: feket/ to break the cluster of the consonant /kt/, yet the stress was placed at the ultimate after explaining to the participants that this word contains only two syllables.

This result does not support the previous study by Al-Khulaidi (2017), who reported that Yemeni EFL learners correctly stressed the penultimate syllable in noun words containing (CV.CVCC). These results violated the effect of the Arabic stress rule, which the author investigated in her study, and contradicted the previous studies of Helal (2014), Khazneh (2015), and Ali and Abdalla (2021). It might occur due to the differences in the data analyses between the current study and the study of Al-Khulaidi (2017), as they depend on the authors' impressions. Otherwise, the participants were highly competent in English. Furthermore, stress was mostly placed successfully at the ultimate syllable by the Yemeni EFL undergraduates in disyllabic words such as sardine, darceel, campaign, campoyed, nineteen, machine and rarsine. These findings support the

effect of the HA stress pattern because of the exigence of tense vowels at the ultimate syllable. On the contrary, errors were recorded in *success and deskus* because the ultimate syllable does not consist of a tense vowel as in the previous examples.

With regard to syllabic patterns, Yemeni EFL undergraduates face fewer difficulties in English stress patterns that exist in the binary feet, such as **CVC**.V and **CV**.CV, **CV**.CVC, **CVC**.CVC, **CVV**.CV, CVC. **CVVC**, and CVVC.**CVVC**. By contrast, errors increased in feet as CVV.CVVC, CV. CVVC, and CVC.CVC as produced by Yemeni EFL undergraduates.

The findings of the current study support the assumption of the Metrical Theory. This model assumes that English and HA are quantity sensitive, where stress is attracted based on the weight of a syllable. Nevertheless, English allows the extrametricality parameter, which is not present in HA or standard Arabic. The errors that the Stress Typology Model could not explain based on similarity and differences can be explained through the extrametricality parameter in Metrical Theory.

Trisyllabic Words

Although HA is a variation of Classical Arabic, the location of the lexical stress may differ due to the differences in the syllable structure patterns of both CA and HA. Like Classical Arabic, the lexical stress in HA is generally attracted by the weight of the syllables and is mostly rightheaded. However, the primary key feature of differences is that stress becomes assigned to the leftmost mora (weight) when the foot word consists of two stressed syllables (Bamakhramah, 2010). From this point, it can be said that errors may arise due to dialectal variation, and it is not accurate to say right-headed problems where the study shows that it is not problematic. More research has to be taken into consideration.

In relation to the effect of the stress patterns between the English and HA stress patterns in trisyllabic words, some errors in the production of the Yemeni EFL undergraduates can be traced to the negative transfer from HA. The first 24 tested words have the primary stress placed the primary stress at the antepenultimate syllable as leaderships, feedership, scenery, signature, pesticide, pharmacy, fortunate, dignity, melody, galaxy, vacapcy, bargary, and benefit. It was assumed that the Yemeni EFL undergraduates would be unable to locate the stress at the antepenultimate syllable because HA does not manifest stress at the antepenultimate in trisyllabic and polysyllabic words. Nevertheless, the Yemeni EFL undergraduates correctly assigned stress at the antepenultimate syllable in leadership, pharmacy, melody, benefit, destiny, and their nonce words counterparts. This result supports Levis (2018), who argued, based on previous studies, that EFL learners encounter fewer difficulties when stress is located at the first syllable in English nouns. Despite this finding, Yemeni EFL undergraduates tend to stress the ultimate syllable when it consists of a tense vowel, as in merchandise, valentine, pesticide, nolentide and rarchandise.

This result explained that Yemeni EFL undergraduates are not sensitive to the structure of the syllable rather than the existence of tense vowels.

Errors were also observed in trisyllabic words where stress is located at the penultimate syllable. Yemeni EFL undergraduates fail to place the correct primary stress on a certain vowel, as seen in words like *synopses*, and they are attracted to tense vowels in the final syllables, as in *byzantine* and *pelognide*. However, the placement of English primary stress in words like *vanilla*, *nosila*, *defender*, *recoding*, *and rerarging* was correct. The words *synopses*, *consensus*, *komsensus*, *and synoksuf* were stressed at the antepenultimate syllable, violating the stress pattern of HA.

In simpler terms, Yemeni EFL undergraduates tended to make the first syllable longer and louder in duration and F0. Yemeni EFL undergraduates became confused when 'y' and 'o' existed in words or were unaware that these sounds could be changed into schwa in some English words because reducing vowels or changing them into schwa is not manifested in the Arabic language (Zuraiq & Sereno, 2021).

CONCLUSION

The study's findings indicated that the predictability of the Arabic stress pattern was not the only factor contributing to Yemeni EFL undergraduates' errors while producing English stress patterns. Results indicate that Yemeni EFL undergraduates are more drawn to vowel weight than stress patterns, mainly when the last syllable consists of a tense vowel rather than the pattern of syllable structure. Based on the study's findings, there is a dire need to teach pronunciation to students who wish to pursue higher studies in English and other departments. The present study findings suggest that phonetics and phonics training are needed for students from the early years of their basic education in the EFL context. Teachers have to demonstrate the significance of changing vowel quality to achieve intelligible and comprehensive speech. Furthermore, when introducing words to learners for the first time, the stressed syllable has to be clearly shown to the students. RAAT software can be a helpful tool in teaching English suprasegmental features pronunciation to visualise errors in pronunciation.

Implication for Theory and Practice

The study provides clear support for applying the Metrical Framework, which effectively anticipates the challenging areas in producing the English lexical stress by considering various parameters, notably qualitysensitivity and extrametricality parameters. The Metrical Theory posits that both English and HA exhibit quantity-sensitivity, where stress placement hinges on the syllable's weight. Furthermore, the Metrical Theory's ability to predict difficulties extends to the extrametricality parameter, a feature present in English but absent in HA. This parameter refers to stress patterns where certain syllables fall outside the metrical grid, influencing stress assignment.

It affirms the predictive capacity of the Metrical framework in understanding

stress assignment difficulties encountered by Yemeni EFL undergraduates. Therefore, the theory's consideration of quality-sensitivity and extrametricality parameters provides valuable insights into the complexities of stress placement in the acquisition of English as a foreign language by speakers of HA. Meanwhile, the ESP provides more predictability for disyllabic words compared to trisyllabic words. There is a need to cater for a more comprehensive predictability effect for languages that have multisyllables, such as the HA dialects.

ACKNOWLEDGEMENT

We acknowledge the valuable assistance of the research assistant in collecting data from native speakers of English for this study. Her contributions were instrumental in ensuring the quality and accuracy of our data.

REFERENCES

- Albadar, A. (2018). The role of quantity sensitivity in the perception of English lexical stress by predictable stress language speakers: Arabic L2 learners of English. Academia. https:// www.academia.edu/66943914/The_Role_of_ Quantity_Sensitivity_in_the_Perception_of_ English_Lexical_Stress_by_Predictable_stress_ Language_Speakers_Arabic_L_2_Learners_of_ English?uc-sb-sw=100650972
- Ali, H. S., & Abdalla, J. K. (2021). Pronunciation of English stress by Iraqi Arabic and Kurdish EFL learners. *Journal of Tikrit University for Humanities*, 28(12.1), 19-37. https://doi. org/10.25130/jtuh.28.12.1.2021.24
- Al-Khulaidi, M. (2017). Word stress in Yemeni English: A phonetic study. *International*

Multidisciplinary Journal, *3*, 14-24. https://doi. org/10.54392/ijll2145

- Almbark, R., Bouchhioua, N., & Hellmuth, S. (2014). Acquiring the phonetics and phonology of English word stress: Comparing learners from different L1 backgrounds. Proceedings of the International Symposium on the Acquisition of Second Language Speech, Concordia Working Papers in Applied Linguistics (Vol. 5, pp. 19-35). Department of Education, Concordia University.
- Al-Tamimi, N. O. M., Abudllah, N. K. M., & Bin-Hady, W. R. A. (2020). Teaching speaking skill to EFL college students through task-based approach: Problems and improvement. *British Journal of English Linguistics*, 8(2), 113-130. https://doi.org/10.37745/bjel.2013
- Al-Thalab, H. S. A., Yap, N. T., Nimehchisalem, V., & Rafik-Galea, S. (2018). Perception of English lexical stress: Some insights for English pronunciation lessons for Iraqi ESL learners. *Pertanika Journal of Social Sciences* & Humanities, 8(2), 209-224.
- Altmann, H. (2006). The perception and production of second language stress: A cross-linguistic experimental study [Doctoral dissertation, University of Delaware]. https://www.ling. uni-stuttgart.de/institut/ifla/PDF_Upload/Heidi_ Altmann/altmann-dissertation.pdf
- Altmann, H., & Kabak, B. (2015). English word stress in L2 and postcolonial varieties: Systematicity and variation. In U. Gut, R. Fuchs, & E. Wunder (Eds.), Universal or diverse paths to English phonology (pp. 185-208). De Gruyter Mouton. https://doi.org/10.1515/9783110346084-010
- Anani, M. (1989). Incorrect stress placement in the case of Arab learners of English. International Review of Applied Linguistics in Language Teaching, 27(1), 15-22. https://doi.org/10.1515/ iral.1989.27.1.15
- Aziz, Y. Y. (1980). Some problems of English wordstress for the Iraqi learner. *English Language*

Teaching Journal, *34*(2), 104-109. https://doi. org/10.1093/elt/34.2.104

- Bamakhramah, M. A. (2010). Syllable structure in Arabic varieties with a focus on superheavy syllables (Publication No. 3390256) [Doctoral dissertation, Indiana University]. ProQuest Dissertations & Theses Global. https://www. proquest.com/dissertations-theses/syllablestructure-arabic-varieties-with-focus-on/ docview/305212489/se-2
- Cheng, B., & Zhang, Y. (2015). Syllable structure universals and native language interference in second language perception and production: Positional asymmetry and perceptual links to accentedness. *Frontiers in Psychology*, *6*, Article 1801. https://doi.org/10.3389/fpsyg.2015.01801
- Chomsky, N., & Halle, M. (1968). *The sound pattern* of English. Harper & Row Publishers.
- Field, J. (2005). Intelligibility and the listener: The role of lexical stress. *TESOL Quarterly*, 39(3), 399-423. https://doi.org/10.2307/3588487
- Flege, J. E., & Bohn, O.-S. (1989). An instrumental study of vowel reduction and stress placement in Spanish-accented English. *Studies in Second Language Acquisition*, 11(1), 35-62. https://doi. org/10.1017/S0272263100007828
- Fry, D. B. (1959). Theoretical aspects of mechanical speech recognition. *Journal of the British Institution of Radio Engineers*, 19(4), 211-218. https://doi.org/10.1049/jbire.1959.0026
- Ghaith, S. (1993). The assignment of primary stress to words by some Arab speakers. System, 21(3), 381-390. https://doi.org/10.1016/0346-251X(93)90028-F
- Ghosh, M., & Levis, J. M. (2021). Vowel quality and direction of stress shift in a predictive model explaining the varying impact of misplaced word stress: Evidence from English. *Frontiers in Communication*, *6*, Article 628780. https:// doi.org/10.3389/fcomm.2021.628780

- Guo, X. (2022). Acoustic correlates of English lexical stress produced by Chinese dialect speakers compared to native English speakers. *Frontiers in Psychology*, 13, Article 796252. https://doi. org/10.3389/fpsyg.2022.796252
- Hayes, B. P. (1980). A metrical theory of stress rules [Doctoral dissertation, Massachusetts Institute of Technology]. DSpace@MIT-MIT Libraries. http://hdl.handle.net/1721.1/16066
- Helal, S. (2014). Stress in English: Prosodic and rhythmic complexity for Arab learners. Proceedings of the International Symposium on the Acquisition of Second Language Speech: Concordia Working Papers in Applied Linguistics, 5, 261-294.
- Jaiprasong, S., & Pongpairoj, N. (2020). L2 Production of English word stress by L1 Thai learners. LEARN Journal: Language Education and Acquisition Research Network, 13(2), 142-157.
- Jenkins, J. (2002). A sociolinguistically based, empirically researched pronunciation syllabus for English as in international language. *Applied linguistics*, 23(1), 83-103. https://doi. org/10.1093/applin/23.1.83
- Jeong, H., Thorén, B., & Othman, J. (2020). Effect of altering three phonetic features on intelligibility of English as a lingua franca: A Malaysian speaker and Swedish listeners. *Asian Englishes*, 22(1), 2-19. https://doi.org/10.1080/13488678. 2018.1536817
- Jung, Y. J., & Rhee, S. C. (2018). Acoustic analysis of English lexical stress produced by Korean, Japanese and Taiwanese-Chinese speakers. *Phonetics and Speech Sciences*, 10(1), 15-22. https://doi.org/10.13064/KSSS.2018.10.1.015
- Kallio, H., Suni, A., & Šimko, J. (2022). Fluencyrelated temporal features and syllable prominence as prosodic proficiency predictors for learners of English with different language backgrounds. *Language and Speech*, 65(3), 571-597. https:// doi.org/10.1177/00238309211040175

- Khazneh, I. (2015). Factors affecting the assignment of English word stress by Syrian EFL learners [Unpublished master's thesis]. University of Aleppo.
- Koffi, E. (2021). Relevant acoustic phonetics of L2 English: Focus on intelligibility. CRC Press. https://doi.org/10.1201/9781003106418
- Ladefoged, P., & Johnson, K. (2015). A course in phonetics (6th ed.). Cengage Learning.
- Lai, Y. (2008). Acoustic realization and perception of English lexical stress by Mandarin learners (Publication No. 3316252) [Doctoral dissertation, University of Kansas]. ProQuest Dissertations & Theses Global. https://www.proquest.com/ dissertations-theses/acoustic-realization-perceptionenglish-lexical/docview/250346459/se-2
- Lee, G., Shin, D. J., & Garcia, M. T. M. (2019). Perception of lexical stress and sentence focus by Korean-speaking and Spanish-speaking L2 learners of English. *Language Sciences*, 72, 36-49. https://doi.org/10.1016/j.langsci.2019.01.002
- Levis, J. (2018). Word stress and intelligibility. In Intelligibility, Oral Communication, and the Teaching of Pronunciation (Series of Cambridge Applied Linguistics, pp. 100-124). Cambridge University Press. https://doi. org/10.1017/9781108241564.010
- Lewis, C., & Deterding, D. (2021). Teaching suprasegmentals in English as a lingua franca contexts. In H. Mohebbi & C. Coombe (Eds.), *Research questions in language education and applied linguistics* (Series of Springer texts in education, pp. 167-169). Springer, Cham. https:// doi.org/10.1007/978-3-030-79143-8 31
- Liberman, M., & Prince, A. (1977). On stress and linguistic rhythm. *Linguistic Inquiry*, 8(2), 249-336.
- Lin, C. W. (2018). The perception and production of Arabic lexical stress by learners of Arabic: A usage-based account [Doctoral dissertation,

University of Michigan]. Deep Blue Repositories. https://hdl.handle.net/2027.42/143979

- Liu, D. (2017). The acquisition of English word stress by Mandarin EFL learners. *English Language Teaching*, 10(12), 196-201. https:// doi.org/10.5539/elt.v10n12p196
- Maghrabi, R. (2021). A phonological study of the influence of Arabic stress on the pronunciation of English words by Saudi ESL learners. *Journal of Arts, Literature, Humanities and Social Sciences*, (73), 350.-365 https://doi. org/10.33193/JALHSS.73.2021.600
- Misfer, Z. A., & Busabaa, N. A. (2019). Stress placement and the difficulties encountered by female EFL students in Saudi Arabian context. *Arab World English Journal*, (Special Issue), 32-43. https://doi.org/10.24093/awej/ef11.3
- Modesto, F., & Barbosa, P. A. (2019). Unravelling foreign accent prosody: Production and perception of lexical stress in English by Brazilian Portuguese speakers. *Revista de Estudos da Linguagem*, 27(1), 165-189. https:// doi.org/10.17851/2237-2083.27.1.165-189
- Motair, A., & Abdulwahab, T. (2018). Communicative language teaching in Yemeni EFL Classroom from the teachers' perspective. *IASET*, 7(5), 2319-3948.
- Nguyen, L. T., & Hung, B. P. (2021). Communicative pronunciation teaching: Insights from the Vietnamese tertiary EFL classroom. *System*, 101, Article 102573. https://doi.org/10.1016/j. system.2021.102573
- Pennington, M. C., & Rogerson-Revell, P. (2019). English pronunciation teaching and research: Contemporary perspectives. Palgrave Macmillan. https://doi.org/10.1057/978-1-137-47677-7
- Rehman, I., Silpachai, A., Levis, J., Zhao, G., & Gutierrez-Osuna, R. (2022). The English

pronunciation of Arabic speakers: A data-driven approach to segmental error identification. *Language Teaching Research*, *26*(6), 1055-1081. https://doi.org/10.1177/1362168820931888

- Saha, S. N., & Mandal, S. K. D. (2018). Phonetic realization of English lexical stress by native (L1) Bengali speakers compared to native (L1) English speakers. *Computer Speech & Language*, 47, 1-15. https://doi.org/10.1016/j. csl. 2017.06.006
- Tuan, D. M. (2018). English lexical stress assignment by EFL learners: Insights from a Vietnamese context. *European Journal of Education Studies*, 4(11), 59-74.
- Younes, M. A. (1984). The stressing of final superheavy syllables by Saudi learners of English: Implications for the contrastive analysis hypothesis (ED271009). ERIC. https://eric. ed.gov/?id=ED271009
- Youssef, A., & Mazurkewich, I. (1998). The acquisition of English metrical parameters and syllable structure by adult native speakers of Egyptian Arabic (Cairene dialect). In S. Flynn, G. Martohardjono, & W. O'Neil (Eds.), *The* generative study of second language acquisition (pp. 303-332). Lawrence Erlbaum. https://doi. org/10.4324/9781315806471
- Zhang, Y., Nissen, S. L., & Francis, A. L. (2008). Acoustic characteristics of English lexical stress produced by native Mandarin speakers. *The Journal of the Acoustical Society of America*, 123(6), 4498-4513. https://doi. org/10.1121/1.2902165
- Zuraiq, W., & Sereno, J. A. (2021). Production of English lexical stress by Arabic speakers. In R. Wayland (Ed.), Second language speech learning: Theoretical and empirical progress (pp. 290-311). Cambridge University Press. https://doi.org/10.1017/9781108886901.012

Appendix A

Supplementary Table 1 The stimuli of the production task

Carrier Phrases				
I say valley again	I say bamtain again	I say leadership again	I say synopsis again	
I say money again	I say valomes again	I say scenery again	I say komsensus again	
I say rocket again	I say danfuard again	I say merchandise again	I say dedanfer again	
I say nitrate again	I say degict again	I say signature again	I say keybease again	
I say data again	I say defect again	I say pesticide again	I say vacapsy	
I say thunder again	I say sardine again	I say valentine again	I say synoksuf again	
I say nursing again	I say darceal again	I say pharmacy again		
I say racing again	I say success again	I say fortunate again		
I say caffeine again	I say campaign again	I say dignity again		
I say captain again	I say nineteen again	I say melody again		
I say melting again	I say machine again	I say galaxy again		
I say valance again	I say campoyed again	I say septiride gain		
I say keyboard again	I say noilteen again	I say Sobsature again		
I say vanguard again	I say rarsine again	I say bargary again		
I say Journey again	I say deskus again	I say detsity again		
I say Raba again	I say peroxide again	I say benefit again		
I say Pitrade again	I say defender again	I say perefy again		
I say sozet again	I say recording again	I say ferculate again		
I say Kagiene again	I say byzantine again	I say feederchip again		
I say Jeelney again	I say magnetic again	I say rarchandise again		
I say zomey again	I say nosila again	I say nolentide again		
I say nerbing again	I say subnetic again	I say semofy again		
I say mabing again	I say rerarging again	I say bameset again		
I say mufting again	I say mamigic again	I say vanilla again		
I say luncer again	I say byhontide again	I say pacific again		
I say Janey again	I say pelognide again	I say consensus again		



SOCIAL SCIENCES & HUMANITIES

Journal homepage: http://www.pertanika.upm.edu.my/

Review Article Mainstreaming Flood Mitigation in Building Code: A Bibliometric Analysis

Nurin Mansoor^{1,2*}, Aznah Nor Anuar¹, Akbariah Mohd Mahdzir³ and Nurul Huda Md. Adnan^{1,4}

¹Disaster Preparedness and Prevention Center, Malaysia Japan Institute of Technology, Universiti Teknologi Malaysia, 54100 Kuala Lumpur, Malaysia

²Department of Architecture, Faculty of Design and Architecture, Universiti Putra Malaysia, 43400 Seri Kembangan, Selangor, Malaysia

³College of Life Sciences, George Davies Center, University of Leicester, LE17HA, United Kingdom ⁴National Water Research Institute of Malaysia, 43300 Seri Kembangan, Selangor, Malaysia

ABSTRACT

Integrating flood mitigation strategies into building codes on a global scale is a noteworthy initiative aimed at reducing the risk associated with flood-prone areas. The field of flood mitigation is constantly evolving and indirectly influences future building codes. However, there is a significant gap in research regarding optimizing building codes to mitigate flood-related risks. Therefore, this study aims to investigate the publication trends in mainstreaming flood mitigation into building codes by identifying the current state and critical key areas that potentially impact future building codes using bibliometric analysis. This research adopted a systematic review using the Web of Science database from 2002 to 2022, using the keywords «building code» and «flood». Bibliometric indicators were employed to summarize the key findings, including subject areas, publication trends, leading global contributors, influential institutions, citation patterns, authorship dynamics, and keyword analysis. The realm of research has experienced noteworthy expansion, emphasizing the necessity for further investigation. The findings also indicate that critical areas require attention in performance-based design, retrofitting of existing buildings, community resilience, the long-term effectiveness of flood mitigation measures, and the

ARTICLE INFO

Article history: Received: 19 September 2023 Accepted: 31 January 2024 Published: 14 June 2024

DOI: https://doi.org/10.47836/pjssh.32.2.10

E-mail addresses: nurinmansoor@gmail.com (Nurin Mansoor) aznah@utm.my (Aznah Nor Anuar) am1443@leicester.ac.uk (Akbariah Mohd Mahdzir) nurulhuda.ma@gmail.com (Nurul Huda Md. Adnan) *Corresponding author equity and social needs of the implications of flood-resilient building codes. In conclusion, such investigations are crucial in reducing community risk and creating resilient and sustainable communities in flood-prone areas.

Keywords: Bibliometric analysis, building code, flood, resilient building

ISSN: 0128-7702 e-ISSN: 2231-8534

INTRODUCTION

A growing body of evidence agrees that the building codes formed the minimum standard for building designs and construction to meet performance requirements and ensure the safety of occupants and buildings (Nwadike & Wilkinson, 2021). It is a widely held view that building code is determined as a competent measure to protect lives, properties, and the built environment generally against a disaster of any kind (Nissanka et al., 2019). These codes are based on scientific research and engineering principles and are intended to ensure that buildings are safe and durable and can withstand the forces of nature and other hazards (Case & Codes, 2020). The research to date recognized the importance of building codes in reducing flood risk, particularly considering the increasing frequency and severity of flooding events worldwide.

Previous research by Escarameia et al. (2012) emphasized that building codes can significantly reduce the risk of flood damage to buildings, requiring flood-resistant construction materials and techniques supported by studies from the American Society of Civil Engineers (2015). Other studies have focused on the role of building codes in promoting community resilience to floods and on the importance of integrating flood risk reduction measures into building codes and other regulations (Aerts & Wouter Botzen, 2011). Over the years, a significant amount of research has been conducted on the effectiveness of building codes in reducing flood risk (Ingargiola et al., 2013).

Much of the criticism has attracted a Global Resiliency Dialogue conducted in 2021, managed by a voluntary collaboration of building code developers and experts, where they discovered that building codes need to be more effective to deal with environmental changes (International Code Council, 2021a). Developing and implementing flood-resilient building codes and standards is important to flood risk reduction and disaster preparedness (International Code Council, 2021b). Governments, professional organizations, and other stakeholders are working together to develop and implement more robust and effective flood-resilient building codes and standards and to promote their adoption and enforcement (Aerts & Wouter Botzen, 2011; Gnan et al., 2022a; Ingargiola & Quinn, 2013; López-Marrero & Tschakert, 2011; Piatek & Wojnowska-Heciak, 2020). Another recent study by Gnan et al. (2022) described that investing in flood mitigation with better evidence provides government decision-makers when considering building code changes.

It has been demonstrated that the field of flood mitigation is constantly evolving, and the research trends indirectly influence future building codes. Therefore, this study aims to investigate the publication trends in mainstreaming flood mitigation into building codes by identifying the current state and critical key areas that indirectly play an important role in future building codes using bibliometric analysis. To the best of our knowledge, this study is the first to use a bibliometric analysis of building code focusing on flood mitigation. We address the following research questions to discover the bibliometric indicators:

RQ1: What is the status of research on mainstreaming flood mitigation in building codes?

RQ2: What are the key topic areas discussed in mainstreaming flood mitigation into building codes research?

RQ3: What areas involving flood resilient building code need additional study?

LITERATURE REVIEW

In the evolution of disaster risk management, numerous frameworks have been introduced to reduce the risk of hazards such as the International Decade for Natural Disaster Reduction, Yokohama Strategy and Plan of Action for A Safer World, the United Nations International Strategy for Disaster Risk Reduction, Johannesburg Plan of Implementation, Hyogo Framework for Action (2005–2015), followed by a recent international framework which is The Sendai Framework (2005–2030) (United Nations for Disaster Risk Reduction, 2015).

The Sendai Framework, ratified in Sendai, Japan, in March 2015, focuses on disaster risk reduction by establishing four priority areas to empower the city's resilience (Thepot et al., 2016). As part of its implementation, flood mitigation is addressed as one of the priority areas. The goal is to reduce the risks associated with flooding and enhance the city's ability to recover from such disasters. One of the

priorities highlighted in the framework is the need to enhance disaster preparedness for an effective response using building codes as part of the tools for developing resilient buildings and cities (Wei et al., 2021). The philosophy supporting the integration of flood mitigation into building codes is rooted in disaster risk reduction principles as part of disaster management (Wei et al., 2021). Notably, these principles link the key objective of risk reduction and resilience to reducing the risk of flood-related damage and enhancing the resilience of communities and their built environment (Ingargiola & Quinn, 2013). By incorporating floodmitigating measures into building codes, cities, and regions, Maqsood et al. (2016) found that the adverse impacts of flooding on people, property, and the economy can be minimized.

Flood mitigation has become increasingly important with the increase in climate change and the likelihood of more frequent and severe floods. Therefore, a review of existing research in mainstreaming flood mitigation in building codes was carried out with a focus on the bibliometric method to identify and analyze the literature related to flood mitigation in building codes. Bibliometric analysis is a quantitative research method used to evaluate the productivity and impact of scientific research in a particular field (Baier-Fuentes et al., 2019; Kamarrudin et al., 2022; Kent Baker et al., 2020).

Bibliometric analysis, which involves analyzing patterns and trends in academic literature, can help identify emerging strategies, technologies, and knowledge gaps in the field (Puspitarini et al., 2023). By examining the frequency of keywords and citations in scholarly articles, bibliometric analysis can give insight into the most influential research and help guide future research and policy decisions. For instance, it can identify areas where new building codes may be necessary to protect communities from floods better or highlight promising approaches to flood prevention that warrant further investigation.

Among the valuable resources available to advance our understanding of this technique significantly is the paper published by Lim and Kumar (2024). The authors discussed the applicability of sensemaking in bibliometric analysis using three processes: scanning, sensing, and substantiating to derive a meaningful interpretation. In short, bibliometric analysis is a valuable tool for navigating the constantly evolving landscape of flood mitigation.

METHODS

This paper generally used bibliometric analysis to summarize the key findings, including subject areas, publication trends, leading global contributors, influential institutions, citation patterns, authorship dynamics, and keyword analysis. The paper employed a combination of performance analysis and science mapping to answer the research questions.

The performance analysis is used to answer RQ 1, and science mapping is used to answer RQs 2 and 3. The performance analysis provides insight into the research trends, publication patterns, and the most influential authors in the field (Nik Hassan et al., 2022; Puspitarini et al., 2023), where the status of research related to mainstreaming flood mitigation in building codes can be identified through this analysis. The science mapping is used to visualize the trends and key topic areas discussed in mainstreaming flood mitigation into building codes research. In addition, this study also adopted the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) method, which provides systematic guidelines in academic literature (Saja et al., 2021; Tariq et al., 2021; Zairul, 2021) and consists of four steps; identification, screening, eligibility, and inclusion.

First, the identification step is conducted using the selected database. Database such as Scopus, Emerald, and Science Direct commonly collect numerous databases, are commonly collected by researchers. However, the Web of Science (WOS) database has been chosen as the referral source as it has been recognized and widely used in the academic field because the key elements in the Web of Science database, such as the contents that cover diverse disciplines and high citation publications offer a reliable material in managing the review (Zhu & Liu, 2020). In addition, the Web of Science is the only database with citation tracking that offers reliable and comprehensive citation data, including information on the number of times a publication has been cited and its *h*-index. This information is valuable for evaluating the impact of publications and authors in answering research question number one.

The initial search string "building code" AND "flood" was entered into the Web of Science search engine. The second step is screening, where the subject filters are applied. The time frame in this study is limited between 2002 and 2022 to analyze the research patterns within twenty years; the source type is restricted to journals, and the document type excludes irrelevant papers. In addition, this twentyyear period provides a sufficient time frame to gather a comprehensive dataset of publications, allowing for a more robust and representative analysis of research trends and patterns. This quantitative data was collected worldwide on February 20th, 2023, to ensure comprehensive coverage of building codes research and the broader context in understanding the flood mitigation field.

By referring to Figure 1, the search yielded 215 documents. After scanning the abstracts of all documents in the list, further exclusions were made relevant. One of the papers has been removed due to nonrelevant topics with the search string. After the documents were screened, 214 documents of building codes focusing on flood remained in the final database. The data was processed using various methods to acquire the information needed to answer the RQs. Certain findings were directly obtained from the Web of Science. Other findings were exported or manually recorded to an Excel file. The data was exported in Research Information Systems (RIS) and Comma-Separated Values (CSV) formats as part of the data sets. The VOS software (Visualization of Similarities Viewer) was utilized to represent the bibliometric networks because it is an open instrument for building and viewing networks (Wahid et al., 2020) (Figure 1).

RESULTS AND DISCUSSION

To answer research question number one (What is the status of research related to mainstreaming flood mitigation in building code?), we analyzed the publication trend in mainstreaming flood mitigation into building codes using total publications by year, country, journal, contributing author, and organization.

Table 1 represents the number of publications on building codes focusing on mainstreaming flood mitigation between 2002 and 2022. The sharp increase in publications after 2017 corresponds to the beginning of the Sendai Framework initiatives, which acknowledges the need to align building codes as part of national disaster risk management (Table 1).

With a total of 32 documents, the maximum productivity was recorded in 2022, while the lowest productivity was found in 2003, with a total of 1 document. Generally, a significant number of publications increased between 2017 and 2019, reflecting the rising interest in mainstreaming flood mitigation in building code research and its great potential for advancements, as shown in Figure 2. On the other hand, the Covid pandemic caused a drop in output between 2020 and 2021 before returning to the top spot in 2022 (Figure 2).

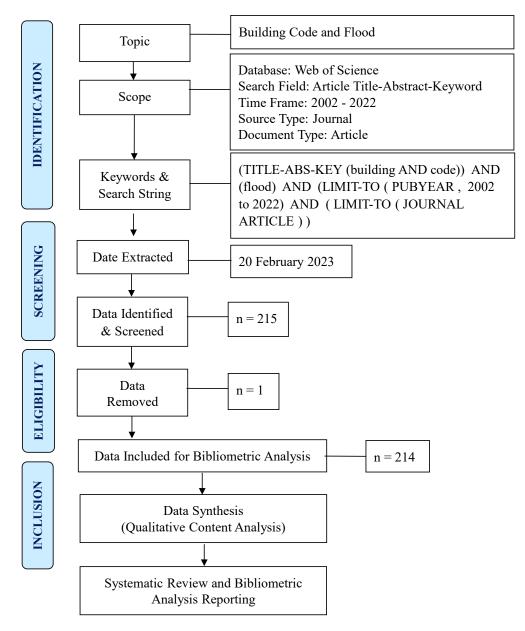


Figure 1. PRISMA Flow diagram of the systematic literature review combining bibliometric *Source:* Authors' work

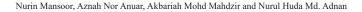
i ubileallon by year				
Year	TP	%TP	TC	%TC
2022	32	15.0	811	17.56
2021	22	10.3	830	17.97
2020	26	12.2	682	14.77
2019	29	13.6	468	10.13
2018	17	7.9	349	7.56
2017	16	7.5	286	6.19
2016	8	3.7	264	5.72
2015	8	3.7	182	3.94
2014	8	3.7	178	3.85
2013	10	4.7	140	3.03
2012	9	4.2	125	2.71
2011	6	2.8	78	1.69
2010	4	1.9	86	1.86
2009	4	1.9	46	1.00
2008	2	0.9	39	0.84
2007	2	0.9	20	0.43
2006	3	1.4	16	0.35
2005	1	0.5	9	0.19
2004	2	0.9	8	0.17
2003	1	0.5	1	0.02
2002	4	1.9	0	0.00
Total	214	100.0	4618	100.0

Table 1Publication by year

Notes. TP=total number of publications; NCP=number of cited publications; TC=total citations; %=percentage of total publications *Source:* Authors' work

Mainstreaming flood mitigation in building codes has attracted considerable attention from researchers, as indicated by the contributions from 55 countries. Table 2 lists the top 10 publishing countries, with the top three being the United States, England, and Germany. Meanwhile, the top publishing country in Southeast Asia is Vietnam, with ten publications and 130 citations, followed

by Malaysia, with four publications and 52 citations (Table 2). Meanwhile, Figure 3 demonstrated the network visualization map of the bibliographic co-citation between the countries where the most dominant article linked between the United States of America, Netherlands, Germany, Canada, Austria, England, Wales, Scotland, Austria, Italy, France and Malaysia (Figure 3).



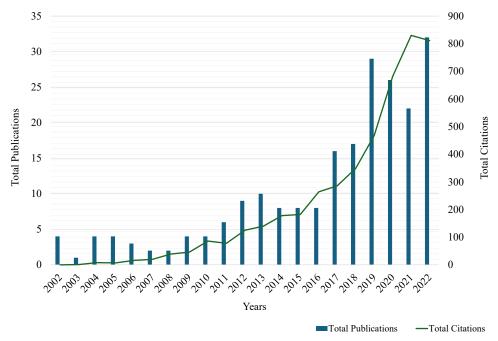


Figure 2. Total publications and citations by year *Source:* Authors' work

Table 2Publication by countries

Country	Total Documents	Total Citations
United States	83	1949
England	33	1166
Germany	19	400
Netherlands	18	491
Peoples China	14	348
Italy	18	206
Wales	7	362
Australia	8	333
Canada	11	74
France	5	67

Source: Authors' work

Based on our dataset, 882 authors from 425 organizations published articles related to the building code subject, focusing on flood mitigation. Table 3 lists the top five contributing authors. Five authors have the most publication documents and highest citations (Table 3).

The 214 articles appeared in 145 journals. Table 4 lists the top 10 journals with the most articles and highest citations on flood mitigation in building code. The leading journal is the Natural Hazards and Earth System Science Journals, which published eight journals with 264 citations, at the sixth strongest link strength. This ranking is followed by the *Journal of Hydrology, Water*, and *Journal of Flood Risk Management*, each published in 7, 6, and 5 journals (Table 4).

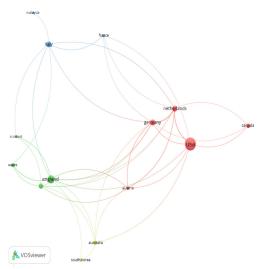


Figure 3. Network visualization map of the bibliographic co-citation

Note. Unit of analysis = Countries; Counting method: Fractional counting; Minimum number of documents of a source = 4

Source: Authors' work

Table 3Publication by authors

Figure 4 demonstrates the network visualization map of the bibliographic coupling sources between the top journals, where the most recent article was published in the Journal of Flood Risk Management and the Journal of Hydrology (Figure 4).

Citation metrics are quantitative measures used to evaluate the impact and influence of a particular research publication, researcher, or institution within the scientific community (Donthu et al., 2020). Referring to the citation metrics in Table 5, the publication trend of the selected documents as of February 20th, 2023, indicates significant growth in this field (Table 5).

Twenty years of research development with 214 papers among countries, organizations, and authors has been

Author's Name	Organizations	Documents	Citations
Miguez, Marcelo Gomes	Federal University of Rio de Janeiro	7	50
Aerts, Jeroen Cjh	Vrije Universiteit Amsterdam	5	200
Botzen, W.J Wouter	Vrije Universiteit Amsterdam	5	133
De moel, Hans	Vrije Universiteit Amsterdam	4	218
Heidi Kreibich	GeoForschungsZentrum Potsdam,	4	114
	Germany		

Source: Authors' work

Table 4

Publication by	journals
----------------	----------

Journal	Documents	Citations	Total Link Strength
Natural Hazards and Earth System Sciences	8	264	16.67
Journal of Hydrology	7	262	20.00
Water	6	72	26.00
Journal of Flood Risk Management	5	24	25.00
Environmental Science and Policy	4	49	6.00
Journal of Cleaner Production	4	44	9.00
Journal of Coastal Research	4	30	21.83

Nurin Mansoor, Aznah Nor Anuar, Akbariah Mohd Mahdzir and Nurul Huda Md. Adnan

Table 4 (Continue)

Journal	Documents	Citations	Total Link Strength
Natural Hazards Review	4	12	3.00
Coastal Engineering	3	157	9.00
Earths Future	3	115	17.33

Source: Authors' work

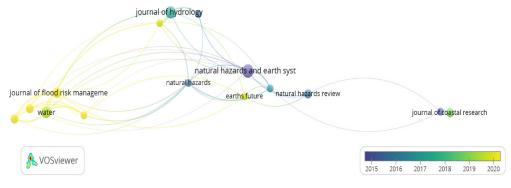


Figure 4. Network visualization map of the bibliographic coupling-sources

Note. Unit of analysis = Sources; Counting method: Fractional counting; Minimum number of documents of a source = 3

Source: Authors' work

recognized with a value of 34 for h-index and g-index of 60. This citation measure was created with Harzing's Publish and Perish software, which presented the raw citation metrics as an RIS-formatted file from the Web of Science database.

To answer RQ2: What key topics are discussed in mainstreaming flood mitigation into building codes research? The selected articles were examined using cooccurrence analysis in VOS software based on the text data. A content analysis method, co-occurrence analysis, assesses how closely related terms are used in literature (Kamarrudin et al., 2022). Figure 5 shows a network visualization of all terms with at least ten occurrences. Of 7177 terms in total, 80 terms meet the threshold. However, for

Table 5	
Citation	metrics

Citation metrics	
Metrics	Data
Publication years	2002-2022
Citation years	20
Papers	214
Citations	4664
Citations/year	222.10
Citations/paper	21.79
Papers/author	4.20
h-index	34
g-index	60

Source: Authors' work

each of the 80 terms, a relevance score was calculated using the VOS software, where the most 48 relevant terms were selected, as shown in Figure 5. Those selected terms

Mainstreaming Flood Mitigation in Building Code

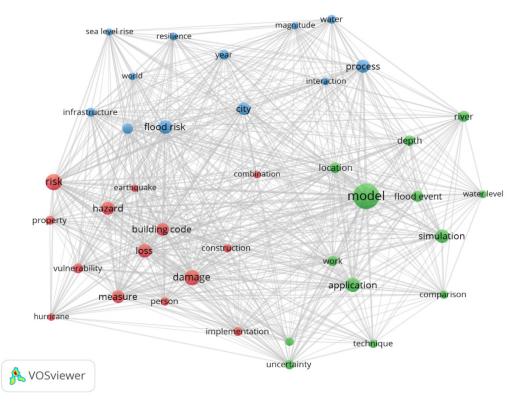


Figure 5. VOSviewer visualization of a term co-occurrence based on cluster

Note. Unit of analysis = Text Data; Counting method: Binary counting; Minimum number of occurrences of a term = 10

Source: Authors' work

were divided into three clusters, and the nodes' size depicts the terms' frequency.

The node's color denotes the cluster to which it belongs (Eck & Waltman, 2023) (Figure 5).

The three clusters indicate the top key topic areas in this research area. The first cluster in red is associated with building code, hazard, risk, vulnerability, property, measure, loss, implementation, construction, damage, earthquake, and hurricane. It led to the theme of "disaster preparedness and mitigation in construction and property management". The second cluster, denoted by green color, includes keywords such as model, river, simulation, technique, uncertainty, water level, depth, flood event, comparison, and application. It led to the second theme, «river and flood modeling and simulation». The third cluster, highlighted in blue, is associated with the city, climate change, flood risk, infrastructure, interaction, magnitude, resilience, sea level rise, and the world. This third cluster emphasizes the theme of "urban resilience to climate change and flood risk".

In answering RQ3: What areas involving mainstreaming flood mitigation in building

code need additional study, the literature gaps highlighted these needs. Some of these areas include:

- Performance-based design: A demand for further research on performance-based design approaches (Lourenço et al., 2020; Nwadike et al., 2020; Nwadike & Wilkinson, 2022; Rezende et al., 2019; Wilkinson et al., 2019) that consider the specific flood risk characteristics of a given site and provide a more flexible and adaptable approach to floodresilient design and construction.
- 2. Retrofitting of existing buildings: There is a need for a study on cost-effective methods (Maqsood et al., 2016; Orooji et al., 2022) for retrofitting existing buildings (Miano et al., 2019) in floodprone areas to improve their flood resistance and resilience (Paprotny et al., 2021).
- Community resilience: The necessity for research on the role of community resilience (Andráško et al., 2020; Douglas et al., 2010; Hudson et al., 2022) in promoting effective flood mitigation strategies and on the factors that contribute to the success or failure of community-based flood resilience initiatives (Wang et al., 2019; Wedel et al., 2008).

- 4. Long-term effectiveness: The analysis of the long-term effectiveness of flood mitigation measures (Kreibich et al., 2015; Paprotny et al., 2020), including building codes and standards and the factors that affect their effectiveness over time (Henderson, 2008; Ripple, 2020).
- Equity and social needs: There is a demand for research on the equity and social justice implications of flood-resilient building codes and standards (King et al., 2016; Kondo, 2016; Pradhan et al., 2017) and on how these policies can be designed and implemented to promote social justice and address the needs of marginalized communities (Aerts, 2018; Aerts & Wouter Botzen, 2011).

Having analyzed the current trends in some detail, we can now return to significant implications for philosophy and practice in mainstreaming flood mitigation into building code. The co-occurrence analysis of these research areas recognized that buildings play a critical role in community resilience, and this theory can be expanded to include other forms of disaster mitigation. As flood-resistant buildings become more common, built environment professionals must adapt their practices to meet these new standards, which require additional training and expertise in flood-resistant design and construction techniques. Overall, a greater study in this area is critical for improving

the creation and implementation of effective flood-resilient construction regulations and standards, as it represents a significant shift in both theory and practice associated with flood risk reduction principles.

CONCLUSION

Referring to the objective of this study, the current state and critical key areas that may shape the future practice of flood mitigation have been identified. The main theme established by the cooccurrence analysis highlights the current and future flood mitigation practices. These practices include building codes in disaster preparedness and mitigation in construction and property management, river and flood modeling and simulation, urban resilience to climate change, and flood risk.

Consequently, the research publication patterns in mainstreaming flood mitigation into building codes show that while authors from different countries have contributed to the field, their relationships remain homogeneous within countries. The analysis of keywords and co-occurrences reveals that the study has continued to center on property performance, catastrophe risk, and the influence of preparedness on community resilience. To further investigate the primary subject matter of this study, a comprehensive co-citation analysis was conducted, and the results of this analysis revealed that the themes could be classified into three distinct clusters, each with its unique characteristics and attributes. These findings provide valuable insights into the topic and can be used to inform future research and decision-making.

Notwithstanding the unique features of the bibliometric analysis, this study has certain limitations. First and foremost, this study uses the Web of Science database as its major source of documents. Although the Web of Science is one of the most extensive databases for scholarly publications, it is always remarkable to observe what occurs when coupled with other databases. Next, due to the broad scope of the Flood and Building Code concept, we only looked at the relevant literature with limited search queries. Third, no further techniques have been used to triangulate the keyword co-occurrence network mapping. The results were generated directly from the specified terms, such as «building code» and «flood», based on the article title, abstract, and keyword mostly because studies that concentrate on a certain subject use the papers' title, abstract, and keywords only.

This study provides valuable contributions to the field by identifying key areas that require further investigation and development. Despite the absence of groundbreaking findings, the research offers new insights that can inform future studies. The identification of these areas can help researchers focus their efforts and resources on the most pressing issues, thereby advancing the field of flood mitigation from the perspective of a bibliometric analysis lens. Overall, this study underscores the importance of ongoing research and development in the field and highlights the need for continued exploration and innovation to protect communities from the consequences of flooding.

The Implications of Bibliometric Analysis

Bibliometric analysis depicted the research landscape for mainstreaming flood-resilient building codes. Nonetheless, recent research highlights the essential role of sensemaking in extracting valuable insights from such analyses. This study explores several fruitful avenues for applying sensemaking within this context:

- Identifying knowledge gaps and research priorities: By analyzing relationships between publications, we identified areas lagging behind practical needs, informing our discovery of a gap in research on performance-based design, retrofitting of existing buildings, community resilience, long-term effectiveness strategies together with the equity and social needs for developing countries where the publications are mostly led by the United States of America, followed by England and Germany.
- Understanding citation patterns and knowledge transfer: Coauthorship and citation patterns highlight collaboration networks and knowledge transfer, revealing leading institutions and researchers. It suggests opportunities for knowledge-sharing initiatives, as seen in the concentration of disaster

preparedness and mitigation in construction and property management research in the US.

3. Tracking the evolution of best practices and emerging trends: The dynamic shifts in publication topics and keywords offer crucial insights into how our understanding and approaches to flood mitigation are evolving. Refer to Figure 6, the network visualization map of a term co-occurrence based on the year published demonstrated how the keywords evolved throughout the year. It paves the way for formulating potential research directions and tailoring research to effectively address current challenges, as reflected in the literature gaps previously discussed (Figure 6).

This research showcases the transformative potential of sensemaking in bibliometric analysis. Its impact extends beyond pinpointing research gaps and guiding future directions with robust data. It fosters a collaborative environment by identifying key players in the field, ultimately accelerating progress in mainstreaming flood-resilient building codes.

Recommendation of Future Bibliometric Analysis Studies

With increasingly frequent floods threatening communities worldwide, robust research and implementation efforts are crucial to

Mainstreaming Flood Mitigation in Building Code

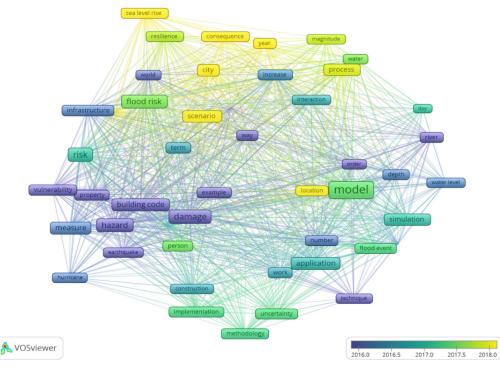


Figure 6. Network visualization map of a term co-occurrence based on year published *Note*. Unit of analysis = Text data; Counting method: Binary counting. *Source:* Authors' work

building resilience. One key strategy is mainstreaming flood mitigation measures into building codes, ensuring structures can withstand rising waters and protect residents. Bibliometric analysis has emerged as a powerful tool for gaining insights into the research landscape and informing future directions. Building on the previous studies, below are the recommendations for future bibliometric analysis studies focused on mainstreaming flood mitigation in building codes:

> Deeper explorations focused on themes like flood types, building types, material choices, and

disaster management integration to yield a richer and more nuanced understanding.

 Discover the flow of knowledge through maps of interdisciplinary research partnerships. The next potential research may involve unveiling partnerships between engineers, architects, policymakers, and social scientists and highlighting international collaborations to exchange knowledge and best practices between developed and developing countries. 3. Track the evolution of best practices and emerging trends by analyzing time-based trends in publication topics and keywords. It may include examining how research responds to new regulations, policies, and disaster events.

By focusing on these particular areas and employing innovative methodologies, future bibliometric analysis studies can be vital in accelerating research progress, facilitating knowledge exchange, and bridging the gap between research and practice towards reducing community risk towards flood events.

ACKNOWLEDGEMENTS

This research is funded by the Ministry of Higher Education Malaysia and Universiti Putra Malaysia under Tenaga Akademik Muda and Skim Latihan Akademik Bumiputera, Malaysia.

REFERENCES

- Aerts, J. C. J. H. (2018). A review of cost estimates for flood adaptation. *Water (Switzerland)*, 10(11), Article 1646. https://doi.org/10.3390/w10111646
- Aerts, J. C. J. H., & Wouter Botzen, W. J. (2011). Flood-resilient waterfront development in New York City: Bridging flood insurance, building codes, and flood zoning. *Annals of the New York Academy of Sciences*, *1227*(1), 1–82. https://doi. org/10.1111/j.1749-6632.2011.06074.x
- American Society of Civil Engineers. (2015). Flood resistant design and construction. http://ndl.ethernet.edu.et/ bitstream/123456789/58215/1/638.pdf

- Andráško, I., Dolák Klemešová, K., Dolák, L., Trojan, J., & Fiedor, D. (2020). "Surely it will come again...". Flood threat appraisal, mitigation strategies and protection motivation in Czech communities endangered by floods. *Moravian Geographical Reports, 28*(3), 170–186. https:// doi.org/10.2478/mgr-2020-0013
- Baier-Fuentes, H., Merigó, J. M., Amorós, J. E., & Gaviria-Marín, M. (2019). International entrepreneurship: A bibliometric overview. *International Entrepreneurship and Management Journal*, 15(2), 385–429. https://doi.org/10.1007/ s11365-017-0487-y
- Donthu, N., Kumar, S., & Pattnaik, D. (2020). Fortyfive years of Journal of Business Research: A bibliometric analysis. *Journal of Business Research*, 109, 1–14. https://doi.org/10.1016/j. jbusres.2019.10.039
- Douglas, I., Garvin, S., Lawson, N., Richards, J., Tippett, J., & White, I. (2010). Urban pluvial flooding: A qualitative case study of cause, effect and nonstructural mitigation. *Journal of Flood Risk Management*, 3(2), 112–125. https://doi. org/10.1111/j.1753-318X.2010.01061.x
- Eck, N. J. van., & Waltman, L. (2023). VOSviewer manual. https://www.vosviewer.com/ documentation/Manual_VOSviewer_1.6.19.pdf
- Escarameia, M., Tagg, A., Walliman, N., Zevenbergen, C., & Anvarifar, F. (2012). *The role of building materials in improved flood resilience and routes for implementation* [Paper presentation]. 2nd European Conference on Flood Risk Management, FLOODrisk2012, Rotterdam, Netherlands. https://www.researchgate.net/ publication/279751554_The_role_of_building_ materials_in_improved_flood_resilience_and_ routes_for_implementation
- Federal Emergency Management Agency. (2020). Protecting communities the case for adopting building codes. https://www.fema. gov/sites/default/files/documents/fema_bcsbrochure_03-01-21_0.pdf

- Gnan, E., Friedland, C. J., Rahim, M. A., Mostafiz, R. B., Rohli, R. V., Orooji, F., Taghinezhad, A., & McElwee, J. (2022). Improved building-specific flood risk assessment and implications of depthdamage function selection. *Frontiers in Water*, *4*, Article 919726. https://doi.org/10.3389/ frwa.2022.919726
- Henderson, D., & Ginger, J. (2008). Role of building codes and construction standards in windstorm disaster mitigation. *The Australian Journal of Emergency Management*, 23(2), 40-46.
- Hudson, P., Bubeck, P., & Thieken, A. H. (2022). A comparison of flood-protective decision-making between German households and businesses. *Mitigation and Adaptation Strategies for Global Change*, 27(5), 1-22. https://doi.org/10.1007/ s11027-021-09982-1
- International Code Council. (2021a). Delivering climate responsive resilient building codes and standards findings from the global resiliency dialogue survey of building code stakeholders in Canada. https://www.iccsafe.org/wp-content/ uploads/Delivering_Resilient_Building_Codes_ and_Standards.pdf
- International Code Council. (2021b). Global resiliency dialogue second survey of building code stakeholders-USA delivering climate responsive resilient building codes and standards. https:// www.iccsafe.org/wp-content/uploads/Global-Resiliency-Dialogue-Second-Survey-Report-Australia-03112021.pdf
- Ingargiola, J. L., Jones, C. P., & Quinn, R. C. (2013). ASCE 24: Improving the performance of buildings and structures in flood hazard areas. Advances in Hurricane Engineering: Learning from our past - Proceedings of the 2012 ATC and SEI conference on advances in hurricane engineering (pp. 53–66). ASCE Press. https:// doi.org/10.1061/9780784412626.006
- Ingargiola, J. L., & Quinn, R. C. (2013). Flood provisions in the International Code series

and 2010 Florida building code. Advances in hurricane engineering: Learning from Our Past - Proceedings of the 2012 ATC and SEI conference on advances in hurricane engineering, (pp. 67–80). ASCE Press. https:// doi.org/10.1061/9780784412626.007

- Kamarrudin, H., Talib, O., Kamarudin, N., Ismail, N., & Zamin, A. A. M. (2022). Examining the trend of research on active engagement in science education: bibliometric analysis. *Journal of Turkish Science Education*, 19(3), 937-957. https://doi.org/10.36681/tused.2022.157
- Kent Baker, H., Pandey, N., Kumar, S., & Haldar, A. (2020). A bibliometric analysis of board diversity: Current status, development, and future research directions. *Journal of Business Research*, 108, 232–246. https://doi. org/10.1016/j.jbusres.2019.11.025
- King, D., Gurtner, Y., Firdaus, A., Harwood, S., & Cottrell, A. (2016). Land use planning for disaster risk reduction and climate change adaptation: Operationalizing policy and legislation at local levels. *International Journal* of Disaster Resilience in the Built Environment, 7(2), 158–172. https://doi.org/10.1108/ IJDRBE-03-2015-0009
- Kondo, T. (2016). Compensation or assistance?: Law and policy for post-disaster housing recovery in the U.S. and Japan. In K. Yuka, M. Katsumi & T. Toshihisa (Eds.), Asian law in disasters: Toward a human-centered recovery (pp.178-187). Routledge Press.
- Kreibich, H., Bubeck, P., van Vliet, M., & de Moel, H. (2015). A review of damage-reducing measures to manage fluvial flood risks in a changing climate. *Mitigation and Adaptation Strategies* for Global Change, 20(6), 967–989. https://doi. org/10.1007/s11027-014-9629-5
- Lim, W. M., & Kumar, S. (2024). Guidelines for interpreting the results of bibliometric analysis: A sensemaking approach. *Global Business and*

Organizational Excellence, 43(2), 17–26. https://doi.org/10.1002/joe.22229

- López-Marrero, T., & Tschakert, P. (2011). From theory to practice: Building more resilient communities in flood-prone areas. *Environment and Urbanization*, 23(1), 229–249. https://doi. org/10.1177/0956247810396055
- Lourenço, I. B., Beleño de Oliveira, A. K., Marques, L. S., Quintanilha Barbosa, A. A., Veról, A. P., Magalhães, P. C., & Miguez, M. G. (2020). A framework to support flood prevention and mitigation in the landscape and urban planning process regarding water dynamics. *Journal of Cleaner Production*, 277(3), Article 122983. https://doi.org/10.1016/j.jclepro.2020.122983
- Maqsood, T., Wehner, M., Dale, K., & Edwards, M. (2016). Cost-effective mitigation strategies for residential buildings in Australian flood plains. *International Journal of Safety and Security Engineering*, 6(3), 550–559. https://doi. org/10.2495/SAFE-V6-N3-550-559
- Miano, A., Sezen, H., Jalayer, F., & Prota, A. (2019). Performance-based assessment methodology for retrofit of buildings. *Journal of Structural Engineering (United States)*, 145(12), Article 04019144. https://doi.org/10.1061/(ASCE) ST.1943-541X.0002419
- Nik Hassan, N. M. H., Talib, O., Shariman, T. P., Rahman, N. A., & Zamin, A. A. M. (2022). A bibliometric analysis on how organic chemistry education research has evolved collaboratively over time. *Jurnal Pendidikan IPA Indonesia*, *11*(1), 73–90. https://doi.org/10.15294/jpii. v11i1.34185
- Nissanka Arachchige, C. S., Amaratunga, D., & Haigh, R. (2020). Disaster resilient building codes in Sri Lanka. 10th International Conference on Structural Engineering and Construction Management (ICSECM) (Vol. 1, pp. 146-152). University of Peradeniya. https://pure.hud. ac.uk/en/publications/disaster-resilient-buildingcodes-in-sri-lanka

- Nwadike, A. N., & Wilkinson, S. (2021). An evidencebased framework validation for building code improvement in New Zealand. *Engineering Construction & Architectural Management*, 29(8), 3072-3090. https://doi.org/10.1108/ ECAM-08-2020-0604.
- Nwadike, A. N., & Wilkinson, S. (2022). Unintended consequences of performance-based building code amendment in New Zealand. Journal of Performance of Constructed Facilities, 36(3), 1-13. https://doi.org/10.1061/(asce)cf.1943-5509.0001728
- Nwadike, A. N., Wilkinson, S., & Aigwi, I. E. (2020). Identification of parameters to develop an evidence-based framework to improve building code amendment in New Zealand. *The 54th International Conference of the Architectural Science Association (ANZAScA)* (pp. 570–579). Architectural Science Association. https:// ir.canterbury.ac.nz/items/343da504-0355-467a-97dc-448bb19955b5
- Orooji, F., Friedland, C. J., Savio, R. D., Taghinezhad,
 A., Massarra, C. C., Bushra, N., & Rohli, R.
 V. (2022). Generalized cost-effectiveness of residential wind mitigation strategies for wood-frame, single family house in the USA. *Frontiers in Built Environment*, 7(1), Article 745914. https://doi.org/10.3389/fbuil.2021.745914
- Paprotny, D., Kreibich, H., Morales-Nápoles, O., Castellarin, A., Carisi, F., & Schröter, K. (2020). Exposure and vulnerability estimation for modelling flood losses to commercial assets in Europe. *Science of the Total Environment*, 737(1), Article 140011. https://doi.org/10.1016/j. scitotenv.2020.140011
- Paprotny, D., Kreibich, H., Morales-Nápoles, O., Wagenaar, D., Castellarin, A., Carisi, F., Bertin, X., Merz, B., & Schröter, K. (2021). A probabilistic approach to estimating residential losses from different flood types. *Natural Hazards*, 105(3), 2569–2601. https://doi. org/10.1007/s11069-020-04413-x

- Piatek, Ł., & Wojnowska-Heciak, M. (2020). Multicase study comparison of different types of flood-resilient buildings (Elevated, amphibious, and floating) at the Vistula river in Warsaw, Poland. Sustainability (Switzerland), 12(22), 1–20. https://doi.org/10.3390/su12229725
- Pradhan, N. S., Su, Y., Fu, Y., Zhang, L., & Yang, Y. (2017). Analyzing the effectiveness of policy implementation at the local level: A case study of management of the 2009–2010 drought in Yunnan Province, China. *International Journal* of Disaster Risk Science, 8(1), 64–77. https://doi. org/10.1007/s13753-017-0118-9
- Puspitarini, D., Degeng, I. N. S., Praherdhiono, H., & Suryati, N. (2023). Humanistic Pesantren: Systematic literature review and bibliometric visualization analysis on character, moral, and ethical values. *Pertanika Journal of Social Sciences and Humanities*, 31(2), 465–490. https://doi.org/10.47836/PJSSH.31.2.01
- Rezende, O. M., Miranda, F. M., Haddad, A. N., & Miguez, M. G. (2019). A framework to evaluate urban flood resilience of design alternatives for flood defence considering future adverse scenarios. *Water(Switzerland)*, 11(7), 1485. https://doi.org/10.3390/w11071485
- Ripple, J. (2020). Building codes don't measure up: A case for urban material performance standards. In B. E. Brownell (Ed.), *Examining* the Environmental Impacts of Materials and Buildings (pp. 32–63). IGI Global. https://doi. org/10.4018/978-1-7998-2426-8.ch002
- Saja, A. M. A., Teo, M., Goonetilleke, A., & Ziyath, A. M. (2021). A critical review of social resilience properties and pathways in disaster management. *International Journal of Disaster Risk Science*, 12(6), 790–804. https://doi.org/10.1007/s13753-021-00378-y
- Tariq, H., Pathirage, C., & Fernando, T. (2021). Measuring community disaster resilience at local levels: An adaptable resilience framework.

International Journal of Disaster Risk Reduction, 62(5), Article 102358. https://doi.org/10.1016/j. ijdrr.2021.102358

- Thepot, R., Goujard, P., & Gache, F. (2016, October 17-21). Impact of the new Sendai framework for disaster risk reduction on Paris flood prevention program [Paper presentation]. 3rd European Conference on Flood Risk Management, Lyon, France. https://doi.org/10.1051/ e3sconf/20160717002
- United Nations for Disaster Risk Reduction. (2015). *Chart of the sendai framework for disaster risk reduction 2030.* https://www.undrr.org/ publication/chart-sendai-framework-disasterrisk-reduction-2015-2030
- Wahid, R., Ahmi, A., & Alam, A. S. A. F. (2020). Growth and collaboration in massive open online courses: A bibliometric analysis. *International Review of Research in Open and Distance Learning*, 21(4), 292–322. https://doi. org/10.19173/IRRODL.V21I4.4693
- Wang, Z., Liu, J., Xu, N., Fan, C., Fan, Y., He, S., Jiao, L., & Ma, N. (2019). The role of indigenous knowledge in integrating scientific and indigenous knowledge for community-based disaster risk reduction: A case of Haikou Village in Ningxia, China. *International Journal of Disaster Risk Reduction*, 41(9), Article 101309. https://doi.org/10.1016/j.ijdrr.2019.101309
- Wedel, R., Cribben, C., & Grundberg, J. (2008). Community-based disaster risk management: experiences from Indonesia. International Organization for Migration (IOM) Indonesia. https://www.humanitarianlibrary.org/sites/ default/files/2013/07/30_CBDRM_Handbook_ english_lo.pdf
- Wei, W., Mojtahedi, M., Yazdani, M., & Kabirifar, K. (2021). The alignment of Australia's national construction code and the Sendai framework for disaster risk reduction in achieving resilient buildings and communities. *Buildings*,

11(10), Article 429. https://doi.org/10.3390/ buildings11100429

- Wilkinson, S., Clifton, G. C., Nwadike, A., & Clifton, C. (2019). *Improving disaster resilience through effective building code compliance* [Paper presentation]. 9th I-Rec Conference 2019, Florida, USA. http://www.grif.umontreal. ca/i-rec/i-Rec2019/Improving%20disaster%20 resilience%20through%20effective%20 building%20code%20compliance.pdf
- Zairul, M. (2021). A thematic review on Industrialised Building System (IBS) publications from 2015-2019: Analysis of patterns and trends for future studies of IBS in Malaysia. *Pertanika Journal of Social Sciences and Humanities*, 29(1), 635–652. https://doi.org/10.47836/PJSSH.29.1.35
- Zhu, J., & Liu, W. (2020). A tale of two databases: The use of Web of Science and Scopus in academic papers. *Scientometrics*, 123(1), 321–335. https:// doi.org/10.1007/s11192-020-03387-8



SOCIAL SCIENCES & HUMANITIES

Journal homepage: http://www.pertanika.upm.edu.my/

Review Article

The Effect of Trust in Food Safety, Perception, Product Features and Consumers' Characteristics on Consumers' Purchase Decision for Safe Food: A Systematic Literature Review

Aishah Suhaimi^{1*}, Akmal Aini Othman¹, Ahmad Faiz Ghazali² and Veera Pandiyan Kaliani Sundram³

¹Faculty of Business and Management, Universiti Teknologi MARA Cawangan Johor Kampus Segamat, Malaysia

²College of Computing, Informatics, and Mathematics, Universiti Teknologi MARA, Shah Alam, Malaysia ³Faculty of Business and Management, Universiti Teknologi MARA Cawangan Selangor Kampus Puncak Alam, Malaysia

ABSTRACT

Food safety incidents have generated consumer concerns and impacted their purchasing decisions significantly. However, the precise ways these incidents affect consumers' choices and consequences for the food industry remain unclear. This study employs the PRISMA methodology to systematically review existing empirical and conceptual studies to address this gap. A comprehensive search of databases like Web of Science and Scopus using relevant keywords yields 42 pertinent articles after a thorough screening process. This review identifies four key variables influencing consumer behaviour regarding safe food. These variables encompass product features, perceptions of food safety, trust in food safety, and consumers' characteristics. These variables have collectively shaped consumer preferences for safe food and reflect the complex interplay of internal and external factors, including the role of supply chain actors in managing food safety incidents. The study contributes significantly to current knowledge by comprehensively understanding the

ARTICLE INFO

Article history: Received: 14 April 2023 Accepted: 29 February 2024 Published: 28 June 2024

DOI: https://doi.org/10.47836/pjssh.32.2.11

E-mail addresses: aishahsuhaimi88@uitm.edu.my (Aishah Suhaimi) akmal123@uitm.edu.my (Akmal Aini Othman) faizghazali@uitm.edu.my (Ahmad Faiz Ghazali) veera692@uitm.edu.my (Veera Pandiyan Kaliani Sundram) *Corresponding author factors guiding consumers toward safe food choices. It also introduces a foundational conceptual framework that can be further examined and validated in future research. Beyond academia, the research equips industry stakeholders with vital insights into consumer behaviour, enabling them to effectively formulate strategies that promote food safety and sustainability.

ISSN: 0128-7702 e-ISSN: 2231-8534 Consequently, this study marks a crucial step toward enhancing food safety practices and consumer-centric approaches in the food industry, fostering a safer and more sustainable food environment.

Keywords: Consumers' characteristics, food safety, perception, product features, purchase decision, supply chain, trust

INTRODUCTION

Food safety issues have emerged as a result of the crisis and have affected consumers' purchase decisions. Ongoing food safety issues in many countries, including the mad cow disease outbreak in the UK in 1996, the milk crisis in China in 2008, the enterohaemorrhagic Escherichia coli (EHEC) epidemic in Germany in 2011, and the meat crisis in 2017 in Brazil and other safety hazards, have significantly hampered psychological endurance and consumer confidence in food. Increased food safety incidents can jeopardise the trust of customers and the company's reputation. The emergence of food safety is impacting a country's economic performance as food safety concerns could reduce consumer willingness to buy. After a food safety incident in Taiwan caused by contaminated oil in 2014, the total turnover of the food industry had fallen by 4.8% from the previous month (Chuang et al., 2020).

Consumers began to boycott affiliated companies' products across the country, leading to significant changes such as the tightening of food safety standards by some companies and the announcement of a new government policy on food safety regulations. Since the impact of a specific safety incident involving dairy products could change consumers' purchasing decisions, soymilk products from another competing brand managed to penetrate the market, selling over a million bottles in the first two weeks, resulting in an 80% increase in sales performance of whole milk products (Hsu et al., 2015). Thus, it shows that changes in customer buying behaviour can easily occur after a food safety incident. Depending on the situation, they will switch to a competing brand at any moment.

The human decision to choose food is a complex function (Chen, 2017). According to Mondelaers et al. (2009), consumers' food choices result from quality expectations and experiences, including search criteria such as colour, price, and quality. On the other hand, product characteristics, experiential factors, and belief aspects mainly focused on production quality. To solve the problems related to food safety, most of the major companies in the food industry have turned to food safety certification to gain consumer's confidence and recoup revenue.

Purchase intention is a behavioural intention that can change attitudes and predict behaviour (Ajzen, 2002). In addition, purchase intention is recognised as an essential causal predictor of consumer behaviour (Morwitz & Schmittlein, 1992). Therefore, consumers with high purchase intent will have actual purchase rates higher than those with low purchase intentions (Brown, 2001).

As food safety issues escalate and consumers become increasingly concerned about the health risks posed by food consumption, understanding consumers' purchase intentions can be considered the best medicine. Despite growing awareness of food safety issues among consumers, a lack of studies has been conducted to systematically examine the factors influencing consumers' purchase decisions for safe food. Existing research, primarily identified through Scopus and Web of Science databases, has empirically examined the factors individually, neglecting their interconnectedness between the identified impact on consumer behaviour. While some studies have emphasised the significance of trust in food safety (Chuang et al., 2020; Wang & Yueh, 2020) or perception of risks (Cembalo et al., 2019; Quevedo-Silva et al., 2020) and benefits (Fleseriu et al., 2020), others have focused on product features like labelling and branding (Legendre & Coderre, 2018), or consumer characteristics such as knowledge (Wekeza & Sibanda, 2019) and socio-demographics (Baiyegunhi et al., 2018). However, there is a notable gap in the literature regarding the comprehensive analysis of how these factors collectively influence consumers' decisions to purchase safe food. By conducting a systematic literature review, this study seeks to address this gap by synthesising existing research and identifying trends and factors that shape consumers' purchase decisions for safe food. The current study leverages the (Preferred Reporting Items for Systematic Reviews and Evaluations and Meta-analysis) PRISMA

methodology, a robust and systematic approach to reviewing existing literature, to undertake this investigation, underlining the methodological rigour that enhances the credibility of its findings.

LITERATURE REVIEW

Globally, food security is a top priority for governments, civil society, the commercial sector, and multilateral organisations. Changing consumer preferences, changes in production and distribution methods, changes in trade and tourism, changing climatic and environmental conditions, and increasing antibiotic resistance are all factors that increase the likelihood of food hazards and food safety incidents. Food-borne illness poses a serious risk to public health. Restoring consumer confidence in food is now a priority for governments, regulators, law enforcement, large corporations, and multinationals. In addition, food safety and quality management systems, product certification, and standardisation are in their infancy and need immediate attention. Previous research on food safety focused on organic food, green food, sub-optimal food, certified food, safe food, and sustainable food (Rahman & Noor, 2016; Stranieri et al., 2016; Xie & Chen, 2009; Yanarella et al., 2009; Yu et al., 2014) were used interchangeably in this review.

A safe food product is unlikely to cause harm or threat to human health, including safety in production, operation, results, and processes, as well as actual and future. In contrast, 'sustainable food is food that is produced economically, economically' and is based on the principles of social justice. Farmers produce organic food using renewable resources and preserve ecological assets to improve sustainability and prevent environmental harm. In contrast, green food is all foods produced under a system committed to reducing environmental damage while maintaining high standards for quality and safety attributes. Traceability Fresh food is food that has been tested by a national certification body and has information recorded during the production process, which is considered one of the most effective measures to ensure food safety.

Despite numerous studies on consumer purchase intentions, efforts to thoroughly evaluate these results have not been sufficient. This article seeks to fill the knowledge gap by identifying and describing food safety concepts influencing consumer purchase intentions. Reports on consumer purchase intentions in the peer-reviewed literature are limited to conceptual articles but do not use the PRISMA method (Ashaolu & Ashaolu, 2020; Li et al., 2020) since their keyword search keyword is not provided. This study's significance lies in its pursuit of addressing a critical knowledge gap in understanding the intricate concepts driving consumer purchase intentions related to food safety. While prior research has explored this area through conceptual articles, this study takes an innovative approach by employing the PRISMA methodology, traditionally used for systematic reviews and meta-analyses. This method enhances the study's rigour, enabling the systematic evaluation and synthesis of a wide array of research articles.

By adopting PRISMA, this research ensures that only the most relevant and high-quality sources are included, ultimately contributing to a more credible and comprehensive understanding of the underlying concepts shaping consumer decisions in safe food purchases. This innovative methodology identifies patterns, trends, and gaps in the literature, offering valuable insights for academics and industry practitioners, making this study a pioneering and rigorous contribution to the field. Although focused on identifying factors that influence purchase intention, the existing systematic review by Steinhauser and Hamm (2018) has focused on other factors, especially nutrition, health, and risk reduction claims that influence purchasing behaviour.

Several internal and external factors, including food safety, influenced customers' purchasing decisions (Suhaimi et al., 2021). Product qualities have a substantial influence on customer purchasing intentions, particularly in the field of food safety (Suhaimi et al., 2022). Packaging, labelling, and nutritional information are important in creating customer perceptions. For example, Grunert et al. (2009) underline that clear and informative labelling, including information on ingredients, allergies, and expiration dates, can increase customer trust in the safety of food items. These characteristics influence how customers perceive product quality and significantly impact their purchasing decisions. In addition, trust in supply chain actors and trust in food safety are critical components in understanding customer purchasing intentions.

According to Verbeke and Ward's (2006) research, customers are more likely to acquire food goods when they have faith in the safety procedures put in place by food producers and merchants. Brand reputation, certification, and supply chain transparency contribute to developing and maintaining trust, substantially impacting purchase intentions. Cultivating and sustaining this trust is critical for firms in the food sector to guarantee that their goods meet consumers' safety standards and preferences. It emphasises the importance of food industries in prioritising food safety measures and successfully communicating them to their target audience. Furthermore, consumers frequently rely on many sources of information to determine the safety of food products, which affects their purchasing intentions. In this regard, peer recommendations, internet reviews, and word-of-mouth play significant roles in influencing customer's impressions of food safety.

The distinct advantage of the PRISMA methodology (Moher et al., 2014) lies in its systematic approach, which provides a clear characterisation of the research questions, the identification of inclusion and exclusion criteria, and the effort of document retrieval from the database in a specified time. WoS is a large database of over 33,000 publications in more than 256 subject areas, including environmental research, interdisciplinary social sciences, social concerns, development, and planning. It includes over 100 years of historical citation and file data generated by Clarivate Analytics and categorises it under three distinct metrics: citations, articles, and citations per publication. The second database considered in the review is Scopus. It has more than 22,800 reviews from 5,000 publishers worldwide, making it one of the largest peer-reviewed literature abstracts and citation databases. Scopus covers many fields, including environmental science, agriculture, biological sciences, and social science.

This study is crucial as only a few studies provide a comprehensive basis for the antecedent of consumer purchase intention about food safety. Prior to this study, publication reviews on consumer intention were lacking in that they did not disclose details of the review process used (such as review database, articles papers were excluded, and search terms were used), making it impossible for future researchers to replicate the study, verify interpretation, or assess completeness (Greenhalgh & Peacock, 2005). In addition, this study is important because consumer's purchase intention is expected to increase the likelihood of a consumer's purchase decision (Fleseriu et al., 2020) and raise concerns about food safety issues, requiring the industry to take immediate action to address security issues to increase purchase intention. Accordingly, the events the peerreviewed literature has focused on to date help determine where the focus is and should be. The present article is motivated by the main research question: How do food safety issues affect consumer purchase intention? Therefore, the main focus of the study is

safety-related works guided by theoretical evidence from the fields of economics and behavioural sciences. The present study extracted the components of intrinsic and extrinsic factors and established a framework for how the various components affect consumers' purchasing decisions. Therefore, the present study could guide future research on safe food purchase decisions and ensure policymakers receive the necessary support.

RESEARCH METHODOLOGY

PRISMA methodology was utilised to select relevant literature reviews on food safety related to supply chain quality management activities. The "Web of Science" (WoS) and Scopus are two main databases, according to Moher et al. (2014). Table 1 summarises the keywords used to search for terms related to food safety research for the food industry and consumers. Comprehensive and diverse keywords with more than three main roots were used to ensure retrieval of relevant articles. In addition, to get all articles containing keywords starting with this root, the wildcard asterisk (*) was assigned to most of the root. Previous research and thesaurus used terms related to food safety, purchase intent, and consumer. Two redundant elements were removed at this stage after careful sorting. On the Web of Science, there are 573 results, while on Scopus, there are 594 results.

After reading the title and/or abstract, it is determined whether a study is appropriate based on the inclusion and exclusion criteria. The article screenings begin with qualifying and exclusion, with only article journals containing empirical data chosen as literature types, excluding review articles, book series, books, chapters in books, and conference proceedings. Second, to minimise misunderstanding and difficulties in translation, the search attempts eliminated non-English publications and concentrated solely on articles published in English. Third, in terms of chronology, a period of five years (between 2016 and 2020) is chosen as a suitable amount of time to observe the progress of research and associated publications. Since the evaluation process focuses on consumer purchasing intentions for food safety problems, papers indexed in social science-based indexes are chosen. In contrast, publications published in a hard-scientific index (Science Citation Indexed Expanded) are omitted.

During the screening phase, most of the studies were rejected due to the year of publication, the format of the document (not a full-text publication), and the fact that they were outside the research area (business, management, and social sciences). During the eligibility period, it was discovered that most reported studies focused on the hospitality, food service industry, and management as well as fundamental aspects of food science and technology, with little attention to the end consumer, who plays a major role in the food industry, determining purchasing decisions throughout the food supply chain as shown in Figure 1.

Table 1
The search string utilised for the systematic review procedure

Database	Keyword
WoS Topic search	(("food safety" OR "food quality" OR "food contaminat*" OR "foodborne diseas*" OR "foodborne illnes*" OR "food scandal" OR "food hazard*") AND ("purchase-decisio*" OR "purchase-behav*" OR "willingness-to- pay" OR "willingness-to-purchase" OR "buying-decisio*" OR "buying- behav*" OR "willingness-to-buy" OR "purchase-intention" OR "buying- intention")) AND ("consumer*" OR "customer*")
Scopus	(TITLE-ABS-KEY (("food safety" OR "food quality" OR "food contamination" OR "foodborne diseas*" OR "foodborne illnes*" OR "food scandal" OR "food hazar*") AND ("purchase decisio*" OR "purchase behav*" OR "willingness to pay" OR "willingness to purchase" OR "buying decisio*" OR "buying behav*" OR "willingness to buy" OR "purchase intention" OR "buying intention")) AND ("consumer*" OR "customer*")

Source: Authors' work

Prisma Diagram

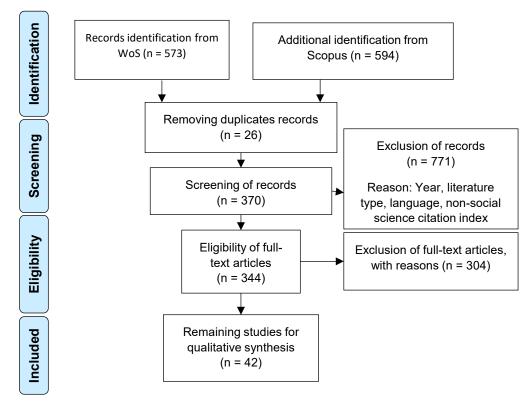


Figure 1. Flow chart of research methodology based on PRISMA *Source*: Moher et al. (2014)

RESULTS AND DISCUSSION

Producing safe food involves the interdependence of many factors that shape consumers' purchase intentions. The characteristics of consumers and assessment of food supply chain activities (such as farming, manufacturing processes, retailers, and markets) could influence their purchasing behaviour and views on food safety. The evolution of consumer purchasing decisions has been identified from previous research as the impact of food safety due to changes in production and distribution techniques, trade and tourism, changing climatic and environmental conditions, and increasing antibiotic resistance, food risks, and food safety events.

The Conceptual Framework of Determinants of Safe Food Purchase Decision

The reviewed literature of five years, particularly from 2017-2020, according to the keywords provided in Table 1, comprises four key determinants that influence consumers' purchase intention. The determinants were established from the literature review covering different aspects of internal and external factors related to food production and food production as well as other supply chain activities. The internal aspect mainly refers to the consumer being the final actor in the supply chain but having the most important role in making the purchase decision. In contrast, the external aspect refers to the opinion about the role of other actors in the food supply chain, including governments and manufacturers, retailers and merchants. These two fundamental factors must be prioritised and linked to benefit consumers and society in achieving food safety goals. Therefore, the purchase intention matrix for food security determinants is developed based on these two factors.

The determinants explored in various studies, as summarised in Table 2, offer valuable insights into consumer behaviour and purchasing decisions. Firstly, trust in food safety is consumers' confidence in the safety and reliability of the food they purchase and consume. It is influenced by factors like credible information sources, brand reputation, transparency, personal experiences, and peer recommendations, which significantly shape food-related decisions. Overall, trust in food safety is a complex interplay of individual beliefs, external information sources, and personal experiences. It significantly influences consumers' purchase decisions, as individuals are more likely to choose and continue buying products they trust to be safe and of high quality. Eleven studies have examined product features, including pricing, branding, labelling, and ecofriendliness, recognising their multifaceted influence on consumer decisions. In addition, perceived value, explored in six studies, incorporates diverse factors like health benefits and quality, demonstrating their intricate associations with purchase intentions.

On the contrary, perceived risk is particularly significant in the context of crises and social media's impact on risk perception. Lastly, seven investigations employ the Theory of Planned Behaviour constructs, including Attitudes, Subjective Norms, and Perceived Behavioural Control, revealing their pivotal roles in shaping consumers' intentions, with some studies introducing novel sub-items to refine the

TPB model. These findings collectively contribute to a comprehensive understanding of how these constructs impact consumers' purchase intentions across diverse product categories and contexts.

Table 2

Tive yeu	irs summury of fuc	iors ujjecung consumers p	furchase intention for safe jood	i producis
	Number	Keywords	Associated Terms	Frequence

Five years summary of factors affecting consumers' nurchase intention for safe food products

Number	Keywords	Associated Terms	Frequency
1	Trust	Trust in Food Safety	5
2	Perception	Perceived Risk	6
		Perceived Value	6
		Food Safety Perception	4
3	Product Features	Label, Brand, Price, certification, eco- friendliness	11
4	Consumers'	Knowledge	2
	Characteristics	Socio-demographic (Income, Gender)	2
		Awareness	1
		Attitude	7

Source: Authors' work

Trust in Food Safety

The relationship between trust and consumers' purchase decisions is pivotal in the context of safe food products. Trust influences perceptions of product safety, reliability, and overall quality. Confidence in a brand or product's integrity is fostered by factors such as brand reputation, transparency in information disclosure, and past consumer experiences. Trust refers to a favourable factor when uncertainty and opportunism exist (McKnight & Chervany, 2002). As a fundamental determinant of consumer behaviour, trust is a determinant that positively influences consumers' intention to purchase green products (Schlosser et al., 2006). Gregg and Walzak (2008) supported this by claiming that consumer distrust can be one reason consumers hesitate to purchase green products.

Trust is crucial in mitigating the inherent uncertainty and risk associated with food purchases, as consumers rely on it to navigate the complexities of the food supply chain effectively. Trust in regulatory bodies and food manufacturers signals to

consumers that safety and quality standards are upheld, providing reassurance amidst potential risks. According to Verbeke (2005) and Hansen et al. (2003), trust is crucial in the food supply chain's relationship between consumers and producers. Food safety regulators include food safety departments, consumer associations, professionals, manufacturers, and retailers (Wachinger et al., 2013). Therefore, consumers' beliefs have been identified in food safety as an antecedent of psychological processes in the context of safe food purchasing decisions.

Moreover, external factors like media coverage and public perception of food safety incidents shape consumers' levels of trust, alongside internal factors such as personal experiences and beliefs. The influence of trust extends beyond individual purchase decisions to broader consumer behaviour patterns, including brand loyalty and preferences for online shopping services. Stakeholders in the food industry must understand and cultivate trust through transparent communication, adherence to safety standards, and consistent product quality to foster consumer confidence and promote the purchase of safe food products. Consumers may not have enough knowledge to deal with all the dangers and threats as society, economy, and technology evolve. In product damage crises, consumers must rely on the trust of society and governments, manufacturers, and experts to make response decisions (Slovic, 1993). This is especially true in food safety, where several technologies such as genetically modified foods, food additives, and functional foods

have been deployed (Hunter & Röös, 2016), which affect consumers' trust in the safety of food products.

Perception of Food Safety

Consumers' decisions to buy safe food can also be motivated by food safety awareness and perception of the value and risk of a food product. Perception of food safety, including its beneficial impact on health, concerns about food safety, or other environmental factors, can influence consumers' intention and willingness to pay for a food product. Wang and Tsai (2019) conducted a study on Taiwanese consumers' perception of traceable fresh food safety. Zhang et al. (2018) measured the relationship between consumers' perceived safety and intention to purchase safe vegetables. Bolat et al. (2020) measure both the direct and indirect relationship between the perception of food security and the intention to purchase organic chicken in Turkey, where the indirect relationship between food security perception works through the mediating effect of perceived benefit and price perception on purchase intention. The commitment of supply chain actors throughout food production, including manufacturers and retailers, is crucial in maintaining food safety and affects consumers' perceptions and purchase intentions. Consumer's perception of food safety can be improved by showing good audit performance of organic certification associations, providing the market with clearer information on the control of organic products and how their organic certification

and audit efforts can lead to safer food. Similarly, Wee et al. (2014) identified food safety as the perception that strongly impacts the intention to buy organic food. Another study by Wekeza and Sibanda (2019) examines the indirect relationship between the perception of food security and purchase intention through motivation, knowledge, and attitude.

Perceived risk encapsulates consumers' subjective evaluations of potential negative outcomes linked with a purchase, including worries about product safety, health implications, or financial loss. Consumers are often concerned about food safety regarding contamination, health risks, or fraudulent labelling, especially when influenced by media reports of foodborne illnesses or recalls. Consequently, such apprehensions may dissuade consumers from purchasing certain products, hindering adoption rates or leading to hesitation in decision-making. Empirical research shows that perceived risk (Zhao et al., 2017) and perceived value (Hussain et al., 2016; Lee & Hwang, 2016; Lin et al., 2020) affect consumer buying trends for safe food products. Since food safety scandals frighten consumers and lead to risk avoidance, restoring consumer awareness is one of the ways to restore demand.

Conversely, perceived value serves as a counterbalance to perceived risk, motivating consumer behaviour by weighing the benefits of a product against its associated risks. In safe food products, perceived value encompasses nutritional content, taste, convenience, and brand

reputation. Consumers could be willing to pay a premium for organic or locally sourced foods, perceiving the food to offer superior quality, health benefits, or environmental sustainability. Similarly, products with clear labelling, transparent sourcing practices, or third-party certifications may be perceived as offering greater value by mitigating perceived risks related to food safety and authenticity. Unlike perceived risk, perceived value is a positive aspect of consumer perception that influences purchasing decisions. Furthermore, external factors such as family and friends affect consumers' perceptions, which affect their willingness to purchase safe food products. Similarly, Kim and Song's (2020) study has highlighted that negative perceptions of food security reduce food purchase intention. Therefore, the perception of food safety directly affects consumers' intention to buy safe food.

Product Features

The product features, including nutrition, labelling, logos, and certifications, influenced consumers' purchase decisions. Consumers' purchasing decisions can be driven by product features that can influence customer purchase intentions, such as price (Lee & Hwang, 2016; Zhang et al., 2016), brands (Legendre & Coderre, 2018; Roy et al., 2017), labels (Hussain et al., 2016; Lee & Hwang, 2016; Wang et al., 2016; Lee & Hwang, 2016; Wang et al., 2018; Wong & Tzeng, 2019), logo (Hussain et al., 2016) and other product characteristics such as environmental friendliness (Farías, 2020; Lin et al., 2020) and certification (Prentice et al., 2019). Only one of these studies measured the direct influence of one of the product characteristics, price, on purchase intention (Zhang et al., 2018). Logos and certifications are potent symbols of quality, safety, and authenticity, instilling confidence and trust in consumers' purchase decisions. Products adorned with recognisable logos or certifications are perceived as more dependable and trustworthy, having undergone scrutiny by reputable thirdparty organisations or compliance with established standards. Consumers gravitate towards products bearing certifications that mirror their values and priorities, such as environmental sustainability, animal welfare, or social responsibility.

Product labelling serves a crucial function by furnishing consumers with vital details regarding product ingredients, allergens, and nutritional content. Transparent, clarity, and conciseness in labelling have aided consumers in making informed decisions and choices regarding products perceived as healthier or more nutritious. According to Wellisch (1972), product information helps reduce customers' uncertainty when making judgments (Chuang et al., 2020). Nutrition information is critical, guiding consumers toward products aligned with their dietary needs, health objectives, and nutritional preferences. Clear labelling, including details about ingredients, allergens, and nutritional content, empowers consumers to make informed choices, particularly those with specific dietary requirements or restrictions.

Moreover, logos and certifications, such as organic, non-genetically Modified Organisms (GMO), or fair-trade labels, act as indicators of quality, sustainability, and ethical production practices, fostering consumer trust and confidence. In addition, a study by Aungatichart et al. (2020) found an association between ecological concerns and intention to purchase organic food through consumer identification. Wekeza and Sibanda (2019) used knowledge, motivation, and mediated attitudes to study the indirect association between the concept of eco-friendliness and consumer behavioural intentions. While Hsu et al. (2019) study the direct and indirect association between environmental concerns and purchase intention, purchase intention is also influenced by attitude. Hwang (2016) explores the direct and indirect relationship between environmental concerns and the intention to buy organic food using the social desire to buy organic food as a moderating factor. Environmental consciousness (Wang et al., 2020), eco-friendliness towards the characteristics of organic food (Lin et al., 2020), and ecological motivation on consumption motivation Organic foods (Teng & Lu, 2016) are additional studies related to environmental aspects with purchase intention. As a result, product features can directly influence purchase intention.

Consumer Characteristics

Consumers' characteristics impact purchasing decisions, purchasing behaviour, and consumer intentions. Knowledge about nutrition, food safety, and production practices empowers consumers to discern between products based on health benefits, safety assurances, and ethical considerations. High-income households may prioritise premium or organic products, while lowerincome families may seek affordability. Age and household composition also influence purchase behaviours; families prioritise convenience and nutrition, while younger demographics may prioritise novelty or ethical considerations. Their characteristics, including household size and income, significantly impact the affordability of buying healthy food regardless of price. In addition, couples living with a family, such as those with more than three children and elderly parents, are more concerned with food security than one person. According to Baiyegunhi et al. (2018), socio-demographic characteristics such as gender, education level, number of children in the household, high income, and race are statistically significant in explaining consumers' willingness-to-pay (WTP) for organic food.

Additionally, attitudes toward products and brands, formed by past experiences and marketing influences, significantly impact purchase decisions, as positive attitudes often drive product loyalty. Awareness of food safety and environmental concerns shapes attitudes and behaviours, with environmentally conscious consumers preferring sustainable or eco-friendly products. According to Zhang et al. (2018), family income, familiarity, differentiated perception, safety perception, nutritional health, packaging, brand trust, and online shopping experience, all positively influenced people's willingness to pay higher prices for safe vegetables, while household food expenditure price level, price volatility, and safety status all have a negative impact.

In addition, perceived behavioural control, reflecting consumers' confidence in navigating product attributes and labelling information, also guides decisionmaking. For example, health-conscious individuals with nutritional knowledge may prioritise products with health claims, while environmentally aware consumers may seek eco-friendly packaging. In addition, Rahman and Noor (2016) selected the determinants of purchase intention based on the theory of planned behaviour, including attitude, Perceived Behavioural Control (PBC), and subjective norm. Wong et al. (2018) can argue a similar argument, where three constructs link attitudes, subjective norms and perceived intentions, and behavioural control. Another study by Wong and Aini (2017) assessed the anxiety level and purchase intention of organic food consumers and found that cognitive behavioural control was the strongest predictor of purchase intention of organic food consumers. The identified factors that influence consumers' purchase decisions are summarised in Figure 2.

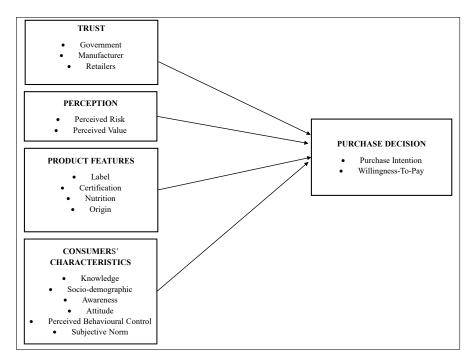


Figure 2. The conceptual framework of factors affecting safe food purchase decision *Source*: Authors' work

CONCLUSION

Factors affecting the decision to buy safe food due to food safety concerns can be seen in four aspects: trust, perceptions, product characteristics, and consumers' characteristics. Firstly, trust in the food supply chain is crucial, underlining the significance of consistent adherence to safety standards. Although trust influences safe food purchase decisions, the ongoing efforts require strategies, transparency, and education to gain consumer trust despite unprecedented challenges.

Secondly, consumers' perception of food safety involves several processes. Perception, driven by risk, value, and awareness, reflects the psychological processes guiding decision-making, highlighting the need for targeted strategy during food crises. While intrinsic motivations and external factors play crucial roles, a critical examination is necessary to identify key influences in consumers' decision-making, including media influence, the alignment of perceived value with actual safety, and the effectiveness of traceability and certification in ensuring food safety.

Thirdly, product features, including logos, certification, and labels, directly influence purchase intentions. The influence of product features, from pricing to ecofriendliness, urges industry players to align with consumer preferences while critically evaluating marketing claims. This aspect requires further exploration into the authenticity of the information provided to consumers, the alignment of consumer values with industry practices, and the relationship between attitudes and social influences in shaping purchasing decisions. A deeper understanding of product features needs to be examined to determine consumer preferences and sustainable consumption. Lastly, consumer characteristics require the exploration of the societal influences shaping purchasing choices and preferences from external influences and societal perceptions related to economic considerations, as well as societal factors, to enhance the understanding of consumer decision-making processes.

Implication for Theory and Practice

The theoretical implications provide insights that contribute to food security and consumer welfare. Identifying internal and external factors influencing consumer purchase intentions highlights the complexity of consumer perception, behaviour, and emotional beliefs. Understanding these factors provides a foundation for addressing difficulties in consumer perception, contributing to the development of effective strategies in the face of food safety issues. Identifying the interdependence of internal and external factors in the formation of consumer purchase intention can clarify the various difficulties affecting consumer perception, thereby affecting consumer behaviour and emotional beliefs, as well as their perception of risk in the face of food safety issues. The internal factors are related to individual customers, such as consumer perceptions and beliefs. In addition, food

purchasing behaviour can be modified based on customer knowledge, culture, characteristics, motivation, and other influencing variables. On the other hand, extrinsic variables are related to production activities and other players in the agri-food industry. Therefore, many internal and external factors must be considered when assessing the factors affecting purchase intention.

Practically, results of the study hold significant benefits for Malaysia's Food Safety and Quality Sub-Group, aligning with the National Food Security Policy Action Plan 2021–2025 for planning, implementing, monitoring, and evaluating food safety and quality activities. The aim is to protect the public against health risks and frauds in the storage, preparation, processing, packaging, transportation, sale, and consumption of food and facilitating food trade. The emphasis on Availability, Accessibility, Use, Stability, and Sustainability reflects global concepts recommended by the Food and Agriculture Organization of the United Nations (FAO). These key components comply with the latest concepts recommended by the Food and Agriculture Organization of the United Nations (FAO): (1) To work towards a food safety and safety plan, the government should focus more on promoting safe food purchasing decisions, (2) To support the establishment of food safety and quality management systems, governments need to provide an integrated regulatory framework and foundation, and (3) To realise the full potential of the agriculture and food industry, strong legislative initiatives on food quality and safety are needed that emphasise a comprehensive farm-to-fork strategy as an effective means of reducing potential food hazards. Recommendations for promoting safe food purchasing decisions, establishing food safety and quality management systems, and emphasising a comprehensive strategy align with the government's goals. Strengthening areas such as tax incentives, talent development, education programs, and stakeholder awareness campaigns can elevate food security and quality in Malaysia.

Food chain stakeholders can leverage these insights to refine communication strategies, enhance transparency, and tailor marketing approaches. Building trust requires continuous efforts, especially during crises and technological advancements. The influence of product features suggests an opportunity for industry players to align with consumer preferences for certified and eco-friendly products and critical evaluation of marketing claims.

Limitations and Recommendations for Future Studies

This article examines the literature on safe food purchase intentions and the need to establish a framework for safe food purchase intentions. However, current studies have several limitations. The scope of the review, focusing on the years 2017–2020, may not encompass emerging trends and recent developments. The reliance on existing literature introduces potential bias and omission of recent studies, impacting the generalizability of our findings. Future research should address these limitations, encompassing a broader timeframe, diverse research methodologies, and a more comprehensive representation of global contexts.

The conceptual framework developed in this paper and the future empirical findings could contribute to food security and consumer welfare. Moreover, this study is important in conveying a message to the food industry, especially manufacturers, in developing safe food production and processing, minimising uncertainties and risks in the future. By exploring the factors that influence consumer purchase intentions, especially the benefits of choosing a particular food safety certification, the economic benefits of maximising productivity or minimising costs and industry revenues could be estimated, which contribute to the decisions of manufacturers and retailers to encourage safer food production in the future. The development of the conceptual framework in this study can be further tested and validated. The proven model could then promote the development of a safer food industry, especially in emerging markets in Malaysia.

Future research should focus on underexplored studies of consumer behaviour and theoretical perspectives related to safe food purchases, such as the influence of trust in the context of food incidents. The empirical evaluation of the influence of socio-demographic characteristics and cultural influences could shed light on consumer behaviour across diverse populations. Future studies should also consider longitudinal designs to capture temporal shifts and explore the impact of external factors on the stability of trust and perception. Moreover, the identified interdependence of internal and external factors calls for future research to dissect the impact on consumer choices. As sustainability becomes an important consideration, understanding the authenticity and effectiveness of these claims is crucial.

ACKNOWLEDGEMENT

Our special thanks to Universiti Teknologi MARA Cawangan Johor, Malaysia for supporting this research under Geran Insentif Penyeliaan (GIP) 600-RMC/GIP 5/3 (014/2022).

REFERENCES

- Ajzen, I. (2002). Perceived behavioral control, selfefficacy, locus of control, and the theory of planned behavior. *Journal of Applied Social Psychology*, 32(4), 665–683. https://doi. org/10.1111/j.1559-1816.2002.tb00236.x
- Ashaolu, T. J., & Ashaolu, J. O. (2020). Perspectives on the trends, challenges and benefits of green, smart and organic (GSO) foods. *International Journal of Gastronomy and Food Science*, Article 100273. https://doi.org/10.1016/j. ijgfs.2020.100273
- Aungatichart, N., Fukushige, A., & Aryupong, M. (2020). Mediating role of consumer identity between factors influencing purchase intention and actual behavior in organic food consumption in Thailand. *Pakistan Journal of Commerce and Social Science*, 14(2), 429–449.
- Baiyegunhi, L. J. S., Mashabane, S. E., & Sambo, N. C. (2018). Influence of socio-psychological factors on consumer willingness to pay (WTP) for organic food products. *Journal of Economics*

and Behavioral Studies, 10(5(J)), 208–219. https://doi.org/10.22610/jebs.v10i5(j).2510

- Bolat, B. A., Kaygisiz, F., & Bulut, D. (2020). How consumers' consciousness and perception levels affect purchase intention of organic chicken meat in Turkey. *Turkish Journal of Veterinary and Animal Sciences*, 44(6), 1306–1315. https://doi. org/10.3906/vet-2005-53
- Brown, A. (2001). Counting farmers markets. *Geografical Review*, 91(4), 655–674. https://doi. org/10.1111/j.1931-0846.2001.tb00246.x
- Cembalo, L., Caso, D., Carfora, V., Caracciolo, F., Lombardi, A., & Cicia, G. (2019). The "land of fires" toxic waste scandal and its effect on consumer food choices. *International Journal of Environmental Research and Public Health*, 16(165), 1–14. https://doi.org/ 10.3390/ ijerph16010165
- Chen, P. Y. (2017). Fresh snack food channel evaluation model for integrating customers' perception of transaction costs in Taiwan. *Journal of Food Quality*, Article 7264576. https://doi.org/10.1155/2017/7264576
- Chuang, H. H., Tsai, H. T., & Cheng, W. L. (2020). The influence of information disclosure of social networking site on consumers' food safety perception in tourism factories. *Revista de Cercetare Si Interventie Sociala*, *71*, 264–284. https://doi.org/10.33788/rcis.71.17
- Cui, L., Jiang, H., Deng, H., & Zhang, T. (2019). The influence of the diffusion of food safety information through social media on consumers' purchase intentions: An empirical study in China. *Data Technologies and Applications*, 53(2), 230– 248. https://doi.org/10.1108/DTA-05-2018-0046
- Farías, P. (2020). Promoting the absence of pesticides through product labels: The role of showing a specific description of the harmful effects, environmental attitude, and familiarity with pesticides. *Sustainability*, *12*(21), Article 8912. https://doi.org/10.3390/su12218912
- Feng, T., Keller, L.R., Wu, P., & Xu, Y. (2014). An empirical study of the toxic capsule crisis in China: Risk perceptions and behavioral

Aishah Suhaimi, Akmal Aini Othman, Ahmad Faiz Ghazali and Veera Pandiyan Kaliani Sundram

responses. *Risk Analysis*, 34(4), 698–710. https:// doi.org/10.1111/risa.12099

- Fleseriu, C., Cosma, S. A., & Bocănet, V. (2020). Values and planned behaviour of the Romanian organic food consumer. *Sustainability (Switzerland)*, 12(5), 1–21. https://doi.org/10.3390/su12051722
- Greenhalgh, T., & Peacock, R. (2005). Effectiveness and efficiency of search methods in systematic reviews of complex evidence: Audit of primary sources. *British Medical Journal*, 331(7524), 1064–1065. https://doi.org/10.1136/ bmj.38636.593461.68
- Gregg, D. G., & Walczak, S. (2008). Dressing your online auction business for success: An experiment comparing two e-Bay businesses. *MIS Quarterly*, 32(3), 653–670. https://doi. org/10.2307/25148860
- Grunert, K.G., Lähteenmäki, L., Boztug, Y., Martinsdóttir, E., Ueland, Ø, Åström, A., Lampila, A. (2009). Perception of health claims among Nordic consumers. *Journal of Consumer Policy*, 32, 269–287. https://doi.org/10.1007/ s10603-009-9110-0
- Han, G., & Jan, S. (2019). Does food safety risk perception affect the public's trust in their government? an empirical study on a national survey in China. *International Journal of Environmental Research and Public Health*, *16*(11), Article 1874. https://doi.org/10.3390/ ijerph16111874
- Hansen, J., Holm, L., Frewer, L., Robinson, P., & Sandøe, P. (2003). Beyond the knowledge deficit: Recent research into lay and expert attitudes to food risks. *Appetite*, 41(2), 111–121. https://doi. org/10.1016/S0195-6663(03)00079-5
- Hsu, H. H., Lee, C. H., & Huang, C. H. (2015). Cover story of I-Mei. *Business Today*, *953*, 78–101.
- Hsu, S. Y., Chang, C.-C., & Lin, T. T. (2019). Triple bottom line model and food safety in organic food and conventional food in affecting perceived value and purchase intentions. *British Food Journal*, *121*(2), 333–346. https://doi. org/10.1108/BFJ-07-2017-0403

- Hunter, E., & Röös, E. (2016). Fear of climate change consequences and predictors of intentions to alter meat consumption. *Food Policy*, 62, 151–160. https://doi.org/10.1016/j.foodpol.2016.06.004
- Hussain, I., ur Rahman, S., Zaheer, A., & Saleem, S. (2016). Integrating factors influencing consumers' halal products purchase: Application of theory of reasoned action. *Journal of International Food & Agribusiness Marketing*, 28(1), 35–58. https://doi.org/10.1080/0897443 8.2015.1006973
- Hwang, J. (2016). Organic food as self-presentation: The role of psychological motivation in older consumers' purchase intention of organic food. *Journal of Retailing and Consumer Services*, 28, 281–287. https://doi.org/10.1016/j. jretconser.2015.01.007
- Kim, J.-H., & Song, H. (2020). The influence of perceived credibility on purchase intention via competence and authenticity. *International Journal of Hospitality Management*, 90, Article 102617. https://doi.org/https://doi.org/10.1016/j. ijhm.2020.102617
- Le-Anh, T., & Nguyen-To, T. (2020). Consumer purchasing behaviour of organic food in an emerging market. *International Journal of Consumer Studies*, 44(6), 563–573. https://doi. org/10.1111/ijcs.12588
- Lee, H. J., & Hwang, J. (2016). The driving role of consumers' perceived credence attributes in organic food purchase decisions: A comparison of two groups of consumers. *Food Quality* and Preference, 54, 141–151. https://doi. org/10.1016/j.foodqual.2016.07.011
- Legendre, S., & Coderre, F. (2018). The impact of altruistic attribution and brand equity in food label campaigns. *Journal of Product & Brand Management*, 27(1), 634–646. https://doi. org/10.1108/JPBM-12-2016-1381.
- Li, R., Lee, C., Lin, Y., & Liu, C. (2020). Chinese consumers' willingness to pay for organic foods: A conceptual review. *International Food and Agribusiness Management Review*, 23(2), 173– 187. https://doi.org/10.22434/IFAMR2019.0037

- Liao, C., Luo, Y., & Zhu, W. (2020). Food safety trust, risk perception, and consumers' response to company trust repair actions in food recall crises. *International Journal of Environmental Research* and Public Health, 17(4), Article 1270. https:// doi.org/10.3390/ijerph17041270
- Lin, J., Guo, J., Turel, O., & Liu, S. (2020). Purchasing organic food with social commerce: An integrated food-technology consumption values perspective. *International Journal of Information Management*, 51, Article 102033. https://doi. org/10.1016/j.ijinfomgt.2019.11.001
- McKnight, D. H., & Chervany, N. L. (2002). What trust means in e-commerce customer relationships: an interdisciplinary conceptual typology. *International Journal of Electronic Commerce*, 6(2), 35–53. https://doi.org/10.108 0/10864415.2001.11044235
- Moher, D., Liberati, A., Tetzlaff, J., Altman, D. G., Antes, G., Atkins, D., Barbour, V., Barrowman, N., Berlin, J. A., Clark, J., Clarke, M., Cook, D., D'Amico, R., Deeks, J. J., Devereaux, P. J., Dickersin, K., Egger, M., Ernst, E., Gøtzsche, P. C., ... Tugwell, P. (2014). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA Statement. *Revista Espanola de Nutricion Humana y Dietetica, 18*(3), 172–181. https://doi.org/10.14306/renhyd.18.3.114
- Mondelaers, K., Verbeke, W., & Van Huylenbroeck, G. (2009). Importance of health and environment as quality traits in the buying decision of the organic products. *British Food Journal*, *111*(10), 1120–1139. https://doi. org/10.1108/00070700910992952
- Morwitz, V. G., & Schmittlein, D. (1992). Using segmentation to improve sales forecasts based on purchase intent: Which "intenders" actually buy? *Journal of Marketing Research*, 29, 391–405. https://doi.org/10.2307/3172706
- Pham, T. H., Nguyen, T. N., Thu, T., Phan, H., & Thanh, N. (2018). Evaluating the purchase behaviour of organic food by young consumers in an emerging market economy. *Journal of Strategic Marketing*, 27(6), 540–556. https://doi. org/10.1080/0965254X.2018.1447984

- Prentice, C., Chen, J., & Wang, X. (2019). The influence of product and personal attributes on organic food marketing. *Journal of Retailing* and Consumer Services, 46, 70–78. https://doi. org/10.1016/j.jretconser.2017.10.020
- Quevedo-Silva, F., Freire, O., & Spanhol-Finocchio, C. P. (2020). "Carne fraca": Crisis in Brazilian beef processing and the effect of the media on consumers' purchase behaviour. *British Food Journal*, *122*(2), 722–735. https://doi. org/10.1108/BFJ-07-2019-0491
- Rahman, K. M., & Noor, N. A. M. (2016). Exploring organic food purchase intention in Bangladesh: An evaluation by using the theory of planned behavior. *International Business Management*, 10(18), 4292–4300.
- Roy, V., Tata, S. V., & Parsad, C. (2017). Consumer response to brand involved in food safety scandal: An exploratory study based on a recent scandal in India. *Journal of Consumer Behaviour*, 17(1), 25-33. https://doi.org/10.1002/ cb.1666
- Stranieri, S., Cavaliere, A., & Banterle, A. (2016). Voluntary traceability standards and the role of economic incentives, *British Food Journal*, *118*(5). https://doi.org/10.1108/BFJ-04-2015-0151
- Schlosser, A. E., White, T. B., & Lloyd, S. M. (2006). Converting website visitors into buyers: How web site investment increases consumer trusting beliefs and online purchase intentions. *Journal of Marketing*, 70(2), 133–48. https://doi. org/10.1509/jmkg.70.2.133
- Slovic, P. (1993). Perceived risk, trust, and democracy. *Risk Analysis*, *13*(6), 675-682. https://doi. org/10.1111/j.1539-6924.1993.tb01329.x
- Steinhauser, J., & Hamm, U. (2018). Consumer and product-specific characteristics influencing the effect of nutrition, health and risk reduction claims on preferences and purchase behaviour-A systematic review. *Appetite*, 127, 303–323. https://doi.org/10.1016/j.appet.2018.05.012
- Suhaimi, A., Othman, A. A., & Sundram, V. P. K. (2022). Visualizing food safety influence on

consumers' purchase intention: A bibliometric analysis. *Malaysian Journal of Consumer and Family Economics*, 28, 315-334.

- Suhaimi, A., Othman, A. A., Sundram, V. P. K., & Ghazali, A. F. (2021). Consumers' purchase decision based on intrinsic and extrinsic factors related to food safety issues: A review. *IOP Conference Series: Earth and Environmental Science*, 756(1), Article 012010. https://doi. org/10.1088/1755-1315/756/1/012010
- Teng, C. C., & Lu, C. H. (2016). Organic food consumption in Taiwan: Motives, involvement, and purchase intention under the moderating role of uncertainty. *Appetite*, 105, 95–105. https://doi. org/10.1016/j.appet.2016.05.006
- Trumbo, C. W., & McComas, K. A. (2003). The function of credibility in information processing for risk perception. *Risk Analysis*, 23(2), 343– 353. https://doi.org/10.1111/1539-6924.00313
- Verbeke, W., & Ward, R. (2006). Consumer interest in information cues denoting quality, traceability and origin: An application of ordered probit models to beef labels. *Food Quality* and Preference, 17(6), 453-467. https://doi. org/10.1016/j.foodqual.2005.05.010.
- Verbeke, W. (2005). Agriculture and the food industry in the information age. *European Review of Agricultural Econ*omics, 32(3), 347–368. https:// doi.org/10.1093/eurrag/jbi017
- Wachinger, G., Renn, O., Begg, C., & Kuhlicke, C. (2013). The risk perception paradox— Implications for governance and communication of natural hazards. *Risk Analysis*, 33(6), 1049–1065. https://doi.org/10.1111/j.1539-6924.2012.01942.x
- Wang, E. S. T., & Tsai, M. C. (2019). Effects of the perception of traceable fresh food safety and nutrition on perceived health benefits, affective commitment, and repurchase intention. *Food Quality and Preference*, 78, Article 103723. https://doi.org/10.1016/j.foodqual.2019.103723
- Wang, G.-Y., & Yueh, H.-P. (2020). Optimistic bias, food safety cognition, and consumer behavior

of college students in Taiwan and Mainland China. *Foods*, 9(11), Article 1588. https://doi. org/10.3390/foods9111588

- Wang, J., Gao, Z., & Shen, M. (2018). Recognition of consumers' characteristics of purchasing farm produce with safety certificates and their influencing factors. *International Journal of Environmental Research and Public Health*, 15(12), Article 2879. https://doi.org/10.3390/ ijerph15122879
- Wang, J., Pham, T. L., & Dang, V. T. (2020). Environmental consciousness and organic food purchase intention: A moderated mediation model of perceived food quality and price sensitivity. *International Journal of Environmental Research* and Public Health, 17(3), Article 850. https://doi. org/10.3390/ijerph17030850
- Wee, C., Ariff, M., Zakuan, N., Tajudin, M., Ismail, K., & Ishak, N. (2014). Consumers perception, purchase intention and actual purchase behavior of organic food products. *Review of Integrative Business and Economics Research*, 3(2), 378-397.
- Wekeza, S. V., & Sibanda, M. (2019). Factors influencing consumer purchase intentions of organically grown products in Shelly Centre. *International Journal of Environmental Research* and Public Health, 16(959), 2–26. https://doi. org/10.3390/ijerph16060956
- Wellisch, H. (1972). From information science to informatics: A terminological investigation. *Journal of Librarianship*, 4(3), 157–187. https:// doi.org/10.1177/096100067200400302
- Wen, X., Sun, S., Li, L., He, Q., & Tsai, F.-S. (2019). Avian influenza -Factors affecting consumers' purchase intentions toward poultry products. *International Journal of Environmental Research* and Public Health, 16(4139), 1–13. https://doi. org/10.3390/ijerph16214139
- Wong, S. L., Hsu, C. C., & Chen, H. S. (2018). To buy or not to buy? Consumer attitudes and purchase intentions for suboptimal food. *International Journal of Environmental Research and Public Health*, 15(7), 1–13. https://doi.org/10.3390/ ijerph15071431

- Wong, S. S., & Aini, M. S. (2017). Factors influencing purchase intention of organic meat among consumers in Klang Valley, Malaysia. *International Food Research Journal*, 24(2), 767–778.
- Wong, W. M., & Tzeng, S. (2019). Consumers' psychographics and green consumption intention: Community supported agriculture business model in China. *International Journal* of Business and Society, 20(1), 229–246.
- Yogananda, A. P. Y., & Nair, P. B. (2019). Green food product purchase intention: Factors influencing Malaysian consumers. *Pertanika Journal* of Social Sciences and Humanities, 27(2), 1131–1144.

- Yu, X., Gao, Z., & Zeng, Y. (2014). Willingness to pay for the "Green Food" in China. *Food Policy*, 45, 80–87. http://dx.doi.org/10.1016/j. foodpol.2014.01.003.
- Zhang, B., Fu, Z., Huang, J., Wang, J., Xu, S., & Zhang, L. (2018). Consumers' perceptions, purchase intention, and willingness to pay a premium price for safe vegetables: A case study of Beijing, China conventional vegetable. *Journal of Cleaner Production*, 197(1), 1498–1507. https:// doi.org/10.1016/j.jclepro.2018.06.273
- Zhao, X., Deng, S., & Zhou, Y. (2017). The impact of reference effects on online purchase intention of agricultural products food safety consciousness. *Internet Research*, 27(2), 233–255. https://doi. org/10.1108/IntR-03-2016-0082



SOCIAL SCIENCES & HUMANITIES

Journal homepage: http://www.pertanika.upm.edu.my/

Unveiling the Influence of Subjective Norms on Flood Preparedness Among Household Renters: The Moderating Effect of Trust in Public Protection

Mohd Rozaimy Ridzuan^{1,2}, Jamal Rizal Razali^{1*}, Soon-Yew Ju², Noor Amira Syazwani Abd Rahman² and Lai-Kuan Kong³

¹Centre for Human Sciences, Universiti Malaysia Pahang Al-Sultan Abdullah, 26300 Gambang, Pahang, Malaysia ²Faculty of Administrative Science & Policy Studies, Universiti Teknologi MARA (UiTM) Pahang Branch, Raub Campus, 27600 Raub, Pahang, Malaysia ³Faculty of Punings, and Management, Universiti Teknologi MARA (UiTM) Pahang Buangh, Pauk Campus,

³Faculty of Business and Management, Universiti Teknologi MARA (UiTM) Pahang Branch, Raub Campus, 27600 Raub, Pahang, Malaysia

ABSTRACT

This research builds on the social norms theory to investigate the connection between subjective norms, flood preparedness intention, and flood preparedness behavior. Furthermore, this study investigates how trust in public protection moderates the causal link between subjective norms and flood preparedness intention. Purposive sampling was used in this study by administering an online survey to a random sample of 150 tenants in Malaysia's East Coast Region. Structured equation modeling (SEM) utilizing Smart Partial Least Squares (SmartPLS) was then used to analyze the data. The results showed that subjective norms (SN) have a positive relationship with flood preparedness intention (INT), and INT has a positive relationship with flood preparedness behavior (FPB). Interestingly, trust in public protection negatively moderates the relationship between SN and INT. The findings will offer valuable insights for policymakers, renters, landlords, and community organizations to develop targeted interventions and bolster flood preparedness among household renters in the East Coast

ARTICLE INFO

Article history: Received: 20 October 2023 Accepted: 12 March 2024 Published: 11 June 2024

DOI: https://doi.org/10.47836/pjssh.32.2.12

E-mail addresses: rozaimy@uitm.edu.my (Mohd Rozaimy Ridzuan) jamalrizal@ump.edu.my (Jamal Rizal Razali) syju337@uitm.edu.my (Soon-Yew Ju) amirarahman@uitm.edu.my (Noor Amira Syazwani Abd Rahman) konglaikuan@uitm.edu.my (Lai-Kuan Kong) * Corresponding author region, ultimately fostering resilience and mitigating the impact of future flood events. This study provides first-hand information on the predictors of flood preparedness behavior among household renters in the East Coast Region, Peninsular Malaysia.

Keywords: Climate change, disaster risk reduction, flood preparedness, renters, social norm theory, trust in public protection

ISSN: 0128-7702 e-ISSN: 2231-8534

INTRODUCTION

Climate change has drastically altered the lives of people in the world through natural disasters, especially floods. Climate change has the potential to enhance the frequency and intensity of natural disasters utilizing diverse mechanisms, including heightened temperatures, alterations in precipitation patterns, rising sea levels, and shifts in ecosystems (Barnett et al., 2023). The United Nations Office for Disaster Risk Reduction (2013) states that global economic damages exceeding \$40 billion occur yearly due to floods, impacting around 250 million individuals. While developing nations suffer disproportionately from natural catastrophes, their level of disaster preparedness is low (Gammoh et al., 2023). Floods are prevalent in Malaysia, which poses significant challenges to infrastructure, agriculture, and the overall well-being of communities, requiring comprehensive strategies for mitigation and adaptation. Numerous fatalities ensue whenever floods occur in Malaysia, and the economy experiences constraints. Terengganu, Kelantan, and Pahang, located along the East Coast of Peninsular Malaysia, are most frequently affected by flooding. Renters are at a greater risk of flooding than homeowners since they have fewer opportunities and fewer resources to prepare for such a calamity (Burby et al., 2003; Ma & Smith, 2020).

Past studies related to disasters (Ajzen, 1991; Ejeta et al., 2015) extensively leaned on psychological frameworks. However, exploring social and psychological theories associated with disaster preparedness remains in its preliminary stages (Vinnell et al., 2018). Levac et al. (2012) highlighted that utilizing social norm theory offers an avenue to investigate both the theoretical and pragmatic dimensions of disaster preparedness. However, the effectiveness of efforts to encourage disaster preparedness is limited when they do not align with or consider the prevailing social norms (Solberg et al., 2010). The purpose of this study, which is grounded on social norm theory, is to examine the connection between subjective norms and flood preparedness intentions and between flood preparedness intention and behavior. Additionally, the study explores the potential moderating impact of trust in public protection on the positive association between subjective norms and flood preparedness intention.

LITERATURE REVIEW

Social Norms Theory

There is an urgent call for researchers to investigate factors influencing flood preparedness behavior, especially in developing countries (Hoffman & Muttarak, 2017). However, Ng (2022) argued that most past studies on disaster preparedness behavior lacked an underpinned theory. Based on this foundation, the present study utilized social norm theory to explore influences on individuals' responses to flood preparedness measures. The social norm theory was employed as an underpinning theory of the study because the theory is specifically tailored to understanding how societal expectations and norms influence flood preparedness intention and behavior among household renters residing in the East Coast region of Malaysia.

The adoption of social norm theory is also grounded in existing empirical evidence. Evidences such as Hausenblas et al. (1997) and recent research (Al Mamun et al., 2018; De Jong et al., 2019; Huang et al., 2021) have consistently reported weak or non-significant associations between subjective norms and intention, justifies the need to explore deeper into the application of social norm theory. This evidence suggests a gap in understanding that social norm theory may help address. The inclusion of trust in public protection as a moderating variable adds a layer of complexity to the study. Social norm theory is well-suited to accommodate moderating variables, as it recognizes the impact of external factors on the relationship between norms and behavior. This theoretical framework allows for a deeper investigation into how trust in public protection may influence the strength of the association between subjective norms and flood preparedness intention.

Past studies have utilized several theories, namely the theory of planned behavior (Jacob et al., 2023), the health belief model (Ejeta et al., 2016), and the Protection Motivation Theory (Kurata et al., 2023). These previously employed theories emphasize individual cognitive factors and risk perceptions, which may not specifically capture this study's research objectives. Thus, the exclusive use of a theory specifically focused on social norms provides a more fitting framework for comprehensively exploring the communal aspects shaping intentions related to flood preparedness in this study.

Besides that, the social norms theory is relevant and suitable to be adopted in the context of Malaysia. Malaysia practices a collectivistic culture where the actions of individuals are expressed on a foundation of cultural beliefs that value shared purpose and alignment with social norms (Zaremohzzabieh et al., 2021). In cultures prioritizing collectivism, people's behaviors are influenced by cultural ideas emphasizing the importance of shared objectives and adherence to societal norms. It fosters the development of social connections aimed at attaining collective goals and future aspirations (Paton & Jang, 2016). Palm (1999) states that a positive correlation exists between higher subjective norms within communities and a collective problem-solving orientation. Oyserman (2008) contends that people in collectivistic societies are likely to be interdependent and pursue group rather than individual goals. Hence, subjective norms may be a key factor in influencing an individual decision.

Hausenblas et al. (1997) conducted a meta-analysis study and found that, on average, most scholars reported a weak coefficient of 0.27 between subjective norms and intention. Meanwhile, recent studies (Al Mamun et al., 2018; De Jong et al., 2019; Huang et al., 2021) found no statistically significant association between subjective norms and intention. This observation emphasizes the need for the present study to transcend these limitations by utilizing social norms theory. By recognizing the consistent trend of weak associations or non-significant findings in previous research, our study aims to address these gaps by examining the relationship between subjective norms and intention.

Exploring social norms encompasses a diverse array of disciplines within the realms of social sciences and humanities. theoretically and empirically (Legros & Cislaghi, 2020). Within the existing literature, there is a widely held belief that social norms effectively mirror the collective agreement of society regarding what is considered acceptable conduct (Krupka & Weber, 2013). Ostrom (2000) defined social norms as a shared understanding of suitable, unsuitable, and forbidden behaviors. Behavior is regulated by social norms, which promote conformity to what is accepted by the majority within a given community (Broady et al., 2023). Appealing to these implicit standards may prompt positive behavioral and attitude changes (Mollen et al., 2010).

Blay et al. (2018) contend that subjective norms, which involve individuals' perception of others' anticipated actions, represent a significant element within social norm theory. Following social norm theory, individuals typically aim to conform to the group's norms rather than attempting to set their own (Blay et al., 2018). Subjective norms are another social pressure that people must conform to (Fishbein & Ajzen, 2010). Individuals are inclined to respond to others' expectations when they believe they are commonly held within their social circle (Chen & Fu, 2022). When individuals experience influence from individuals they hold in high regard, the impact of social pressure tends to be heightened (Thompson-Leduc et al., 2015).

An individual's drive to act can be shaped by their perceptions of others' anticipations and by observing the conduct of their peers (Blay et al., 2018). Ozaki and Nakayachi (2020) mentioned that theoretical considerations related to disaster risk reduction are also linked to approaches that involve social norms. Based on the explanation above, it can be construed that an individual's beliefs about what others expect in terms of flood preparedness can influence their behaviors. Suppose individuals perceive that flood preparedness is valued and expected by those around them. In that case, they are more likely to engage in the recommended actions, thus contributing to improved overall flood resilience.

Subjective Norms and Flood Preparedness Intention

The core of the subjective norm concept lies in an individual's assessment of the extent to which they encounter social influence to carry out a particular behavior. When individuals experience peer influence urging them to behave in a specific manner, social norm theory suggests that they are more inclined to comply (Fishbein & Ajzen, 2010). Individuals are more prone to act based on others' anticipations when they believe these expectations are commonly held within their social circle (Chen & Fu, 2022). Oktavianus and Bautista (2023) highlighted the significance of subjective benchmarks and their potential to enhance behavioral intention.

Past studies (Bautista et al., 2022; Chen & Fu, 2022; Godin et al., 2008; Thompson-Leduc et al., 2015) found that subjective norms were positively associated with behavioral intentions. Subjective norms were found to have the greatest impact on behavioral intention in a meta-analysis of healthcare professionals' shared decision-making behaviors (Thompson-Leduc et al., 2015). Furthermore, initial investigations suggested that larger social networks contributed to a higher likelihood of evacuation among Black individuals compared to White individuals (Perry, 1979).

In the context of disasters, Riad et al. (1999) pointed out that individuals typically turn to others for guidance when making choices during natural calamities. Moreover, earlier investigations have shown that subjective norms positively influence the intention to prepare for disasters (Kahlor et al., 2019; Ong et al., 2021; Wang & Tsai, 2022). Subjective norms play a crucial role as communal benchmarks that greatly assist a community in mitigating the impacts of a flood disaster (Kahlor et al., 2019). McIvor and Paton (2007) identified a favorable correlation between subjective norms and earthquake preparedness. Ong et al. (2021) noted that individuals are experiencing peer-driven pressure to prepare for significant events like the Big One. In a study conducted in a disasterprone region of Japan, Motoyoshi and Takao (2004) discovered that the influence of subjective norms, which encompass interpersonal connections, significantly affected individuals' inclination to engage in community-based disaster reduction efforts. Based on the explanation above, this hypothesis is offered:

Hypothesis 1(H1): There is a positive relationship between subjective norms and flood preparedness intention.

Flood Preparedness Intention and Flood Preparedness Behavior

Individuals create intentions for behavior by giving themselves instructions on how to behave in particular circumstances (Triandis, 1980). Sheeran (2002) contends that an individual's behavioral intention can be seen as a reflection of their degree of motivation to perform a specific behavior. Arendt et al. (2013) pointed out that behavioral intention is the driving force that influences an individual's choice to act in a specific manner. Studies in natural disaster preparedness have shown that an individual's behavioral intention strongly forecasts their real actions in terms of preparedness (Ning et al., 2020). It is the position of Kurata et al. (2022) that behavioral intentions are causally linked to actual behavior. Intentions and actions have been found to have a high correlation of 0.90 to 0.96 (Ajzen et al., 2009). Household renters with the most serious intentions of preparing for floods are thus expected to be the most proactive. Based on the explanation above, this hypothesis is offered:

Hypothesis 2 (H2): There is a positive relationship between flood preparedness intention and flood preparedness behavior.

The Moderating Role of Trust in Public Protection

While earlier studies have demonstrated that individual norms have a favorable impact on the intention to be prepared for floods (Kahlor et al., 2019; Ong et al., 2021; Wang & Tsai, 2022), contrasting findings have been presented by another research (Armitage & Conner, 2010; Prasetyo et al., 2020). Due to conflicting results, the researchers intend to incorporate trust in public protection as a moderating factor. Trust in public protection refers to the belief that governmental bodies, authorities, and public institutions will ensure the population's safety against various hazards, such as floods. In flood management, trust in public protection could be crucial in shaping preparedness intentions (Kellens et al., 2011).

Individuals with a heightened trust in governmental institutions exhibit a greater propensity to rely on said institutions for safeguarding against flooding while concurrently assigning diminished significance to the influence of other individuals who are important to them. This situation pertains to alternative sources of influence, as citizens relied on the government to safeguard them from calamity rather than relying on the prominent individuals in their immediate vicinity. In situations where trust levels are elevated, individuals may exhibit a greater inclination to rely on the behaviors of authoritative figures than those of a social network.

Hypothesis 3 (H3): The positive relationship between subjective norms and flood preparedness intention will be weakened when trust in public protection is higher.

METHODOLOGY

Research Design

This study used a cross-sectional survey approach, meaning questionnaires were sent out to participants and collected all at once. The study also incorporates hypothesis testing, with three hypotheses formulated based on social norms theory and previous research. Furthermore, a correlational approach is applied to explore the correlations among subjective norms, intentions for flood preparedness, and actual behavioral patterns. Besides that, the study introduces trust in public protection as a moderating variable, aiming to assess its impact on the association between subjective norms and flood preparedness intentions.

Instrument Development

This study used a questionnaire divided into two parts: the first collected participants' demographic data, and the second scored items related to four theoretical constructs. The items used to measure these concepts were adopted from existing studies, and minor adjustments were made. Specifically, the measurement items for flood preparedness intention and subjective norms were adapted from the works of Ajzen (1991), Najafi et al. (2017), and Ng (2022). Besides that, trust in public protection items was derived from Gumasing et al. (2022) and Terpstra (2011). The items for flood preparedness behavior were adopted and adapted from Najafi et al. (2017) and Ng (2022). Furthermore, to address the issue of social desirability bias (SDB), measurement items were adopted from Fischer and Fick (1993). Common method variance (CMV) can be reduced using separate anchor scales to evaluate independent and dependent variables (Podsakoff et al., 2003). Respondents' impressions of item similarity and redundancy are diminished when many scales are used, which minimizes biases in item understanding, memory recall, and judgment. It was accomplished by measuring the independent factors on a five-point Likert scale and the dependent variables on a seven-point Likert scale to reduce the influence of CMV.

Sampling and Data Collection

The purposive non-probability sampling technique was used in this study, and the participants were all renters in the East Coast Region of Malaysia. According to Krause (2019), applying a probability sampling technique is hindered when complete accessibility to the sampling frame is unattainable. The purposive technique was applied in this case due to the unavailability of a complete sampling frame. Calder et al. (1981) categorized generalizability into two forms: effect application and theory application. Effect application occurs when researchers employ probability sampling techniques to generalize their findings to the population. In contrast, theory application pertains to instances where researchers employ non-probability sampling, test a sample, and generalize the findings to the theories used in the study. Hulland et al. (2018) highlighted that employing a convenience sample is sufficient when the study's main objective is assessing postulated theoretical effects' veracity. The necessity for a probability sample varies across research contexts (Sarstedt et al., 2018), and opting for either probability or non-probability sampling does not inherently indicate the research's quality (Memon et al., 2017). Previous research on disasters, published in Quartile 1 Scopus and Web of Science journals (Cahigas et al., 2023; Djimesah et al., 2018; Mata et al., 2023), employed the purposive sampling technique with SmartPLS.

The inclusion criteria for purposive sampling in this study require participants to reside in the East Coast Region of Malaysia (Kelantan, Pahang, or Terengganu), be household renters, and have experienced at least one flood event in their residential area within the past five years. These criteria aim to ensure that the sample accurately represents individuals affected by floods and possesses first-hand experience with flood preparedness, thereby facilitating an in-depth examination of the influence of subjective norms on flood preparedness behaviors among household renters. Additionally, these criteria allow for consideration of the moderating effect of trust in public protection on flood preparedness intentions. Renters are frequently more vulnerable to floods because they have less control over their properties' physical qualities. They may experience difficulties executing structural alterations or making significant changes to their dwellings to reduce flood hazards. Therefore, renters must recognize their vulnerability and proactively prepare for floods.

The survey was conducted using Google Forms and distributed online through social media platforms such as Facebook and WhatsApp groups for one month. The number of predictors and the analytical power were used to determine the sample size. As Gefen et al. (2011) suggested, this study utilized parameters of 80% power, a medium effect size, and a *p*-value of 0.05 to obtain a minimum sample size of 108. However, the researchers obtained 150 respondents, exceeding the minimum sample size of 108. Hence, the sample size of the study is sufficient.

The descriptive analysis of the study found that 60.7% of research participants were female and 39.3% were male. Moreover, a significant proportion of respondents fell within the age range of 25 to 34 years old. Geographically, the highest percentage of respondents came from Pahang (43.3%), followed by Terengganu (32.7%) and Kelantan (24%). Regarding the types of communities represented, 41.3% were from sub-urban areas, 39.3% from urban areas, and 19.3% from rural areas. Table 1 also illustrates that a significant proportion of the surveyed population has a monthly income of RM 4999 or lower.

Characteristics	Category	Frequency (n= 150)	Percentage (%)
Gender	Male	59	39.3
	Female	91	60.7
Age	15-24 years old	57	38
	25-34 years old	67	44.7
	35-44 years old	19	12.7
	45 years old and above	7	4.6
States	Kelantan	36	24
	Pahang	65	43.3
	Terengganu	49	32.7
Types of community	Rural	29	19.3
	Sub-urban	62	41.3
	Urban	59	39.3
Household Monthly Income	RM 4999 and below	113	75.4
	RM 5000-RM 9999	22	14.6
	RM 10 000 and above	15	10

Table 1Demographic profiles of respondents

Source: Authors' work

FINDINGS

The primary purpose of this research was to analyze the correlation between the variables included in the study's theoretical framework. Smart-PLS version 4 was utilized to analyze the study's collected data. A two-stage analysis was used in this study, as suggested by Hair et al. (2019). First, the measurement model was analyzed for convergent and discriminant validity. Second, using the bootstrapping technique, the structural model was put through its paces with a resampling frequency of 10,000 times (Hair et al., 2019).

Control Variables

Evaluating the influence of control factors on the dependent variable is crucial to exclude external effects not associated with the hypothesized relationships (Kock et al., 2008). This study employed age and household monthly income as control variables. Previous studies have demonstrated that age (Al-Rousan et al., 2014) and household monthly income (Okayo et al., 2015) significantly influence flood preparedness behavior. By incorporating age and household monthly income as control variables, this study effectively addresses any potential confounding factors related to the endogenous variable. This setting enables us to examine the unique impacts of the variables under study, thereby enhancing the robustness and accuracy of the research findings.

Common Method Variance

In this study, the same person answered the exogenous and endogenous variables simultaneously, making it necessary to employ both procedural and statistical measures to eliminate the possibility of common method variance (CMV) (Ngah et al., 2019). The techniques used in the procedures are detailed in the discussion and dedicated to developing the instrument. Regarding the statistical approach, the results obtained from the Measured Latent Marker Variable (MLMV) indicate that the difference in R² when including or excluding the marker (MV) is below the threshold of 0.09 (Table 2), as established by Lindell & Whitney (2001). Adding marker variables does not significantly alter the Beta or R² values. Therefore, CMV was not an issue in this study since this outcome has supplied further evidence of its insignificance.

Table 2

Comparison of R² value between baseline model and marker included the model

	INT	FPB
R ² without Marker Variable	0.352	0.496
R ² with Marker Variable	0.373	0.522

Note. INT: Flood preparedness intention, FPB: Flood preparedness behavior *Source*: Authors' work

Measurement Model

Convergent and discriminant validity are prerequisites for a reliable and accurate measurement model. If the loading is at least 0.50, the AVE is at least 0.5, and the composite reliability is at least 0.7, convergent validity has been demonstrated (Hair et al., 2019). Table 3 demonstrates no problem with the study's convergent validity because the outer loading, AVE, and CR are more than the threshold values. When that condition was met, the model's discriminant validity was examined.

The test has discriminant validity if the HTMT values are less than 0.85 (Franke & Sarstedt, 2019). Table 4 shows that all the values were less than the intended 0.85; hence, the study passed the HTMT criterion.

Table 3Convergent validity

This study's findings demonstrated that the model had enough discriminant validity for the constructs and items included in the analysis.

Structural Model

This study successfully addressed the CMV issue, as depicted in Table 2, enabling the

Construct	Indicator	Outer Loading	CR	AVE
FPB	FPB1	0.750	0.899	0.640
	FPB2	0.850		
	FPB3	0.755		
	FPB4	0.838		
	FPB5	0.801		
INT	INT1	0.944	0.965	0.902
	INT2	0.959		
	INT3	0.946		
SN	SN1	0.909	0.842	0.651
	SN2	0.913		
	SN3	0.541		
TPP	TPP1	0.883	0.940	0.798
	TPP2	0.925		
	TPP3	0.882		
	TPP4	0.882		

Note. FPB: Flood preparedness behavior, INT: Flood preparedness intention, SN: Subjective Norms, TPP: Trust in public protection *Source*: Authors' work

Table 4		

Table 4	
Heterotrait-monotrait	(HTMT)

	FPB	INT	SN	ТРР
FPB				
INT	0.768			
SN	0.792	0.635		
TPP	0.417	0.313	0.408	

Note. FPB: Flood preparedness behavior, INT: Flood preparedness intention, SN: Subjective Norms, TPP: Trust in public protection *Source*: Authors' work

researchers to test the study hypotheses. The bootstrapping method was then used to test the hypotheses. The results of the direct path coefficient are presented in Table 5, while the research framework of the study is depicted in Figure 1. Subjective norms (SN) were hypothesized to have a positive connection with flood preparedness intentions (INT), and the results corroborated this hypothesis ($\beta = 0.434$, t = 5.455, LL = 0.303, UL = 0.564, p < 0.001). It lends credence to H1. For H2, it was hypothesized that a positive correlation

existed between flood preparedness intention (INT) and flood preparedness behavior (FPB), and the results corroborated this (β = 0.687, t = 9.639: LL = 0.566, UL = 0.781, p < 0.001). It lends credence to H2.

Table 6 shows that trust in public protection (TPP) negatively moderated the relationship between SN and INT (β = -0.150, t = 2.488: LL = -0.235, UL = -0.043, p < 0.005). Therefore, H3 was supported. Figure 2 illustrates the plot for the moderation result.

 Table 5

 Direct path coefficient

Paths	Beta (ß)	SE	t-value	p-value	\mathbf{f}^2	VIF	LL	UL
SN -> INT	0.434	0.080	5.455	0.000	0.222	1.308	0.303	0.564
INT -> FPB	0.687	0.071	9.639	0.000	0.916	1.024	0.566	0.781

Note. FPB: Flood preparedness behavior, INT: Flood preparedness intention, SN: Subjective Norms Source: Authors' work

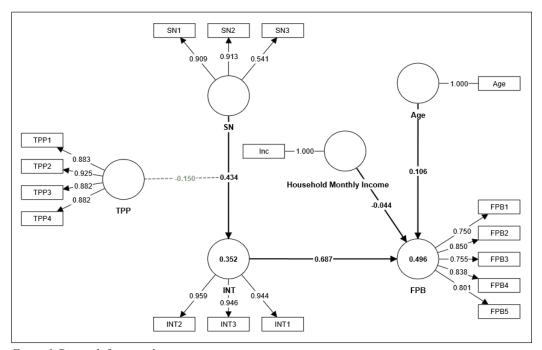


Figure 1. Research framework *Source*: Authors' work

Mohd Rozaimy Ridzuan, Jamal Rizal Razali, Soon-Yew Ju, Noor Amira Syazwani Abd Rahman and Lai-Kuan Kong

Table 6		
Assessment	of moderation	analysis

Paths	Beta ((β)	SE	t-values	p-values	f ²	VIF	LL	UL
TPP x SN -> INT	-0.150	0.060	2.495	0.006	0.048	1.173	-0.235	-0.044

Note. INT: Flood preparedness intention, SN: Subjective Norms, TPP: Trust in public protection *Source*: Authors' work

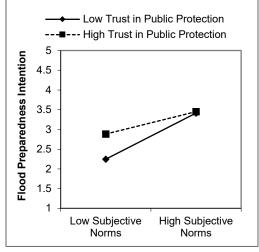


Figure 2. Dawson's interaction plot *Source*: Authors' work

PLS-predict

It is essential to evaluate the predictive power of a statistical model (Shmueli et al., 2019). Shmueli et al. (2016) developed PLS predict, a holdout-sample-based approach that creates case-level predictions on an item or construct level to gain the advantages of predictive model assessment in PLS-SEM. The prediction ability of a model outside of the training data set can be evaluated with PLS prediction. Researchers need to check the prediction power by calculating each construct's PLS - LM value of all items. As depicted in Table 7, PLS-SEM analysis revealed that the flood preparedness behavior construct has medium predictive power. In contrast, the flood preparedness intention construct has high predictive power, as measured by the root-meansquared error (RMSE).

DISCUSSION

In summary, the first hypothesis of the study was supported. Results showed a positive link between subjective norms and flood preparedness intention. Consistent with previous research by Wang and Tsai (2022) and Ong et al. (2021), this finding supports the studies above. According to Cai et al. (2023), individuals are likely to exhibit preparedness in response to social pressure in the face of disaster threats. Sheeran (2003) stated that the strength of individuals' subjective norms significantly impacts the robustness of their intentions to engage in a specific behavior. Geber and Hefner (2019) argue that the anticipation of communication with referent persons and the expectation of group members monitoring one's behavior reflects the relationship between subjective norms and flood preparedness intention.

According to Bubeck et al. (2018), people are more inclined to take preventative actions (such as buying flood insurance) if they see their peers, coworkers, and family members doing the same. According to Deutsch and Gerard (1955), social norms can cause people to act predictably because

	PLS-SEM_RMSE	LM_RMSE	PLS-LM	Q ² predict	Result
FPB1	1.349	1.331	0.018	0.200	Medium Predictive Power
FPB2	1.140	1.149	-0.009	0.244	
FPB3	1.424	1.434	-0.010	0.197	
FPB4	1.033	1.012	0.021	0.327	
FPB5	1.277	1.296	-0.019	0.242	
INT1	1.300	1.379	-0.079	0.274	High Predictive Power
INT2	1.352	1.423	-0.071	0.250	
INT3	1.252	1.288	-0.036	0.325	

Table 7 Predictive power

Note. FPB – Flood preparedness behavior, INT – Flood preparedness intention Source: Authors' work

people naturally tend to conform to the expectations of others around them. After all, doing otherwise might have negative emotional consequences.

The concept of pluralistic ignorance is related to the positive correlation between subjective norms and the aim to be floodready. According to Katz et al. (1931), pluralistic ignorance is "the habit of using other people's reactions or behavior as a guide for one's own." Research on pluralistic ignorance suggests that people may incorrectly assume their perspectives are unique. So, even if it goes against their beliefs, they may act in ways that reflect society's consensus (Miller & McFarland, 1987). Gao et al. (2017) contend that people participate in a waiting and observing procedure of other people's attitudes and actions. They then imitate these behaviors to reduce the possibility of feeling socially isolated while making choices.

Besides that, this study also predicted that household renters' intention to prepare for the flood would be positively associated with their flood preparedness behavior. Becker et al. (2013) found that intention to prepare for the flood significantly predicted actual preparedness behavior for tsunamis, floods, bushfires, and volcanic disasters. Preparation for natural disasters can be predicted by people's intentions, as shown by research by Paton et al. (2008). Those intending to prepare are more likely to follow through and take safety precautions, as Paton et al. (2008) discussed further. Gerend and Shepherd (2012) found that participants' intention to uptake vaccines was positively related to vaccine uptake. Besides that, Najafi et al. (2017), in their study on intention to prepare for disasters, revealed that Tehran inhabitants' intention to prepare for disasters was positively associated with the actual disaster preparedness behavior. Arendt et al. (2013) identified behavioral intention as the primary factor determining an individual's action.

The third hypothesis of the study posited that trust in public protection would negatively moderate the relationship between subjective norms and flood preparedness intention. As explained previously, this hypothesis was supported. This study reveals that the relationship between subjective norms and flood preparedness weakens when trust in public protection is high (Figure 2). In their study, Wang et al. (2022) found that individuals with higher trust in public protection may reduce their intention to prepare for floods since their perception of flood risk is diminished. Social norms are unique, creative, and crucial in intensifying societal risk perception (Lo, 2013). However, when individuals have high trust in public protection, their intention to prepare for floods may diminish as their perception of flood risk diminishes. Poussin et al. (2014) argue that trust in public flood protection instills a sense of security, possibly explaining residents' reluctance to take preventive measures. Therefore, the influence of subjective norms on the intention to engage in flood preparedness weakens because individuals may prioritize their trust in public protection over social pressures or expectations from peers and family members.

Other European studies (Hanger et al., 2018; Terpstra, 2011) found that people's flood-mitigation intentions and perceived risk decrease when they have faith in public flood protection. Therefore, relying on public safety nets or private insurance may dampen people's desire to take precautions. According to the research presented by Zhang et al. (2021), citizens who have faith in their government and the public structural measures in place may feel safe and, as a result, be less likely to form their flood preparation intentions.

The study's results imply that the strength of the positive association between subjective norms and flood preparedness intention may decline when individuals have a higher level of trust in public protection mechanisms. When people trust the government's ability to keep them safe, they may feel less of a need to take precautions themselves. In this scenario, even though they might feel the pressure of subjective norms encouraging them to be prepared for floods, their trust in public protection might lead them to believe their efforts are redundant or unnecessary.

CONCLUSION

Previous research has demonstrated that preparedness efforts can help mitigate the negative consequences of floods for the population and the government. The findings of this study indicate a positive correlation between subjective norms and the intention to prepare for floods. This decision implies that renters living in the East Coast Region, Malaysia, will be motivated to engage in flood preparedness actions when they witness their neighbors, family members, friends, and others who prioritize such behaviors. Besides that, sharing information through social media platforms like WhatsApp groups can contribute to renters' interest and awareness in preparing for floods. Moreover, this study also revealed that renters who intend to undertake flood preparedness activities are likely to follow through with their intentions. Despite the favorable correlation between subjective norms and the purpose of flood-proofing one's home, the presence of trust in public protection dampens this correlation.

Theoretical and Practical Contributions

This study's adoption of social norms theory offers theoretical and practical contributions. In terms of theoretical implications, this study contributes to the body of knowledge regarding disaster risk reduction studies in the Malaysian context. The notion of social norms is applied here to understand how individual norms affect people's actions in the face of flooding. In the context of disaster preparation, Vinnell et al. (2018) contend that several social psychological concepts remain relatively untested. Ng (2022) also claimed that most past studies on disaster preparedness behavior lacked underpinned theory. This assertion highlights a critical gap in the existing literature, signaling the need for empirical investigation into the role of these concepts in shaping individuals' behaviors and responses to disaster preparedness. Based on this insight, the current study aims to contribute to the field by examining and validating the applicability of social norms theory in the context of flood preparedness behavior.

This study makes a theoretical contribution by incorporating the moderating role of trust in public protection. As discussed previously, the relationship between subjective norms and flood preparedness intention was

inconsistent. Baron and Kenny (1986) suggest that researchers include a moderator variable when an unexpectedly tenuous or incongruous association exists between a predictor variable and a criterion variable. While past studies (Maidl & Buchecker, 2015; Terpstra, 2011) treated trust in public protection as the predictor of the study, this study advances the literature by recognizing its critical role as a moderator. Notably, the findings of this study reveal that this variable plays a crucial role as a negative moderator in the relationship between subjective norms and flood preparedness intention. This novel insight expands scholars' understanding of the complex interaction between social influences, trust, and flood-related behaviors, contributing to the theoretical framework within disaster preparedness.

Past studies related to flood preparedness were carried out by employing several behavioral theories that suited the research objectives. However, the present study utilized social norms theory, which is aligned with the research objective and well-suited to the Malaysian context, where a collectivistic culture is more prevalent. This study provides first-hand information on the predictors of flood preparedness behavior among household renters in the East Coast Region of Peninsular Malaysia. It offers valuable insights into household renters in the East Coast region of Malaysia concerning flood preparedness intention and behavior—a field of study that remains largely untouched in developing countries, including Malaysia. Therefore, the research

model developed in this study has the potential to be expanded and adjusted to assess the effectiveness of flood disaster response in other regions or countries prone to natural disasters.

From a practical perspective, government agencies can benefit from this study, especially the National Disaster Management Agency (NADMA) and the Fire and Rescue Department of Malaysia. They can utilize the findings to design a specific public campaign highlighting the importance of cooperation in mitigating the impact of floods. Since this study suggests that high trust in public protection weakens the relationship between subjective norms and flood preparedness intention, the government needs to educate people, especially renters, about the importance of social influence in encouraging their neighbors, peers, and family members to prepare for floods. The government and homeowners must intensify their efforts in emphasizing that flood preparedness is a collective responsibility. Government agencies should strongly encourage the participation of the entire community in risk response and emphasize that communitylevel construction of resilience to flood risk requires the engagement of all people (Wang et al., 2022).

The residential association, homeowners, and NGOs should encourage people to talk to their friends and neighbors about reducing the risk of natural disasters. In addition, they should encourage community members to join forces in undertaking mitigating measures. Besides that, homeowners also need to provide a clear explanation to the renters on the evacuation procedures in the event of a flood, such as safe evacuation routes, emergency shelters, the history of flooding in the area, and emergency contact numbers.

Limitations and Direction for Future Research

This study only focused on household renters residing in the East Coast Region of Malaysia. Thus, future studies should examine factors influencing flood preparedness among household renters in other regions of Malaysia to extend the model's applicability and transferability. Besides that, the data collection for the study was conducted within a month; hence, it may not capture seasonal variations or long-term changes in participants' experiences with floods. Future research should consider examining changes and the evolution of renters' perceptions and flood-related behaviors over time by extending the study duration and adopting a longitudinal study.

ACKNOWLEDGEMENT

The authors express their gratitude to all the participants for their valuable cooperation with the study. Special thanks are extended to the reviewers of this paper, whose constructive suggestions have been instrumental in ensuring the quality and rigor of the research. Their insightful comments and feedback have significantly contributed to the refinement and enhancement of the manuscript.

REFERENCES

- Ajzen, I. (1991). The theory of planned behavior. Organizational behavior and human decision processes, 50(2), 179-211. https://doi. org/10.1016/0749-5978(91)90020-t
- Ajzen, I., Czasch, C., & Flood, M. G. (2009). From intentions to behavior: Implementation intention, commitment, and conscientiousness. *Journal of Applied Social Psychology*, 39(6), 1356–1372. https://doi.org/10.1111/j.1559-1816.2009.00485.x
- Al Mamun, A., Mohamad, M. R., Yaacob, M. R. B., & Mohiuddin, M. (2018). Intention and behavior towards green consumption among low-income households. *Journal of environmental management*, 227, 73-86. https:// doi.org/10.1016/j.jenvman.2018.08.061
- Al-Rousan, T. M., Rubenstein, L. M., & Wallace, R. B. (2014). Preparedness for natural disasters among older US adults: a nationwide survey. *American journal of public health*, 104(3), 506-511. https:// doi.org/10.2105/ajph.2013.301559r
- Arendt, S. W., Paez, P., & Strohbehn, C. (2013). Food safety practices and managers' perceptions: A qualitative study in hospitality. *International Journal of Contemporary Hospitality Management*, 25(1), 124-139. https://doi. org/10.1108/09596111311290255
- Armitage, C. J., & Conner, M. (2010). Efficacy of the Theory of Planned Behaviour: A metaanalytic review. *British Journal of Social Psychology*, 40(4), 471-499. https://doi. org/10.1348/014466601164939
- Barnett, R. L., Austermann, J., Dyer, B., Telfer, M. W., Barlow, N. L., Boulton, S. J., ... & Creel, R. C. (2023). Constraining the contribution of the Antarctic ice sheet to last interglacial sea level. *Science Advances*, 9(27), Article eadf0198. https://doi.org/10.1126/sciadv.adf0198
- Baron, R. M., & Kenny, D. A. (1986). Moderator mediator variables distinction in social

psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*(6), 1173–82. https://doi.org/10.1037/0022-3514.51.6.1173

- Bautista, J. R., Zhang, Y., & Gwizdka, J. (2022). Predicting healthcare professionals' intention to correct health misinformation on social media. *Telematics and Informatics*, 73, Article 101864. https://doi.org/10.1016/j.tele.2022.101864
- Becker, G., Aerts, J. C. J. H., & Huitema, D. (2013). Influence of flood risk perception and other factors on risk-reducing behaviour: A survey of municipalities along the Rhine. *Journal of Flood Risk Management*, 7(1), 16-30. https:// doi.org/10.1111/jfr3.12025
- Blay, A. D., Gooden, E. S., Mellon, M. J., & Stevens, D. E. (2018). The usefulness of social norm theory in empirical business ethics research: A review and suggestions for future research. *Journal of Business Ethics*, 152(1), 191–206. https://doi.org/10.1007/s10551-016-3286-4
- Broady, T. R., Brener, L., Horwitz, R., Cama, E., & Treloar, C. (2023). Reducing stigma towards people living with HIV and people who inject drugs using social norms theory: An online study with Australian health care workers. *Drug and Alcohol Dependence, 249*, Article 109953. https://doi.org/10.1016/j. drugalcdep.2023.109953
- Bubeck, P., Wouter Botzen, W. J., Laudan, J., Aerts, J. C. J. H. & Thieken, A. H. (2018). Insights into flood-coping appraisals of protection motivation theory: Empirical evidence from Germany and France. *Risk Analysis*, 38(6), 1239–1257. https:// doi.org/10.1111/risa.12938
- Burby, R. J., Steinberg, L. J., & Basolo, V. (2003). The tenure trap: The vulnerability of renters to joint natural and technological disasters. Urban Affairs Review, 39(1), 32–58, https://doi. org/10.1177/1078087403253053

- Cahigas, M. M. L., Prasetyo, Y. T., Persada, S. F., & Nadlifatin, R. (2023). Filipinos' intention to participate in 2022 Leyte landslide response volunteer opportunities: The role of understanding the 2022 Leyte landslide, social capital, altruistic concern, and theory of planned behavior. *International Journal of Disaster Risk Reduction*, 84, Article 103485. https://doi. org/10.1016/j.ijdrr.2022.103485
- Cai, J., Hu, S., Que, T., Li, H., Xing, H., & Li, H. (2023). Influences of social environment and psychological cognition on individuals' behavioral intentions to reduce disaster risk in geological hazard-prone areas: An application of social cognitive theory. *International Journal* of Disaster Risk Reduction, 86, Article 103546. https://doi.org/10.1016/j.ijdrr.2023.103546
- Calder, B. J., Phillips, L. W., & Tybout, A. M. (1981). Designing research for application. *Journal of consumer research*, 8(2), 197-207. https://doi. org/10.1086/208856
- Chen, L., & Fu, L. (2022). Let's fight the infodemic: The third-person effect process of misinformation during public health emergencies. *Internet Research*, 32(4), 1357–1377. https://doi. org/10.1108/INTR-03-2021-0194
- De Jong, M. D., Neulen, S., & Jansma, S. R. (2019). Citizens' intentions to participate in governmental co-creation initiatives: Comparing three co-creation configurations. *Government information quarterly*, 36(3), 490-500. https:// doi.org/10.1016/j.giq.2019.04.003.
- Deutsch, M., & Gerard, H. B. (1955). A study of normative and informational social influences upon individual judgment. *The Journal of Abnormal and Social Psychology*, 51(3), 629– 636. https://doi.org/10.1037/h0046408
- Djimesah, I. E., Okine, A. N. D., & Mireku, K. K. (2018). Influential factors in creating warning systems towards flood disaster management in Ghana: An analysis of 2007 Northern

flood. International journal of disaster risk reduction, 28, 318-326. https://doi.org/10.1016/j. ijdrr.2018.03.012.

- Ejeta, L. T., Ardalan, A., & Paton, D. (2015). Application of behavioural theories to disaster and emergency health preparedness: A systematic review. *PLoS Currents*, 7, https:// doi.org/10.1371/currents.dis.31a8995ced32130 1466db400f1357829
- Fischer, D. G., & Fick, C. (1993). Measuring social desirability: Short forms of the Marlow- Crowne social desirability scale. *Educational and Psychological Measurement*, 53(2),417-424. https://doi.org/10.1177/0013164493053002011
- Fishbein, M., & Ajzen, I. (2010). Predicting and changing behavior: The reasoned action approach. Psychological Press. https://doi. org/10.4324/9780203838020
- Franke, G., & Sarstedt, M. (2019). Heuristics versus statistics in discriminant validity testing: A comparison of four procedures. *Internet Research*, 29(3), 430–447. https://doi. org/10.1108/intr-12-2017-0515
- Gammoh, L. A., Dawson, I. G. J., & Katsikopoulos, K. (2023). How flood preparedness among Jordanian citizens is influenced by self-efficacy, sense of community, experience, communication, trust and training. *International Journal of Disaster Risk Reduction*, 87, Article 103585. https://doi.org/10.1016/j.ijdrr.2023.103585
- Gao, L., Wang, S. Y., Li, J., & Li, H. D. (2017). Application of the extended theory of planned behavior to understand individual's energy saving behavior in workplaces. *Resources Conservation and Recycling*, 127, 107–113. https://doi.org/10.1016/j. resconrec.2017.08.030.
- Geber, S., & Hefner, D. (2019). Social norms as communicative phenomena: A communication perspective on the theory of normative social behavior. *Studies in Communication Media*,

8(1), 6–28. https://doi.org/10.5771/2192-4007-2019-1-6

- Gefen, D., Rigdon, E. E., & Straub, D. (2011). An update and extension to SEM guidelines for administrative and social science research. *MIS Quarterly*, 35(2), 3-14. https://doi. org/10.2307/23044042
- Gerend, M. A., & Shepherd, J. E. (2012). Predicting human papillomavirus vaccine uptake in young adult women: comparing the health belief model and theory of planned behaviour. *Annals of Behavioral Medicine*, 44(2), 171-180. https:// doi.org/10.1007/s12160-012-9366-5
- Godin, G., B'elanger-Gravel, A., Eccles, M., & Grimshaw, J. (2008). Healthcare professionals' intentions and behaviours: A systematic review of studies based on social cognitive theories. *Implementation Science, 3*, Article 36. https:// doi.org/10.1186/1748-5908-3- 36
- Gumasing, M. J. J., Prasetyo, Y. Y., Ong, A. K. S., & Nadlifatin, R. (2022). Determination of factors affecting the response efficacy of Filipinos under Typhoon Conson 2021 (Jolina): An extended protection motivation theory approach. *International Journal of Disaster Risk Reduction*, 70, Article 102759. https://doi.org/10.1016/j. ijdrr.2021.102759
- Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, 31(1), 2–24. https://doi.org/10.1108/ebr-11-2018-0203
- Hanger, S., Linnerooth-Bayer, J., Surminski, S., Nenciu-Posner, C., Lorant, A., Ionescu, R., & Patt, A. (2018). Insurance, public assistance, and household flood risk reduction: A comparative study of Austria, England, and Romania. *Risk Analysis*, 38(4), 680–693. https://doi. org/10.1111/risa.12881
- Hausenblas, H. A., Carron, A.V., & Mack, D. E. (1997). Application of the theories of reasoned action and planned behaviour to exercise

behaviour: A meta-analysis. *Journal of Sport* and Exercise Psychology, 19, 36–51. https://doi. org/10.1123/jsep.19.1.36

- Hoffman, R., & Muttarak, R. (2017). Learn from the past, prepare for the future: Impacts of education and experience on disaster preparedness in the Philippines and Thailand. *World Development*, 96, 32–51, https://doi.org/10.1016/j. worlddev.2017.02.016.
- Huang, Y., Aguilar, F., Yang, J., Qin, Y., & Wen, Y. (2021). Predicting citizens' participatory behavior in urban green space governance: Application of the extended theory of planned behavior. Urban Forestry & Urban Greening, 61, Article 127110. https://doi.org/10.1016/j. ufug.2021.127110.
- Hulland, J., Baumgartner, H., & Smith, K. M. (2018). Marketing survey research best practices: evidence and recommendations from a review of JAMS articles. *Journal of the Academy of Marketing Science*, 46, 92-108. https://doi. org/10.1007/s11747-017-0532-y.
- Jacob, J., Valois, P., Tessier, M., Talbot, D., Anctil, F., Cloutier, G., & Renaud, J. S. (2023). Using the theory of planned behavior to identify key beliefs underlying flood-related adaptive behaviors in the province of Québec, Canada. *Journal of Flood Risk Management*, 16(3), e12906. https:// doi.org/10.1111/jfr3.12906
- Kahlor, L. A., Wang, W., Olson, H. C., Li, X., & Markman, A. B. (2019). Public perceptions and information seeking intentions related to seismicity in five Texas communities. *International Journal of Disaster Risk Reduction* 37, Article 101147. https://doi.org/10.1016/j. ijdrr.2019.101147
- Katz, D., Allport, F. H., & Jenness, M. B. (1931). Students' attitudes: A report of the Syracuse University reaction study. Craftsman Press.
- Kellens, W., Zaalberg, R., Neutens, T., Vanneuville,W., & De Maeyer, P. (2011). An analysis of the

Mohd Rozaimy Ridzuan, Jamal Rizal Razali, Soon-Yew Ju, Noor Amira Syazwani Abd Rahman and Lai-Kuan Kong

public perception of flood risk on the Belgian Coast. *Risk Analysis*, *31*(7), 1055–1068. https:// doi.org/10.1111/j.1539-6924.2010.01571.x

- Kock, N., Chatelain-Jardón, R., & Carmona, J. (2008). An experimental study of simulated web-based threats and their impact on knowledge communication effectiveness. *IEEE Transactions* on Professional Communication, 51(2), 183-197. https://doi.org/10.1109/tpc.2008.2000345.
- Krause, M. S. (2019). Randomness is problematic for social science research purposes. *Quality* & *Quantity*, 53, 1495–1504. https://doi. org/10.1007/s11135-018-0824-4.
- Krupka, E. L., & Weber, R. A. (2013). Identifying social norms using coordination games: Why does dictator game sharing vary? *Journal of the European Economic Association*, 11(3), 495–524. https://doi.org/10.2139/ssrn.1310598
- Kurata, Y. B., Ong, A. K. S., Ang, R. Y. B., Angeles, J. K. F., Bornilla, B. D. C., & Fabia, J. L. P. (2023).
 Factors affecting flood disaster preparedness and mitigation in flood-prone areas in the Philippines: An integration of protection motivation theory and Theory of Planned Behavior. *Sustainability*, *15*(8), Article 6657. https://doi.org/10.3390/ su15086657
- Kurata, Y. B., Prasetyo, Y. T., Ong, A. K., Nadlifatin, R., Persada, S. F., Chuenyindee, T., & Cahigas, M. M. (2022). Determining factors affecting preparedness beliefs among Filipinos on Taal Volcano eruption in Luzon, Philippines. *International Journal of Disaster Risk Reduction*, 76, Article 103035. https://doi.org/10.1016/j. ijdrr.2022.103035
- Legros, S., & Cislaghi, B. (2020). Mapping the social-norms literature: An overview of reviews. *Perspectives on Psychological Science*, 15(1), 62– 80. https://doi.org/10.1177/1745691619866455
- Levac, J., Toal-Sullivan, D., & O'Sullivan, T. L. (2012). Household emergency preparedness: A literature review. *Journal of Community Health*,

37(3), 725–733. https://doi.org/10.1007/s10900-011-9488-x

- Lindell, M. K., & Whitney, D. J. (2001). Accounting for common method variance in cross- sectional research designs. *Journal of Applied Psychology*, 86(1), 114–121. https://doi.org/10.1037/0021-9010.86.1.114
- Lo, A. Y. (2013). The role of social norms in climate adaptation: Mediating risk perception and flood insurance purchase. *Global environmental change*, 23(5), 1249-1257. https://doi. org/10.1016/j.gloenvcha.2013.07.019
- Ma, C., & Smith, T. (2020). Vulnerability of renters and low-income households to storm damage: Evidence from hurricane Maria in Puerto Rico. *American Journal of Public Health*, 110(2), 196– 202. https://doi.org/10.2105/AJPH.2019.305438.
- Maidl, E., & Buchecker, M. (2015). Raising risk preparedness by flood risk communication. *Natural Hazards and Earth System Sciences*, 15(7), 1577-1595. https://doi.org/10.5194/ nhess-15-1577-2015.
- Mata, P., Cullano, R. A., Tiu, A. M., Gonzales, G., Selerio Jr, E., Maturan, F., ... & Ocampo, L. (2023). Public satisfaction with the government's disaster response during Typhoon Odette (Rai). *International Journal of Disaster Risk Reduction*, 84, Article 103483. https://doi.org/10.1016/j. ijdrr.2022.103483.
- McIvor, D., & Paton, D. (2007). Preparing for natural hazards: Normative and attitudinal influences. *Disaster Prevention and Management, 16*, 79-88. https://doi:10.1108/09653560710729839
- Miller, D. T., & McFarland, C. (1987). Pluralistic ignorance: When similarity is interpreted as dissimilarity. *Journal of Personality and social Psychology*, 53(2), 298-305. https://psycnet.apa. org/doi/10.1037/0022-3514.53.2.298
- Mollen, S., Rimal, R. N., & Lapinski, M. K. (2010). What is normative in health communication

research on norms? A review and recommendations for future scholarship. *Health Communication*, 25(6-7), 544–547. https://doi.or g/10.1080/10410236.2010.496704

- Motoyoshi, T., & Takao, K. (2004). Determinant factors of community-based disaster preparedness. *The Japanese journal of psychology*, 75(1), 72-77. https://doi.org/10.4992/jjpsy.75.72
- Najafi, M., Ardalan, A., Akbarisari, A., Noorbala, A. A., & Elmi, H. (2017). The theory of planned behaviour and disaster preparedness. *PLoS Currents*, 6(1), 1–16. https://10.1371/currents.di s.4da18e0f1479bf6c0a94b29e0dbf4a72
- Ng, S. L. (2022). Effects of risk perception on disaster preparedness toward typhoons: An application of the extended theory of planned behavior. *International Journal of Disaster Risk Science*, 13(1), 100-113. https://doi.org/10.1007/s13753-022-00398-2
- Ngah, A. H., Ramayah, T., Ali, M. H., & Khan, M. I. (2019). Halal transportation adoption among pharmaceuticals and cosmetics manufacturers. *Journal of Islamic Marketing*, 11(6), 1619–1639. https://doi.org/10.1108/jima-10-2018-0193
- Ning, L., Niu, J., Bi, X., Yang, C., Liu, Z., Wu, Q., Ning, N., Liang, L., Liu, A., & Hao, Y. (2020). The impacts of knowledge, risk perception, emotion and information on citizens' protective behaviors during the outbreak of COVID-19: A cross-sectional study in China. *BMC Public Health*, 20(1), Article 1751. https://doi. org/10.1186/s12889-020-09892-y
- Okayo, J., Odera, P., & Omuterema, S. (2015). Socio-economic characteristics of the community that determine ability to uptake precautionary measures to mitigate flood disaster in Kano Plains, Kisumu County, Kenya. *Geoenvironmental Disasters, 2,* 1-22. http://doi. org/10.1186/s40677-015-0034-5
- Oktavianus, J., & Bautista, J. R. (2023). Motivating healthcare professionals to correct online

health misinformation: The roles of subjective norm, third-person perception, and channel differences. *Computers in Human Behavior*, 147, Article 107839. https://doi.org/10.1016/j. chb.2023.107839

- Ong, A. K., Prasetyo, Y. T., Lagura, F. C., Ramos, R. N., Sigua, K. M., Villas, J. A., Young, M. N., Diaz, J. F., Persada, S. F., & Redi, A. A. (2021). Factors affecting intention to prepare for mitigation of "The big one" earthquake in the Philippines: Integrating protection motivation theory and extended theory of planned behavior. *International Journal of Disaster Risk Reduction*, 63, Article 102467. https://doi.org/10.1016/j. ijdrr.2021.102467
- Ostrom, E. (2000). Collective action and the evolution of social norms. *Journal of Economic Perspectives*, 14(3), 137–158. https://doi. org/10.1257/jep.14.3.137
- Oyserman, D., & Lee, S. W. S. (2008). A situated cognition perspective on culture: Effects of priming cultural syndromes on cognition and motivation. Academic Press. https://doi. org/10.1016/b978-0-12-373694-9.00011-8
- Ozaki, T., & Nakayachi, K. (2020). When descriptive norms backfire: Attitudes induce undesirable consequences during disaster preparation. *Analyses of Social Issues and Public Policy, 20*(1), 90-117. https://doi.org/10.31234/osf.io/5cnsr
- Palm, R. (1999). Perceived risk and the earthquake insurance purchase decision: A commentary on a paper by Lennart Sj oberg. *Journal of Risk Research*, 2(4), 289–294. https://doi. org/10.1080/136698799376736
- Paton, D., & Jang, L. (2016). Earthquake readiness and recovery: An Asia-Pacific perspective. In S. D'Amico (Ed.), Earthquakes and their impact on society (pp. 647-663). Springer. https://doi. org/10.1007/978-3-319-21753-6_28
- Paton, D., Parkes, B., Daly, M., & Smith, L. (2008). Fighting the Flu: Developing sustained

Mohd Rozaimy Ridzuan, Jamal Rizal Razali, Soon-Yew Ju, Noor Amira Syazwani Abd Rahman and Lai-Kuan Kong

community resilience and preparedness. *Health Promotion Practice*, 9(4), 45S-53S. https://doi. org/10.1177/1524839908319088

- Perry, R. W. (1979). Evacuation decision-making in natural disasters. *Mass Emergencies*, 4(1), 425-38.
- Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioural research: A critical review of the literature and recommended remedies. *Journal* of Applied Psychology, 88(5), 879–903. https:// doi.org/10.1037/0021-9010.88.5.879
- Poussin, J. K., Botzen, W. W., & Aerts, J. C. (2014). Factors of influence on flood damage mitigation behaviour by households. *Environmental Science* & *Policy*, 40, 69-77. https://doi.org/10.1016/j. envsci.2014.01.013
- Prasetyo, Y. T., Castillo, A. M., Salonga, L. J., Sia, J. A., & Seneta, J. A. (2020). Factors affecting perceived effectiveness of COVID-19 prevention measures among Filipinos during enhanced community quarantine in Luzon, Philippines: Integrating protection motivation theory and extended theory of planned behaviour. *International Journal of Infectious Diseases*, 99, 312–323. https://doi.org/10.1016/j. ijid.2020.07.074
- Riad, J. K., Norris, F. H., & Ruback, R. B. (1999). Predicting evacuation in two major disasters: Risk perception, social influence, and access to resources. *Journal of Applied Social Psychology*, 29(5), 918-934. https://doi.org/10.1111/j.1559-1816.1999.tb00132.x
- Sarstedt, M., Bengart, P., Shaltoni, A. M., & Lehmann, S. (2018). The use of sampling methods in advertising research: A gap between theory and practice. *International Journal of Advertising*, 37(4), 650-663. https://doi.org/10.1080/026504 87.2017.1348329
- Sheeran, P. (2002). Intention-behaviour relations: A conceptual and empirical review. *European*

Review of Social Psychology, 12, 1-36. https:// doi.org/10.1002/0470013478.ch1

- Shmueli, G., Ray, S., Velasquez Estrada, J. M., & Chatla, S. B. (2016). The elephant in the room: Predictive performance of PLS models, *Journal* of Business Research, 69(10), 4552-4564. https:// doi/10.1016/j.jbusres.2016.03.049
- Shmueli, G., Sarstedt, M., Hair, J. F., Cheah, J. H., Ting, H., Vaithilingam, S., & Ringle, C. M. (2019). Predictive model assessment in PLS-SEM: Guidelines for using PLSpredict. *European Journal of Marketing*, 53(11), 2322-2347. https://doi.org/10.1108/ejm-02-2019-0189
- Solberg, C., Rossetto, T., & Joffe, H. (2010). The social psychology of seismic hazard adjustment: Re-evaluating the international literature. *Natural Hazards and Earth System Sciences*, 10(8), 1663–1677. https://doi.org/10.5194/ nhess-10-1663-2010
- Terpstra. T. (2011). Emotions, trust, and perceived risk: Affective and cognitive routes to flood preparedness behaviour. *Risk Analysis, 31*(10), 1658-1675. https://doi.org/10.1111/j.1539-6924.2011.01616.x
- Thompson-Leduc, P., Clayman, M. L., Turcotte, S., & L'egar'e, F. (2015). Shared decision making behaviours in health professionals: A systematic review of studies based on the theory of planned behavior. *Health Expectations*, 18(5), 754–774. https://doi.org/10.1111/hex.12176
- Triandis, H. C. (1979). Values, attitudes, and interpersonal behavior. In Nebraska symposium on motivation. University of Nebraska Press.
- United Nations Office for Disaster Risk Reduction. (2013). *Floods a "turning Point, 2013*. https:// www.unisdr.org/archive/33693
- Vinnell, L. J., Milfont, T. L., & McClure. J. (2018). Do social norms affect support for earthquakestrengthening legislation? Comparing the effects of descriptive and injunctive norms. *Environment*

and Behavior, 51(4), 376-400. https://doi. org/10.1177/0013916517752435

- Wang, J. J., & Tsai, N. Y. (2022). Factors affecting elementary and junior high school teachers' behavioral intentions to school disaster preparedness based on the theory of planned behavior. *International Journal of Disaster Risk Reduction, 69*, Article 102757. https://doi. org/10.1016/j.ijdrr.2021.102757
- Wang, T., Lu, Y., Liu, T., Zhang, Y., Yan, X., & Liu, Y. (2022). The determinants affecting the intention of urban residents to prepare for flood risk in China. *Natural Hazards and Earth System Sciences*, 22(6), 2185-2199. https://doi. org/10.5194/nhess-22-2185-2022
- Zaremohzzabieh, Z., Samah, A. A., Roslan, S., Shaffril, H. A. M., D'Silva, J. L., Kamarudin, S., & Ahrari, S. (2021). Household preparedness for future earthquake disaster risk using an extended theory of planned behavior. *International Journal* of Disaster Risk Reduction, 65, Article 102533. https://doi.org/10.1016/j.ijdrr.2021.102533
- Zhang, K., Parks-Stamm, E. J., Ji, Y., & Wang, H. (2021). Beyond flood preparedness: Effects of experience, trust, and perceived risk on preparation intentions and financial risk- taking in China. *Sustainability*, 13, Article 13625. https://doi.org/10.3390/su132413625



SOCIAL SCIENCES & HUMANITIES

Journal homepage: http://www.pertanika.upm.edu.my/

Developing a Framework for Assessing Transformative Competencies of Junior High School Students Through Construct Modelling Approach

Chalunda Podjana¹, Putcharee Junpeng^{1*}, Nuchwana Luanganggoon¹, Chatchawan Nongna¹ and Keow Ngang Tang²

¹Educational Measurement and Evaluation Program, Faculty of Education, Khon Kaen University, 40002 Khon Kaen, Thailand ²Postgraduate Program in Education, Faculty of Business, Hospitality and Humanities, Nilai University, 71800 Nilai, Malaysia

ABSTRACT

This research is designed to develop a comprehensive assessment framework to study junior high school students' transformative competencies in three dimensions: creating new value, reconciling tensions and dilemmas, and taking responsibility. Researchers developed and verified the quality of the assessment framework among the 120 junior high school students purposively selected from four schools in the northeastern and central regions of Thailand as the test-takers. The project is segmented into four phases: creation of the construct map, item design, outcome space, and Wright map. The framework's efficacy is analyzed using the Rasch model and the Maximum Likelihood Estimation method. Validity is rigorously evaluated through empirical evidence derived from the Wright map and cognitive interviews. Reliability is assessed via the standard error of measurement, test information function, expected-a-posteriori reliability, and Infit Mean Square value. Key findings included the development of a five-level construct

ARTICLE INFO

Article history: Received: 17 March 2022 Accepted: 27 February 2024 Published: 11 June 2024

DOI: https://doi.org/10.47836/pjssh.32.2.13

E-mail addresses:

chalundap@kkumail.com (Chalunda Podjana) jputcha@kku.ac.th (Putcharee Junpeng) nuchwana@kku.ac.th (Nuchwana Luanganggoon) chatnon@kku.ac.th (Chatchawan Nongna) kn.tang@nilai.edu.my (KeowNgang Tang) * Corresponding author map and the formulation of scaled openended questions based on the test takers' responses. A cut-off point is determined by dividing the threshold level by the number of tests at corresponding levels, adhering to Wright map criteria for each dimension. Subsequent item analysis and modeling confirmed the internal structure's validity and reliability. This framework equips them with skills to navigate and effectively address complex real-world challenges, enhancing targeted educational strategies, promoting superior learning outcomes, and preparing students for advanced academic and professional environments.

Keywords: Assessment framework, construct modeling approach, junior high school students, Rasch model analysis, transformative competencies

INTRODUCTION

The Organization for Economic Cooperation and Development (OECD) has identified three dimensions of transformative competencies to empower students so that they can contribute, seek to shape well-being and a sustainable world, thus encounter the challenges of the 21st century as emphasized in the OECD Learning Compass 2030 (OECD, 2018). Hence, three transformative competencies are introduced: (1) creating new value, (2) reconciling tensions and dilemmas, and (3) taking responsibility. Creating a new value dimension is defined as the novel knowledge, insights, ideas, techniques, and strategies developments to create new jobs and innovate students to shape their better lives. When students create new value, they will enquire about the current situation, cooperate with others, and attempt to think out of the box. Next, the reconciling tensions and dilemmas dimension refers to students considering many interconnections and inter-relations between inconsistent or mismatched ideas. logics, and positions from both short- and long-term perspectives to obtain a greater understanding of contrasting situations, develop arguments to back their situation, and discover hands-on resolutions to solve the problems and conflicts. The final transformative competency dimension

is taking responsibility, which refers to the capability to replicate and estimate one's actions in light of one's practice and instruction after reflecting personal, ethical, and societal aims.

These transformative competencies go beyond traditional academic knowledge and foster personal development, social responsibility, and adaptability (Wolff, 2015). Some noticeable gaps in transformative competencies for junior high school students were identified in accordance with the OECD Future of Education Skills 2030 criteria, namely critical thinking and problem-solving (Halpern & Dunn, 2021), communication skills (Al-Alawneh et al., 2019), digital literacy (Yazon et al., 2019), and creativity and innovation (Anaktototy et al., 2023). According to Halpern and Dunn (2021), it is essential for junior high school students to analyze information critically, think creatively, and solve complex problems. This competency enables them to approach challenges with a strategic mindset. In addition, Al-Alawneh et al. (2019) emphasized the importance of effective communication, which involves expressing ideas clearly and actively listening. Junior high school students should develop the ability to communicate with diverse audiences using various mediums. Moreover, Yazon et al. (2019) stated that

junior high school students need to be proficient in using digital tools responsibly. It includes information literacy, online safety, and adapting to new technologies. On top of that, Anaktototy et al. (2023) emphasized the importance of nurturing creativity that allows junior high school students to think outside the box, explore new ideas, and approach challenges with innovation. This transformative competency fosters an entrepreneurial spirit and adaptability.

Grayling (2017) stated that all three transformative competencies are higherlevel competencies that assist students in steering across various circumstances and experiences. Therefore, transformative competencies can be applied across a wide range of settings, are accessible, and can be achieved throughout a lifetime. Laukonnen et al. (2018) supported it by emphasizing the uniqueness of transformative competencies to manage uncertainty, build innovative mindsets and principles, and behave efficiently and significantly, even when targets change and persist for the time being.

The above literature review revealed the significance of integrating these transformative competencies into junior high school curriculum and learning environment that can contribute to the holistic development of students, preparing them for the challenges and opportunities they will encounter in their future education and careers (Grayling, 2017). However, there are no standardized or widely recognized assessment frameworks specifically tailored for transformative competencies for junior high school students. Generally, past researchers focused on holistic development when considering transformative competencies for junior high school students. Besides critical thinking and problem-solving, communication skills, digital literacy, creativity and innovation, they also studied collaboration and teamwork, self-direction and initiative, cultural competence, ethical decision-making, resilience and emotional intelligence, global citizenship, environmental stewardship, and financial literacy.

In this line of reasoning, transformative competencies make students uniquely human. When researchers create an assessment framework for transformative competencies at the junior high school level, it is important to consider age-appropriate methodologies, such as project-based assessments, presentations, portfolios, and reflective journals. Additionally, involving teachers, parents, and students in the assessment process can provide a more comprehensive picture of students' development (OECD, n.d.). Since the three transformative competencies are urgently needed in society and become more diverse and more interdependent as they develop, an assessment framework to guarantee that junior high school students obtain the transformative competencies is essential and urgently needed. Therefore, this research intended to create a sound assessment framework to explore junior high school students' transformative competencies in three dimensions: (1) creating new value, (2) reconciling tensions and dilemmas, and

(3) taking responsibility. The research is well-timed and essential to determine the developmental process of an assessment framework. It can also deliver evidence of the quality assessment framework's validity and reliability in the real setting.

MATERIALS AND METHODS

Test Taker

A total of 120 junior high school students were purposively selected from four schools in the northeastern and central regions of Thailand to be the test-takers. The main intention of a purposive sampling method was to ensure that the selected test takers were logically assumed to be representative of a cross-section of the population after considering the following criteria. They vary in the levels of transformative competencies (low, moderate, high), their results in national and international scientific student assessments, different school sizes (small, medium, high), and school readiness.

Research Procedure

The researchers employed construct modeling that embedded the critical incident technique (CIT) and transformative competencies assessment when developing a framework for assessing transformative competencies of junior high school students (Wilson, 2005). Firstly, the researchers defined transformative competencies that they wanted to assess. These included creating new value (CNV), reconciling tensions and dilemmas (RTC), and taking responsibility (TRE). Secondly, the

researchers conducted a thorough literature review to identify existing frameworks and models related to transformative competencies assessment in the context of junior high school education. Thirdly, the researchers used CIT to identify specific events or critical incidents where students demonstrate transformative competencies by engaging teachers, students, and other stakeholders in identifying these incidents. Fourthly, the researchers developed specific assessment criteria based on the identified critical incidents aligned with the transformative competencies they wanted to measure. These criteria should guide the evaluation process.

A design-based research method that combines quantitative data (scores or ratings based on assessment criteria) and qualitative data (description of critical incidents) was adopted (Reeves, 2006; Vongvanich, 2020) with four consecutive steps to create the transformative competencies assessment framework. This integration helps provide a more comprehensive understanding of students' transformative competencies. The researchers started a survey to investigate the transformative competencies of junior high school students for developing an assessment framework. In this case, junior high school students were the target population for this survey. The researchers integrated CIT into the survey by incorporating questions that prompt students to recall and describe specific incidents where they demonstrated transformative competencies or encountered situations that required such competencies. It is followed by designing and creating a

transformative competency assessment tool prototype through a real-time automatic digital platform. At this step, the researchers decided on the assessment methods that would be used to measure the competencies. It included multiple-choice questions, scenario-based assessments, practical tasks, and a combination. In addition, the researchers also chose the technology stack for their digital platform, encompassing programming languages, frameworks, and tools.

Then, researchers piloted the innovative prototype to create the construct map in each competency to fit the actual context. Creating a construct map for each competency is essential in validating and refining the innovative prototype. The construct map outlines each competency's key dimensions, sub-skills, or knowledge areas. The researchers have to pilot the prototype and gather data that allows them to tailor the competencies to the specific needs and challenges of the target context. A series of interactive cycles of testing and refinement of solutions in practice was implemented. Finally, researchers reflected, revised, and improved the developed prototype of the transformative competencies assessment tool, reported pieces of validity and reliability evidence, and proposed principles to enhance the development of the innovative prototype of the transformative competencies assessment framework. Figure 1 illustrates the research procedure.

Research Instruments

Researchers used two research instruments to conduct a survey: (1) a semi-structured interview protocol and (2) a transformative competencies assessment form. This semistructured interview protocol was used systematically to examine, reflect, and

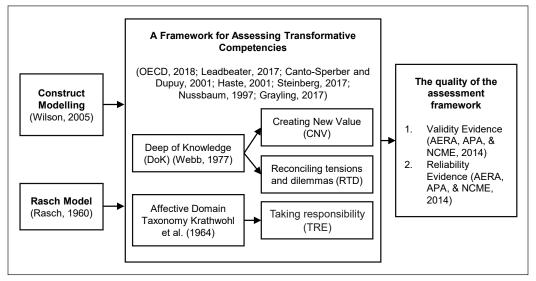


Figure 1. The research procedure *Source*: Authors' work

learn from positive and negative aspects of transformative competencies employing the critical incident technique (Flanagan, 1954). The critical incident technique gathers incidents from less experienced users of the existing system to gain students' transformative competencies in dealing with critical incidents. Critical incidents are short descriptions of experiences that have particular meaning to the students. At the same time, the semi-structured interview protocol was used for students to reflect on their solutions based on the critical incidents. As a result, researchers could accurately interpret the characteristics of students' transformative competencies through interview transcriptions.

Another research instrument was the transformative competency form created from the semi-structured interview results using critical incident technique and reviewing related literature review. The researchers employed Mezirow's (2003) transformative learning theory to develop structured interview questions. Mezirow's theory explores how individuals can undergo profound shifts in perspective, beliefs, and behaviors through critical reflection and transformative learning experiences. There were 15 situations involving issues related directly to the students themselves, their families, school, and community. The transformative competency form consisted of six, four, and five items related to creating new value, reconciling tensions and dilemmas, and taking responsibility, respectively, using the Construct Modeling Approach (Wilson, 2005).

Even though the researchers employed alternative methods as valuable tools for assessing various transformative competencies for junior high school students, the researchers still have to be aware of some potential limitations, including assumption of unidimensionality, difficulty in measuring complex constructs, sensitivity to the test content, context sensitivity, assumption of invariance, limited diagnostic information, difficulty in assessing growth over time, and interpretability challenges. Therefore, when the researchers used the Rasch Model to assess transformative competencies, it was important to complement quantitative assessment with qualitative methods, such as interviews, portfolios, or observations, to better understand students' abilities and growth in transformative competencies. On top of that, the researchers should be cautious in interpreting and applying the results of the Rasch Model analysis after considering the above limitations in the context of transformative competencies for junior high school students.

RESULTS AND DISCUSSIONS

The Results of the First Phase

A preliminary study of the semi-structured interview results using the critical incident technique revealed that a test is the most effective tool to assess the quantity and quality of junior high school students' transformative competencies. Subsequently, researchers created the construct map consisting of four construct levels (under basic, basic, moderate, and advanced) for each dimension of transformative competencies: (1) creating new value (CNV), (2) reconciling tensions and dilemmas (RTD), and (3) taking responsibility (TRE) to fit the actual context by adopting OECD framework for education 2030 (OECD, 2018).

Researchers used Webb's depth-ofknowledge (DOK) (Webb, 1997) to develop a practice and standards for scientifically evaluating the association between curriculum standards and assessments. It advances a model to evaluate the cognitive anticipation required by standards, curricular activities, and assessment tasks. As a result, every category of tasks (critical incident) indicates a distinct level of cognitive anticipation, or so-called depth of knowledge expected for the student to carry out the task or react appropriately according to each transformative competency dimension (CVN, RTD, and TRE). However, researchers found some missing data or the answers inconsistent with the critical incident. Therefore, the researchers increased the lowest proficiency level to a No-relevance Level to cover all the students' answers from four to five levels for the three transformative competency dimensions, as shown in Figure 2.

The Results of the Second Phase

Researchers continued to design the tasks and items based on the results of the first phase to develop an open-ended situational measurement tool that aligned with the drafted assessment framework. The tasks or items were designed according to the construct map (Figure 2) of each transformative competency dimension as an open-ended situation that would lead to the feasibility of the corresponding answers to creating the descriptions of each

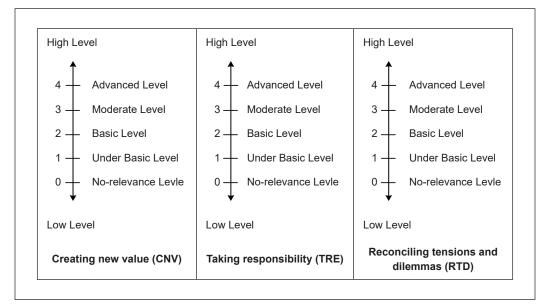


Figure 2. Construct map of transformative competency dimensions *Source*: Authors' work

competency level for each dimension to develop an assessment framework. At the same time, researchers decided whether the results could be classified as transformative competency level. The decisions were made based on the assessment results at each level and whether they were consistent with the student's results in real conditions. Therefore, researchers conducted in-depth interviews with teachers and parents regarding the suitability of the created descriptions and the possibilities of using the task or item design as guidelines for scoring by considering the appropriateness of time-consuming.

Researchers followed it to determine the scope of contents and measurement of behavioral description for each dimension. As a result, the determinations were made not only based on the weight of the behavioral measurement but also on the transformative competency needs in each content of the dimension. Then, researchers created all the tasks as open-ended questions and measured them up to five levels, depending on the students' answers. In this line of reasoning, researchers characterized the transformative competency levels by investigating the students' methods in solving the given problem situations. For example, they solved the problems by themselves or with their friends to reduce the conflicts could be our main concerns. Figure 3 shows an example of task design to develop the drafted assessment framework.

Next, researchers interpreted the implication of every transformative competency level in every dimension in accordance with the learning consequence scaling or so-called outcome space. The outcome space was set to make sure students' responses in the actual context were in accordance with the construct map of learning consequences in the drafted assessment framework. Researchers began determining the scoring criteria for each dimension ranging from 0 to 4 points by employing the Partial Credit Model to compare and calibrate the items so that each item has an imagined location on the measured variable (Masters & Wright, 1997).

A total of 120 test takers participated in solving the problem situations in the drafted assessment framework from the second phase. Their test scores were checked using the created scoring guide or outcome space from the previous step. The results revealed five grades (Grade 1 to 5) with scores ranging

Dimension		Creating new value
	\checkmark	reconciling tensions and dilemmas
		Taking Responsibility
Measurement L	evel 5 Adva	anced Level

Item 8 How do you do if political opinions do not match those of close friends, which may cause serious quarrels?

Figure 3. Examples of item design of RTD dimension *Source*: Authors' work

from 0 to 4. The scoring scale was determined using Webb's depth-of-knowledge (Webb, 1997) concept. The interpretation for students who get the highest score at Level 5 is that they can solve the problem by cooperating with friends or even the opposing party. Although this method seemed to take a long time and require more patience, it worked well in solving the problems and benefited both parties. An example of outcome space for the RTD dimension is demonstrated in Table 1.

A transformative competencies assessment framework was finally developed

to relate the latent traits of each dimension to the observed variables, as elucidated in Figure 4 and Table 2. Researchers counted the test-taker scores in each dimension item based on the Consecutive Unidimensional Model by the 3D composite as an ellipse showing latent traits and a square shape. A test blueprint was then created after demonstrating that a series of examinations in each dimension were conducted.

The Results of the Third Phase

The third phase of this research determines the cut-off point in assessing junior

Table 1An example of outcome space for RTD dimension

Level	Score	Definition	Example of Answers
Advanced	4	Can manage conflicts by collaborating and understanding between opposing parties.	Keep inserting content related to the problem by expressing their opinions to others.
		Listen to others' needs and communicate honestly with others.	Actively exchange ideas and listen to other opinions.
		Jointly brainstorm ideas for solutions that meet the needs of all parties based on creative problem-solving	Do not insult other opinions and understand the idea together.
Moderate	3	Can assess the situations that occurred in advance, both positive and negative.	Talk rationally to each other, accept, and do not interfere with other opinions or different thinking.
		Resolve conflicts through compromising by reducing their needs.	
		It may not be a good long-term solution to surrender some identities to fulfill the willingness of all.	
Basic	2	Identify and solve conflict situations by accommodating them regardless of other feelings or facts to resolve conflicts.	Inform others of the same opinions even though he/she does not agree with them.
Under Basic	1	Perceive the problem situation as conflict and solve it by avoiding it.	Do not talk about it again.
		; pressure others to accept their opinions through competition;	Although seeing others have different opinions is uncomfortable.
No- relevance	0	Do not answer	Do not answer or answer it unclearly.

Source: Authors' work

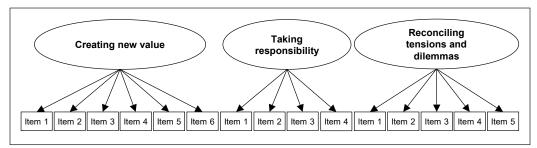


Figure 4. An assessment framework of transformative competencies *Source*: Author's work

Table 2Transformative competency assessment framework

Level	Score	TC Level	Creating new value (CNV)	Taking responsibility (TRE)	Reconciling tensions and dilemmas (RTD)
5	4	Advanced	Explain their reasons regarding the cause and problem solutions comprehensively for themselves and others. Connect knowledge and experience to think innovatively in various, systematic, and fluency methods. Collaborate with others to solve problems concretely and constructively.	They are responsible for their actions by adhering to moral and ethical principles and willingly respecting their and others' rights. Always consider the impact on the community Ready to apologize when making a mistake and correct it properly.	Manage conflicts by way of cooperation. Listen to and understand conflicting parties' needs. Communicate honestly with groups and jointly brainstorm ideas for solutions that can meet the needs of all parties based on creative problem- solving.
4	3	Moderate	Identifying the arising problems logically. Apply knowledge to create and develop solutions in a concrete and possible way.	Responsible for their actions, even if they contradict what they think. Must follow what is correct according to the norms of society.	Assess both positive and negative situations that may occur in advance.
3	2	Basic	Solve problems using common methods or imitate what has already been taught.	Take responsibility due to environmental pressure rather than feeling responsible for themselves.	Resolve conflicts using a compromise approach, as it involves finding a middle ground that accommodates the interests and concerns of all parties involved.
2	1	Under Basic	Solve problems involving straightforward approaches.	Show indifference to problems arising from their actions and do not show responsibility.	Resolve conflicts using an accommodated approach that involves giving in to the needs or desires of others while neglecting one's concerns.

Transformative Competencies of Junior High School Students

Level	Score	TC Level	Creating new value (CNV)	Taking responsibility (TRE)	Reconciling tensions and dilemmas (RTD)
1	0	No-relevance	Do not answer questions. Ignore finding ways to solve problems.	No responsibility to find answers.	Resolve conflicts using an avoidance approach that involves sidestepping or postponing the resolution of a conflict.

Source: Author's work

high school students' transformative competencies. The intersections were determined by the threshold level divided by the number of tests at the same level for the three dimensions after considering each dimension's Wright map criteria area. Table 3 displays the results of calculating the intersection in each dimension to determine the transformative competencies assessment framework.

Table 3 shows the results of determining the cut-off point in assessing junior high school students' transformative competencies. The results revealed that the

Table 3

Results of determination of the cut-off point in assessing transformative competencies for junior high school students

The second second second second	T.c.	Difficulty -	Threshold			
Transformative Competencies	Item		1	2	3	4
Creating New Value (CNV)	1	0.99	-4.60	-2.27	3.56	7.24
	2	1.45	-4.45	-1.48	4.67	7.05
	3	1.41	-4.66	-1.82	4.08	8.02
	4	0.56	-4.91	-2.08	2.89	6.36
	5	1.46	-3.05	-0.81	3.41	6.29
	6	1.63	-5.12	0.77	4.27	6.58
	N	Mean	-4.47	-1.28	3.81	6.92
Taking Responsibility (TRE)	1	0.75	-0.78	-0.23	0.79	3.16
	2	0.17	-2.57	-0.15	1.20	2.21
	3	-0.42	-2.55	-1.08	2.38	-
	4	0.34	-2.05	-0.05	1.26	2.65
	ľ	Mean	-1.99	-0.49	1.41	2.01
Reconciling tensions and dilemmas	1	0.59	-2.23	-0.49	0.98	4.09
(RTD)	2	0.65	-2.07	-0.38	0.97	4.09
	3	-0.44	-3.79	-1.02	0.48	2.56
	4	-2.12	-4.73	-1.52	-0.10	-
	5	-0.39	-4.06	-1.56	0.75	3.30
	Ι	Mean	-3.38	-0.99	0.62	2.81

Source: Authors' work

intersection in all three dimensions could be separated into four cut-off points into five levels in leading order. For instance, the cut-off points for creating new value dimensions were -4.47, -1.28, 3.81, and 6.92, respectively.

The Results of the Final Phase

The final phase of this research was to check the quality of the developed assessment framework of transformative competencies in terms of its validity and reliability using the ACER ConQuest (Version 5.29) program (Adams et al., 2020).

Results of Validity Evidence. The first validity evidence was analyzed by applying the Wright map. The validity reason of the Wright map is a graphical interpretation that

connects the item difficulties and students' competency estimates on the normal scale as the quality evidence. According to Junpeng et al. (2020), Wright's map comprises a distribution of item difficulties, a distribution of student competency estimates, and how well the item difficulty distribution matches the students' competency estimates. Therefore, the items should match with the students' transformative competencies to justify that the assessment framework is maximally informative.

Results of the Wright map indicated that the distribution of item difficulties matches CNV and RTD dimensions well. Both dimensions show good variability in item difficulties or students' competency estimates. Figure 5 demonstrates the distribution of the test takers' transformative

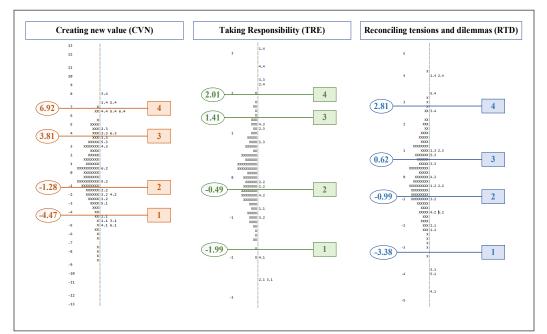


Figure 5. Wright Map to examine empirical evidence and items of assessment framework of transformative competencies *Source*: Authors' work

competencies in CNV and RTD dimensions parameters (θ } covered all the related assessment items on the Wright map. For example, the CNV dimension has a spread value in the logit range of -9 to 8. This implies that the item design in the assessment framework covers all the competency levels. The same results were obtained for the RTD dimension.

However, the Wright map result of the TRE dimension revealed that the assessment item's difficulty level was inconsistent with the test takers' competency level with the parameters $\{\theta\}$ in the logit range -2 to +2. This implies that the generated assessment items cannot measure the test takers' transformative competency Level 1, that there is no answer, and that the problem situation is unrelated. Moreover, the selected test takers did not represent the students with the highest to lowest transformative competency level in the TRE dimension. This result parallels past studies (Baker & Kim, 2017; DeMars, 2010) as they emphasized the importance of selecting representative groups with various competency levels, especially for Level 1 and Level 5, and competency distribution should be in the logit -3 to +3.

The internal structural validity of the assessment framework considers the conformity of items, scoring, and intersection points that will determine the performance level in each dimension relative to the Wright map, along with the index. The results showed that the average of each item and the difficulty of each step from the answers appeared on the Wright map (Figure 4) above. On top of that, researchers found that all three dimensions consist of four intersection points, enabling the assessment framework to be set at five levels in each dimension. For example, the intersection points of the CNV dimension are -4.47, -1.28, 3.81, and 6.92, respectively. As Wilson (2005) and Junpeng et al. (2020) suggested, the assessment framework can be converted into scale scores or raw scores depending on the purpose of their implementation.

From the Wright map, researchers noticed that the minimum and maximum intersections of the TRE dimension are -1.99 and 2.01, respectively, where the intersection in the score ranges below -1.99 and above 2.01 used to assess the level of competence in Level 1 of the assessment framework. Nevertheless, the result showed no test taker with such characteristics. This implies that researchers have to consider the appropriateness of the assessment framework for the students in the real context. Therefore, there is a need to find additional groups at the level above. Moreover, researchers may need to adjust the description in the TRE dimension to be more relevant to junior high school students, especially at Level 5.

In addition, researchers considered the appropriateness of the scoring interval that the intersection should be collapsed Level 1 and Level 2 as reflected in the test thresholds. This indicates that some items cannot classify students' competency levels between Levels 1 and 2. Researchers modified the position of the intersection point by adjusting the assessment level from five to four levels.

Moreover, the researchers considered whether the intersection should collapse the assessment standards at Levels 1 and 2 or modify the position of the intersection point by adjusting the assessment level from five to four levels. The results correspond to Kesorn et al. (2020), who examined the internal structural validity of the assessment framework. A combination of considerations is needed to confirm the internal structural elements showing the relationship between the traits and the assessment items, whether the model is a fit theory or an empirical model. The Rasch model is used in conjunction with consideration of the Wright map. In short, ensuring the measurement tool is consistent with the constructed framework, corresponds to actual conditions, and which parts should be amended is important.

The final strand of validity evidence was identified after researchers interviewed the test takers with different levels of transformative competencies using the CII technique. The interview results are then triangulated with the actual context of the test takers by interviewing their teachers and parents. Researchers aimed to assess their understanding of the contents and the relevancy of the items in the assessment framework. The interview results revealed that the characteristics were parallel with those of the students with different levels of transformative competencies. Therefore, the results align with those of Padilla and Leighton (2017), who investigated an

appropriate method to verify the validity of the assessment framework using the cognitive interview method. Decrypting protocols as qualitative data is useful for describing each competency level and creating an assessment framework. Padila and Leighton (2017) utilized priority needs to determine the performance level from highest to lowest levels. The interview results revealed that students were found to possess characteristics similar to the actual context of their study.

Results of Reliability Evidence. Researchers used the standard deviation graph SEM (standard error of measurement) to assess the reliability of the developed transformative competencies assessment framework. When the assessment framework was separated into three dimensions, namely CNV (θ_{CNV}), TRE (θ_{TRE}), and RTD (θ_{RTD}), the latent parameter of each test taker would have a different SEM. Table 4 illustrates that the SEM of the three dimensions had mean scores close to 0 or equal to 0. It implies that the test takers' transformative competency levels are in a normal distribution. The results showed that the CNV dimension had a significantly wider range of competency level distribution compared to the other two dimensions, with θ_{CNV} in the range from -7.06 to 6.18. On the other hand, the TRE dimension had a significantly narrower range than the other two dimensions, with θ_{TRE} ranging from -1.51 to 1.64. The SEM for CNV, TRE, and RTD dimensions ranged from 0.68 to 1.14, 0.47 to 0.69, and 0.54 to 0.84, respectively. This implies that

θ_{CNV}	SEM _{CNV}	θ_{TRE}	SEM _{tre}	$\theta_{\rm RTD}$	SEM _{RTD}
-0.01	0.85	0.00	0.51	0.00	0.59
3.15	0.11	0.66	0.02	1.22	0.06
6.81	1.14	1.64	0.69	3.67	0.84
-7.06	0.68	-1.51	0.47	-2.46	0.54
-13.87	-0.46	-3.15	-0.22	-6.13	-0.30
	-0.01 3.15 6.81 -7.06	-0.01 0.85 3.15 0.11 6.81 1.14 -7.06 0.68	-0.01 0.85 0.00 3.15 0.11 0.66 6.81 1.14 1.64 -7.06 0.68 -1.51	-0.01 0.85 0.00 0.51 3.15 0.11 0.66 0.02 6.81 1.14 1.64 0.69 -7.06 0.68 -1.51 0.47	-0.01 0.85 0.00 0.51 0.00 3.15 0.11 0.66 0.02 1.22 6.81 1.14 1.64 0.69 3.67 -7.06 0.68 -1.51 0.47 -2.46

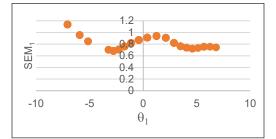
Table 4The standard error of measurement (SEM)

Source: Author's work

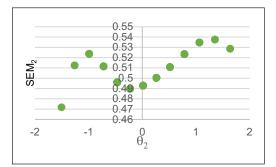
the SEM values for the three dimensions are acceptable because there is a small error when estimating transformative competencies.

However, the SEM values for the three dimensions were acceptable, with a small error, and were more consistent in estimating the transformative competencies. It implies that the relationship between the location of the performance estimation in each dimension had the lowest error if students' transformative competencies (θ) were within the logits range. As a result, the reliability assessment results are stable and consistent. Figure 6 demonstrates the SEM results of CNV, TRE, and RTD dimensions.

Furthermore, the test information function in Figure 7 shows that test takers possessed moderate to low transformative competency dimensions. The results indicated that the transformative competencies assessment framework has the same characteristics as the test score (Figure 7). Therefore, it can be concluded that the transformative competencies assessment framework has to focus on test takers' proficiency levels before it is used to assess them. The maximum information was identified when the test takers were at the



(a)



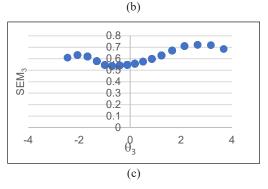


Figure 6. Standard Error of Measurement (SEM) of: (a) Creating New Value; (b) Taking Responsibility; and (c) Reconciliation Tensions and Dilemmas dimensions

Source: Authors' work

competency level 0 to the left. However, this tendency came towards low-performance levels, especially the CNV dimension, as the Test Information Function (TIF) is very high when estimating test takers with a performance level of -3, the position with the lowest SEM values.

The results of consideration from the Wright map, as shown in Figure 4, have important observations. The minimum and maximum intersections of the TRE dimensions were -1.99 and 2.01, respectively, where the intersection in the score ranges below -1.99 and above 2.01 were used to assess the level of competence in Level 1 of the assessment framework. The fact that no test takers have such characteristics reflects the need to consider whether the assessment framework is appropriate in the actual context. Researchers concluded that there is a need to find additional groups at the level above if the assessment framework is used. This implies that we have to adjust the description in the TRE dimension to be more relevant to the test takers at Level 5.

Researchers continued to examine the reliability coefficient indicated by expected-a-posteriori (EAP) reliability to check the consistency of the assessment framework with the Rasch model. The EAP reliability of CNV, TRE, and RTD dimensions were 0.91, 0.63, and 0.82, respectively, at the acceptable criteria (Adams, 2005). Moreover, the assessment framework has intrinsically consistent reliability (α) based on traditional testing theory because the EAP reliability of the assessment framework equals 0.85. is more than 0.7 as the acceptance criteria (Adams, 2005). The final reliability evidence was determined by examining the suitability of each item of the assessment framework using the INFIT MNSQ value. The INFIT MNSQ value obtained from the assessment framework was 0.64 to 1.30, which fell at the acceptable range between 0.75 to 1.33, as proposed by Adam and Khoo (1996) and Wilson et al. (2006). Therefore, researchers concluded that each item in the transformative competency assessment framework is suitable.

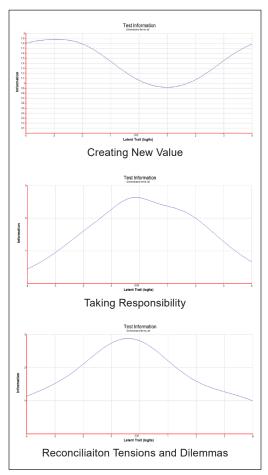


Figure 7. Test Information Function (TIF) *Source*: Authors' work

The ultimate result of this research was successfully creating a transformative competency assessment framework for junior high school students after the researchers conducted a comprehensive measurement and evaluation. Therefore, the transformative competency assessment framework can have several implications, ranging from educational policy and curriculum development to teaching practices and student outcomes. It implies that the users of this transformative competency assessment framework must familiarize themselves with the existing criteria, including understanding the key dimensions, domains, and competencies the OECD has outlined for the Future of Education and Skills 2030 (OECD, 2018). Moreover, teachers must consider how these trends may impact the skills and knowledge that junior high school students will need in 2030 after anticipating future trends in technology, the economy, and society. It is to ensure that the criteria are forward-looking and can accommodate evolving demands.

CONCLUSION

The key result of this research is that an assessment framework of transformative competencies was developed aiming at measuring junior high school students' transformative competencies in three dimensions: (1) CNV, (2) RTD, and (3) TRE. Besides, the developed assessment framework is found to have acceptable levels of validity and reliability. It is considered a sound assessment framework because it has

endured a thorough and methodical research procedure. Thus, this sound assessment framework can assess junior high school students' transformative competencies, particularly meeting the OECD Future of Education Skills 2030. Current educational institutions and researchers increasingly recognize the importance of fostering skills and competencies beyond traditional academic subjects. The results have connected to the overall objectives of this research to identify the knowledge, skills, attitudes, and values that students need to thrive in the future, which is aligned with the sustainable development goals of the United Nations (OECD, 2018) on how education can play a crucial role in achieving these goals and aligning the criteria that can enhance their relevance and impact.

In addition, the results of this research have successfully suggested a comprehensive and systematic approach to evaluating the transformative competencies of junior high school students. Since the core of this research revolved around creating a framework, the importance of having a structured framework for assessing transformative competencies has contributed to a more accurate and holistic evaluation of students (Grayling, 2017). On top of that, the assessment framework has defined what transformative competencies mean with CNV, TRE, and RTD in the context of junior high school students by elaborating on the skills and attributes that are considered transformative and essential for their personal and academic development (Mezirow, 2003).

Theoretical and Practical Implication

This research contributes to educational psychology by delving into the theoretical underpinnings of transformative competencies. It assists in expanding our understanding of psychological processes involved in developing competencies beyond traditional academic knowledge (Lohse-Bossenz et al., 2013). Moreover, using a construct modeling approach aligns with constructionist learning theories. This research may provide insights into how students construct their understanding and competencies, shedding light on the cognitive processes involved in transformative learning experiences (Zajda, 2021).

Furthermore, the assessment framework likely draws on holistic development theories that emphasize the multifaceted nature of a student's growth. Theoretical implications might involve discussions on how transformative competencies contribute to overall personal, social, and cognitive development during the crucial junior high school years (Stodden et al., 2023). Besides, the research touches upon theories related to the transferability of competencies across various domains. It could involve exploring whether the transformative competencies developed by junior high school students are applicable and beneficial in different academic subjects and real-life situations (Nägele & Stalder, 2017).

The main practical implication of this research is that the assessment framework has successfully contributed to the transformative competency-driven

learning method in the education context. Transformative competencies development is defined as the ability of students to participate in solving problem situations that represent a combination of skills, strategies, and processes to the degree that they comprehend and can relate their knowledge to new settings, as reflected in the research results. The reported results are in line with Hipkins (2012), who states that transformative competencies should represent a much wider and more compliant accomplishment than a straightforward collection of skills in the 21st-century educational context. A spotlight on skills progress ignores other essential capabilities students need as lifelong learners. It can be concluded that transformative competencies are highly emphasized in the discourse exploring responses to mega-global trends such as the fourth industrial revolution. By acquiring transformative competencies, students will be well prepared to challenge complications with a practicable technique. It is the reason why the OECD 2030 learning framework aims to help students assess their transformative competencies so that it can guide them to outline the realm in 2030 by flourishing in a structurally excessive realm through coping with conflicts, contradictions, trade-offs, ambiguity, creating new value to the world, and taking responsibility to keep the world in balance (OECD, 2017).

The practical implication of this research is that the transformative competency assessment framework will likely influence curriculum development by shaping the content, learning objectives, and activities included in the junior high school curriculum. As a result, high schools may need to revise existing curricula or develop new materials to align with the transformative competencies emphasized in the assessment framework, as Kesorn et al. (2020) suggested. On the other hand, teachers play a crucial role in facilitating would necessitate training and professional development programs for teachers. It may include workshops on instructional strategies, assessment methods, and incorporating transformative competency development into teaching practices, as Junpeng et al. (2020) recommended. Moreover, this assessment framework will impact the learning experiences of junior high school students. Teachers may need to design and implement activities that foster the development of transformative competencies, such as critical thinking, creativity, collaboration, and adaptability. Project-based learning, experiential activities, and interdisciplinary approaches may become more prevalent.

Limitations and Recommendations for Future Research

The assessment framework may be contextspecific, and its generalizability to different educational settings or cultural contexts may be limited. Therefore, future researchers should ensure that the assessment framework considers diverse backgrounds and educational systems. This research used a construct modeling approach that relies heavily on the validity and reliability of the chosen competencies accurately representing transformative abilities and that the assessment tools are reliable, which can be another limitation. Transformative competencies, in particular, are dynamic and may change over time. As a result, the assessment framework may not capture the evolving nature of competencies as students progress through junior high school.

Additionally, assessing transformative competencies may involve a level of subjectivity. It is essential to acknowledge and address potential biases in the assessment process, including those related to the perspectives of assessors and students. Last but not least, implementing a comprehensive assessment framework may require substantial resources, including time, funding, and trained personnel. Therefore, future researchers should consider the feasibility of the proposed framework in real-world educational settings.

Longitudinal studies are recommended to future researchers because longitudinal studies can track the development of transformative competencies over time. It could provide insights into how these competencies evolved during junior high school. Moreover, future researchers should validate the framework across different cultural and socio-economic contexts to ensure its applicability in diverse settings and enhance its generalizability. In conclusion, future researchers should consider adaptability and flexibility while designing an assessment framework for the evolving nature of education. It may involve incorporating mechanisms for updates and revisions based on ongoing

research and feedback from practitioners due to the dynamic field of education, and ongoing research and adaptation are crucial to creating effective frameworks that can truly capture and nurture transformative competencies in junior high school students.

ACKNOWLEDGEMENT

This research and innovation activity is supported by the National Research Council of Thailand (NRCT) under Grant No. N42A650236. The authors gratefully acknowledge the use of services and facilities at the Faculty of Education, Khon Kaen University, Khon Kaen 40002, Thailand.

REFERENCES

- Adams, R. J. (2005). Reliability as a measurement design effect. *Studies in Educational Evaluation*, 31(2-3), 162-172. https://doi.org/10.1016/j. stueduc.2005.05.008
- Adams, R. J., Wu, M. L., Cloney, D., Berezner, A., & Wilson, M. (2020). ACER ConQuest: Generalised Item Response Modelling Software (Version 5.29) [Computer software]. Australian Council for Educational Research. https://www.acer.org/ au/conquest
- Adams, R., & Khoo, S. (1996). Quest: Interactive test analysis system version 2.1. The Australian council for educational research. https://eric. ed.gov/?d=ED362553
- Al-Alawneh, M. K., Hawamleh, M. S., Al-Jamal, D. A., & Sasa, G. S. (2019). Communication skills in practice. *International Journal of Learning*, *Teaching and Educational Research*, 18(6), 1-19. https://doi.org/10.26803/ijlter.18.6.1
- American Educational Research Association. (2014). Standards for educational and psychological

testing (6th ed). https://www.testingstandards. net/uploads/7/6/6/4/76643089/9780935302356. pdf

- Anakttototy, K., Sekawael, M., Latief, M. R. A., & Bin-Hady, W. R. A. (2023). Beyond linguistics: Exploring the cognitive and motivational barriers to essay writing for tertiary students. *International Journal of Language Education*, 7(3), 447-468. https://doi.org/10.26858/ijole. v7i3.37070
- Baker, F. B., & Kim, S. (2017). The basics of item response theory using R. Springer. https://link. springer.com/book/10.1007/978-3-319-54205-8
- Canto-Sperber, M., & Depuy, J. P. (2001).
 Competencies for good life and good society. In
 D. Rychen & L. Salganik (Eds.), *Defining and* selecting competencies (pp. 67-92). Hogrefe Publishing.
- DeMars, C. (2010). Item response theory: Understanding statistics measurement. Oxford University Press. https://doi.org/10.1093/acpro f:oso/9780195377033.001.0001
- Flanagan, J. C. (1954). The critical incident technique. Psychological Bulletin, 51(4), 327-357. https:// doi.org/10.1037/h0061470
- Grayling, A. (2017). Future education and skills: Education 2030: Reflections on transformative competencies 2030. Organization for Economic Co-operation and Development. https://www. oecd.org/education/2030-project/contact/EDU-EDPC(2017)16-ANN5.pdf
- Halpern, D. F., & Dunn, D. S. (2021). Critical thinking: A model of intelligence for solving real-world problems. *The Journal of Intelligence*, 9(2), Article 22. https://doi.org/10.3390/ jintelligence9020022
- Haste, H. (2001). Ambiguity, autonomy, and agency: Psychological challenges to new competence. In
 D. Rychen & L. Salganik (Eds.), *Defining and* selecting competencies (pp. 93-120). Hogrefe

Publishing. https://api.semanticscholar.org/ CorpusID:142385997

- Hipkins, R. (2012). The engaging nature of teaching for competency development. In S. L. Christenson,
 A. L. Reschly & C. Wylie (Eds.), *Handbook of research on student engagement* (pp. 441-456).
 Springer. https://doi.org/10.1007/978-1-4614-2018-7 21
- Junpeng, P., Marwiang, M., Chiajunthuk, S., Suwannatrai, P., Chanayota, K., Pongboriboon, K., Tang, K. N., & Wilson, M. (2020). Validation of a digital tool for diagnosing mathematical proficiency. *International Journal of Evaluation* and Research in Education, 9(3), 665-674. https://doi.org/10.11591/ijere.v9i3.20503
- Kesorn, N., Junpeng, P., Marwiang, M., Pongboriboon, K., Tang, K. N., Bathia, S., & Wilson, M. (2020). Development of an assessment tool for mathematical reading, analytical thinking and mathematical writing. *International Journal of Evaluation and Research in Education*, 9(4), 955-962. https://doi.org/10.11591/ijere. v9i4.20505
- Krathwohl, D. R., Bloom, B. S., & Masia, B. B. (1964). Taxonomy of educational objectives: Handbook II: The affective domain. David McKay Publications https://scholar.google.com/ scholar_lookup?title=Taxonomy+of+educationa l+objectives%3A+The+classification+of+educat ional+goals.+Handbook+II%3A+Affective+dom ain&author=DR+Krathwohl&author=BS+Bloo m&author=BB+Masia&publication_year=1964
- Laukonnen, R., Biddel, H., & Gallagher, R. (2018). Preparing humanity for change and artificial intelligence: Learning to learn as a safeguard against volatility, uncertainty, complexity and ambiguity. Organization for Economic Co-operation and Development. https://doi. org/10.31234/osf.io/g5qwc
- Lohse-Bossenz, H., Kunina-Habenicht, O., & Kunter, M. (2013). The role of educational

psychology in teacher education: Expert opinions on what teachers should know about learning, development, and assessment. *European Journal* of Psychology of Education, 28(4), 1543-1565. https://doi.org/10.1007/s10212-013-0181-6

- Masters, G. N., & Wright, B. D. (1997). The partial credit model. In W. J. van der Linden & R.
 K. Hambleton (Eds.). *Handbook of modern item response theory*. Springer. https://doi.org/10.1007/978-1-4757-2691-6_6
- Mezirow, J. (2003). Transformative learning as discourse. Journal of Transformative Education, 1(1), 58-63. https://doi. org/10.1177/1541344603252172
- Nägele, C., & Stalder, B. E. (2017). Competence and the need for transferable skills. In M. Mulde (Ed.), Competence-based vocational and professional education: Bridging the worlds of work and education (pp.739-753). Springer. https://doi.org/10.1007/978-3-319-41713-4
- Nussbaum, M. (1997). Cultivating humanity: A classical defense of reform in liberal education. Harvard University Press. https:// doi.org/10.2307/j.ctvjghth8
- Organization for Economic Cooperation and Development (OECD). (2017). Education 2030 - Conceptual learning framework: Background papers. The future of education and skills: Education 2030. https://one.oecd.org/document/ EDU/EDPC(2017)25/ANN3/en/pdf
- Organization for Economic Cooperation and Development. (2018). OECD future of education and skills 2030 https://www.oecd. org/education/2030?E2030%20Position%20 Paper%(05.04.2018).pdf.
- Organization for Economic Cooperation and Development. (n. d.). Evaluation and assessment frameworks for improving school outcomes: Common policy challenges. https://www.oecd. org/education/school/46927511.pdf

- Padilla, J. L., & Leighton, J. P. (2017). Cognitive interviewing and think aloud methods. In B. Zumbo & A. Hubley (Eds.), Understanding and investigating response processes in validation research (pp 11-228). Springer. https://doi. org/10.1007/978-3-319-56129-5 12
- Rasch, G. (1960). Probabilistic models for some intelligence and attainment tests. Danmarks Paedagogiske Institut. https://books.google. co.th/books?id=aB9qLgEACAAJ
- Reeves, T. C. (2006). Design research from a technology perspective. In J. V. D. Akker, K. Gravemeijer, S. McKenney & N. Nieveen (Eds.), *Educational design research* (pp. 52-66). Routledge. https://www.taylorfrancis.com/ chapters/edit/10.4324/9780203088364-13/ design-research-technology-perspective-thomasreeves
- Stodden, D. F., Pesce, C., Zarrett, N., Tomporowski, P., Ben-Soussan, T. D., Brian, A., Abrams, T. C., & Weist, M. D. (2023). Holistic functioning from a developmental perspective: A new synthesis with a focus on a multi-tiered system support structure. *Clinical Child and Family Psychology Review*, 26(2), 343-361. https://doi.org/10.1007/ s10567-023-00428-5
- Vongvanich, S. (2020). Design research in education. Chulalongkorn University Printing House. https://www.chulabook.com/education/102930

- Webb, N. L. (1997). Criteria for alignment of expectations and assessments in mathematics and science education. National Institute for Science Education. https://eric.ed.gov/?id=ED414305
- Wilson, M. R. (2005). Constructing measures: An item response modeling approach. Routledge. https:// doi.org/10.4324/9781410611697
- Wilson, M., Allen, D. D., & Li, J. C. (2006). Improving measurement in health education and health behavior research using item response modelling: Comparison with the classical test theory approach. *Health Education Research*, 2(1), i19-i32. https://doi.org/10.1093/her/cyl053
- Wolff, J. (2015). Political philosophy and the real world of the welfare state. *Journal of Applied Philosophy*, 32(4), 360-372.
- Yazon, A. D., Ang-Manaig, K., Buama, C. A. C., & Tesoro, J. F. B. (2019). Digital literacy, digital competence and research productivity of educators. *Universal Journal of Educational Research*, 7(8), 1734-1743. https://doi. org/10.13189/ujer.2019.070812
- Zajda, J. (2021). Constructivist learning theory and creating effective learning environments. In J. Zajda (Ed.), *Globalisation and education* reforms: Creating effective learning environments (pp. 35-50). Springer. https://doi. org/10.1007/978-3-030-71575-5_3



SOCIAL SCIENCES & HUMANITIES

Journal homepage: http://www.pertanika.upm.edu.my/

The Federal Character Principle and Political Exclusion of Southeast Nigeria, 2015–2019

Emmanuel Onyebuchi Ezeani¹, Kingsley Ekene Okoye^{1*} and Emmanuel Terkimbi Akov²

¹Department of Political Science, Faculty of the Social Science, University of Nigeria, Nsukka, 410001, Nigeria ²Department of Political Science, Faculty of the Social Science, University of Uyo, 520003 Akwa Ibom State, Nigeria

ABSTRACT

The incidence of political exclusion in the world has continued to increase among different ethnic groups, and this has continued to generate tension. However, in Nigeria, the inception of the current democratic dispensation in 2015 led to the politics of exclusion in sheds of opinions of individuals whose contributions are required for the development of the country and in political appointments of people from particular religious and ethnic groups. Though the federal character principle of affirmative action has received reasonable scholarly attention, these studies have failed to examine how non-adherence to this policy initiative has increased the marginalization of the Southeast zone of Nigeria from 2015 to 2019. Based on the expository strength of the social exclusion theory and through a rigorous content analysis of data collected using the documentary method, it was argued that the non-implementation of this principle increased the marginalization of the southeast zone. Tables and figures validated these results in our analysis. Thus, emphasis is not only placed on affirmative action but rather on the manner in which it is performed. Our thought for policy implications considered the urgent need to review extant laws and policies enacted on inclusiveness, focusing on the yearly release of data by the commission across the country and effective sanctions for defaulters.

ARTICLE INFO

Article history: Received: 15 October 2021 Accepted: 15 March 2023 Published: 12 June 2024

DOI: https://doi.org/10.47836/pjssh.32.2.14

E-mail addresses:

emmanuel.ezeani@unn.edu.ng (Emmanuel Onyebuchi Ezeani) kingsley.okoye@unn.edu.ng (Kingsley Ekene Okoye) akovterkimbi@uniuyo.edu.ng (Emmanuel Terkimbi Akov) *Corresponding author *Keywords:* Affirmative action, federal character principle, governance, marginalization, political exclusion

INTRODUCTION

The challenge associated with governance has become a topical issue as nations and international institutions search for more effective ways of improving the transparency, accountability, and responsiveness of government decisions and policies (Committee for Development Policy, 2014). These efforts notwithstanding, Nigeria's history has continued to be marked by a crisis of governance, which started immediately after the country's independence on 1st October 1960 (Omoleke & Olaiya, 2015; Ozohu-Suleiman, 2013). The crisis contributed to the first military coup in the country on 15th January 1966 and the subsequent coups that followed. In Nigeria, the right to occupy any strategic political position often depends on the particular ethnic nationality that one belongs to. Also, the ability of any ethnic group to attract substantial developmental projects from the central government is usually a function of the level of the ethnic group's affinity with the powers that be (Adeshina, 2017). In a nutshell, this sums up the type of politics that is in operation in the country.

One of the thought-provoking issues that has not only remained unsolved but has the propensity for inducing high sensations on the part of all concerned is the issue of exclusionary politics in Nigeria (Jameson, 2006). It is an issue that has been politicized by successive administrations in Nigeria, including Military and Civilian regimes (Yagboyaju & Akinola, 2019). It has manifested in federations where its laws allocate power between the central and regional governments and for each level within a sphere, co-ordinate and independent. There appears to be a clear effort of one ethnic group to dominate the others in the country. Hence, the issue of marginalization and the question of the realization of social justice have been topical issues in Nigeria at the moment (Rindap & Mari, 2014). There has also been an attempt by one ethnic group (the Igbo) to secede in the 1960s on the grounds of the inherent inequality in the Nigerian polity (Adetiba, 2019; Agbo et al., 2021). The Yoruba have equally agitated for self-determination because they felt that their interests were by no means given any consideration by the federal government (Ozoeze, 2005). These developments elicit questions about the real essence of the 1999 Nigerian constitution (as amended), which states in its preamble as follows: "We, therefore, present a Constitution with the ultimate goal of advancing good governance and the well-being of all people in our country based on the principles of liberty and fairness and to strengthen our people's unity" (Federal Republic of Nigeria, 1999, p. 3).

Over time, the Nigerian state has produced leaders who felt that the 1999 constitution was impracticable because it lacked the fundamental elements for facilitating the implementation and consolidation of the Federal Character Principle (FCP) in the country. However, a renowned novelist, the late Professor Chinua Achebe, wrote in his book entitled *The Trouble with Nigeria* that the major challenge facing Nigeria as a country lies in its leadership structure. To him, there are no issues with Nigerian land, atmospheric conditions, or anything else within the country. Thus, he concluded that the country's problems lie in the indisposition of its leaders to rise to the responsibility of showing personal examples, which is the actual trait of true leadership (Achebe, 1983).

The foregoing suggests that Nigeria is facing a great crisis of governance. The oath of office of a Nigerian President, as recorded in the seventh schedule of the 1999 Constitution, states as follows:

... As President of the Federal Republic of Nigeria, I will discharge my duties to the best of my ability, faithfully and in accordance with the Constitution of the Federal Republic of Nigeria and the law, and always in the interest of the sovereignty, integrity, solidarity, well-being and prosperity of the Federal Republic of Nigeria; that I will strive to preserve the Fundamental Objectives and Directive Principles of State Policy as contained in the Constitution of the Federal Republic of Nigeria; that I will not allow my personal interest to influence my official conduct or my official decisions.... (Federal Republic of Nigeria, 1999, p. 1)

Given this oath, it is expected that every holder of the office of the President will see to the effectuation of the fundamental objectives and directive principles of state policy as enshrined in the constitution. The FCP is seen to be a fundamental element of these principles because of its potential for eliminating ethno-religious marginalization. To this end, Section 14(3) of the 1999 Constitution shows the different efforts to reduce the unhealthy rivalry between different groups in the country. Despite this provision to promote inclusion, political exclusion appears high in the country. The challenges encountered in implementing the Federal Character Principle in Nigeria have been widely discussed in the literature. For example, while Okoye et al. (2021) argued that it undermines political participation, Onimisi et al. (2019) focused on the bottlenecks in its application to public servants. Furthermore, Obiyan and Akindele (2002) show that it instigates conflicts and mutual trust, and Demarest et al. (2020) underscore how it leads to stagnancy in balancing the public service employment ratio. Other studies conclude that the FCP has contributed to undermining meritocracy (Mustapha, 2007; Olusoji et al., 2014). However, this paper examines if non-adherence to the FCP exacerbated the perceived marginalization of the Southeast zone in Nigeria. Our observation is from 2015 to 2019, which coincided with the rise in exclusionary politics of the zone, following the transition from the administration of President Goodluck Ebele Jonathan of the Peoples' Democratic Party (PDP) to President Muhammadu Buhari of the All Progressives Congress (APC). This paper is divided into five segments. Following the introduction is a review of related literature. The third segment deals with methodology, where we build up the materials and methods used as well as the theoretical framework for analyzing them.

Federal Character Principle and Political Marginalization—A Thematic Review

Extant literature has interrogated the impact of political exclusion on the victims worldwide. For instance, Riley et al. (2010) noted that the world is presently witnessing an era of alienation from conventional politics due to discriminatory practices that tend to exclude people from governance. Colman and Gøtze (2001) also enthused that estrangement from conventional politics and its structures marks the swift change in the contemporary political setting. According to Vecchione and Caprara (2009), some factors that have heightened exclusion include gender, education, and age, which, in their opinion, are significant for influencing marginalization levels.

Some studies have also examined the effect of political exclusion in Third World countries (Afigbo, 1989; 2000; Awolowo, 1947; Bello, 1962; Ezigbo, 2007; Onu, 2008). These groups of scholars argue that in most Third World countries, political exclusion was entrenched by colonialism and ethnic competition and has continued to persist despite the various strategies initiated to reduce marginalization and the domination of one group by another. They conclude that the aftermath of colonialism and its legacy of ethnic politics contributed in no little way to stoking political alienation in developing societies. The problem with the above line of thinking, however, is that it sees colonialism and ethnicity as having preceded, engendered, and instigated political exclusion in Third World countries.

Yet, during the pre-colonial era, some traditional systems had structures conducive to political alienation because they were inherently discriminatory. A good example is the Osu caste system, which was an age-long traditional practice in Igboland characterized by segregation and restrictions on interactions with a group of individuals known as Osu (Outcast). It was considered an abomination for the Osu to mix up with other community members or participate in the leadership selection process in Igboland (Ugobude, 2018). This practice of denying people rights to inclusion was in place long before the colonial era and when the issue of ethnicity was not yet profound (Ibenekwu, n.d.).

Other scholarly works have tried to explain the perceived marginalization of the southeast zone from the perspective of ethnicity and competition (Ibrahim, 2015; Okonta, 2012; Owen, 2016). They contend that the current perceived marginalization of the Igbo results from their leader's inability to make it to federal power. To them, the perceived marginalization of the southeast zone signifies a completed rupture, crack or breakdown of the Igbo elite and their masses, which could account for the former's failure to occupy the presidential position. It was even noted that "...the Igbo elite has a strong empirical basis to read Nigerian political history as one of failure and frustration for them...with this failure of the elite, the Igbo lumpen have seized the initiative of following the path of disintegration" (Ibrahim, 2015 as cited in Ibeanu et al., 2016, p. 5).

While existing explanations for the marginalization of the southeast are profound, their position that the zone's marginalization was due to the Igbo elite's inability to capture the presidency presents an incomplete picture of what is obtainable in Nigeria. First, Nigeria has six geopolitical zones, and a president is expected to be appointed from one of them. Therefore, their argument on this ethnic competition and division failed to account for why it is not a common feature attributed to other geopolitical zones in the country that have also failed to make it to the presidential position. Secondly, ethnic competition as a variable of political power in the southeast zone hardly had a similar effect on other minority ethnic groups such as the Urhobo Itshekiri, Ijaw, Igala, Nupe, Efik, Ibibio, Idoma, Kanuri, Nupe, and Tiv in the country. Thirdly, it has been noted in the literature that, sometimes, healthy competition can create avenues for economic development (Ononogbu, 2017). For example, the era following independence saw vigorous economic competition between the three dominant ethnic groups in Nigeria; the west produced cocoa, the north cultivated groundnuts and cereals, and the south was noted for its palm products and root crops. This competition galvanized economic development in Nigeria.

Another argument common in the literature on the reasons for the noninclusion of citizens is centered on the nature of state-society relations. Scholarly works like Gurr (1970), Ibeanu (2015), Onuoha (2011), O. Ukiwo (2009), and U. Ukiwo

and Chukwuma (2012) saw the FCP as the activities of some leaders which hardly translated to good governance but rather led to the degeneration of relations between the state and individual citizens. Some of the activities, as noted by the studies, include diversification of political space, which was followed by the emergence of "confrontation between state-led nationalism and stateseeking nationalism" (Onuoha, 2011, p. 407), state violence arising from the physical or mental injury against persons, property of law-abiding citizens or group of citizens (O. Ukiwo, 2009), and the nature of political settlement (patronage). They saw fragmentation as a major consequence of this problem, which could hamper social cohesion in the relationship.

Peters (2009) explored the issue of exclusion in terms of its impact on disabled individuals. To him, disabled individuals, including children and adults, are handicapped people who may find it difficult to participate in an activity, which could lead to their being sidelined from society. The data on disabled persons as a vulnerable group and their accumulated experiences frequently indicate an image of exclusion rather than marginalization. This kind of exclusion is apparent in the finding that 98% of young people with disabilities in developing countries do not go to school (Department of Economic and Social Affairs, 2009). In regions like the Middle East and North Africa, educational systems are noted to have kept out about seventyfive percent (75%) of disabled school-age children from the academic environment (Hakim & Jaganjac, 2005). Consequently, it may not be necessary to emphasize that the conception of the experiences of disabled people as marginalized take too lightly their experiences. However, articulating these factors as the only reasons for marginalization might be a misnomer because it focuses on disadvantaged groups—individuals like children and adults (Hammoud, 2005).

Other scholars have also tried to establish a link between heterogeneous societies and the marginalization of people in developing countries. For instance, Sanchez (2019) and Reinhold et al. (2000) argue that a heterogeneous society, as measured by the multiplicity of ethnic groups, tends to reduce a country's inclusiveness. In their view, the word 'heterogeneity' denotes the state of being possessed of different elements, different from 'diversity,' which is the inclusion of diverse people (for example, different genders, races or customs and traditions) in a group. Heterogeneity describes the sociocultural intricacy and separation of social structures in contemporary societies (Reinhold et al., 2000; Sanchez, 2019). It enables individuals to have a sense of belonging or what may be described as 'we feeling.' However, the heterogeneity of societies can sometimes attract relevance once it is politicized, mobilized and organized.

While the extant but relevant literature reviewed on this laid emphasis on how political alienation was caused by factors like ethnicity, colonialism, age, gender, heterogeneous society, nature of statesociety relations, and globalization, less emphasis was placed on examining how non-adherence to the FCP increased the marginalization of the Southeast zone in Nigeria. Though previous studies on the non-implementation of FCP argued that it undermines national integration, meritocracy, and political participation, none of the above studies specifically explored the link between exclusionary politics and the policy safety net of the FCP in the zone. More so, the overall implication of this to the well-being of the people of the southeastern zone has not been exhaustively dealt with in the academic debate in Nigeria.

METHODS

This study adopted the documentary data collection method, which constitutes a broad category of data obtained from secondary sources. It involves information from other scholarly works-published, unpublished journals, periodicals, and government publications. It was limited to the literature on affirmative action, the federal character principle, the quota system, and political exclusion. We utilized this to elucidate our argument from the existing literature as it was used to determine the relationship between non-adherence to the FCP and the perceived marginalization of the Southeast zone of Nigeria. Our reason for adopting qualitative research was to discover and probably understand the reasons for the observed patterns of exclusionary politics in Nigeria, especially the unseen or ignored ones. The method is well-suited for contextual analysis and useful when the task is to glean, illuminate, interpret and extract valuable information to draw inferences from the available evidence. Moreover, the advantage of qualitative research involves its "ability to have access to organizational structure, bureaucratic processes... this could lead to the discovery of the unexpected phenomenon" (Obikeze cited in Biereenu-Nnabugwu, 2006, pp. 360-370). The adoption of this method of data analysis is thus justified due to the following reasons:

- 1. The study largely used qualitative data generated from secondary sources.
- 2. The method helps facilitate the analysis (p. 372).

The qualitative data were generated from written and unwritten documents and analyzed using descriptive analysis. It enhanced our ability to objectively summarize the data sets obtained while underscoring the pattern of cause and effect of the independent and dependent variables utilized in the study. According to Asika (1991), "qualitative descriptive analysis essentially borders on summarizing the information generated in the research work so that appropriate analytical methods could be used to further discover relationships among the variables" (p. 118). It is a dynamic form of verbal and visual data analysis oriented toward summarizing the informational contents of that data (Altheide, 1987; Morgan, 1993). In contrast to quantitative descriptive analysis, in which the authors systematically apply a preexisting set of codes to the data, qualitative descriptive analysis is data-derived: that is, codes are also systematically applied, but they are generated from the data during the study (Sandelowski, 2000). The qualitative descriptive analysis moves further into the domain of interpretation because the effort is made to understand not only the manifest but also the latent content of data to discover patterns or regularities in the data. Implicit in qualitative descriptive analysis is that it enables us to achieve our set objectives. The study uses logical induction to test our hypotheses. Tables and figures were adopted to better understand and clarify the issues in the paper.

Theoretical Framework

The theory of social exclusion is the theoretical framework adopted to explain the link between FCP and political exclusion in the Southeast zone of Nigeria. The concept of social exclusion as a theory can be traced to Aristotle. The present-day awareness of the concept started in the early 1970s during the tenure of Rene Lenoir as the Secretary for Social Affairs of the French Government (Eflova et al., 2017). The theory was espoused as a means of getting a better explanation of issues relating to poverty and marginalization. Topical issues relating to social exclusion were analyzed in the works of other scholars such as Max Weber. Ludwig Wittgenstein and Martin Heidegger. The theory was further developed in Europe to solve different problems/challenges of societal disintegration emanating from the socioeconomic crises of the time. Aristotle's

theory of the state and society, where he viewed man as a political animal', has become the bedrock of the social exclusion theory (Eflova et al., 2017). It implies that man is the only animal capable of associating with other men with articulate speech both in the planning and execution of different activities. Other animals do not go further than recognize or distinguish pain and pleasure and signify these distinctions with an ordinary sound. The object of man's ability to speak is to indicate a certain level of advantage and disadvantage as well as justice and injustice in society.

In 1895, Emile Durkheim also gave fastidious attention to social cohesion and the challenges formed by pathetic social bonds in his work on the association between groups of people in society. Furthermore, topical historic actions like the painful end to France's colonial era or the socio-political disorder of 1968 toughened concerns with the responsibility of France's government in upholding social cohesion towards reducing or invalidating exclusion. The primary initiative of social exclusion in France in the early 1970s was to attract major developmental projects in the state and avoid unnecessary crises.

The basic characteristics of the theory are:

- 1. Social exclusion is a projection of conditions different from its outcome.
- 2. It is multidimensional, implying that policies requiring attending to it must be holistic.

- Patterns of social exclusion have a lot of shortcomings and numerous drawbacks.
- 4. It goes beyond the 'primacy of material condition' and extends to non-inclusiveness in social relationships and public engagement.
- 5. Social exclusion is positioned and entrenched within a community, a term different among separate nations in cultural diversities.
- 6. The threats embedded in exclusion could be based on individual qualities like (the person's status), including health conditions, sex category, age, religious sect, nationality or ethnic group, political affiliations, personal communication, and personal contacts.
- 7. Social exclusion deals more with social relationships relating to two different parties: excluders and excluded.

Following these perspectives, the attitude of the Nigerian government in policy-making prioritizes elites at the expense of the poor masses or the disadvantaged groups. In the social science discipline, social exclusion is, among other theories, one of the theories researchers adopt to analyze the problem of social discrimination, marginalization and disparity in society. Other factors include sex (male or female), social class (rank or category), religious sect (Christianity, Muslim, Hindu), caste (social standing or social order) and ethnic groups (racial, cultural or tribal) are multifarious associations that are being contested. Possibly, at a minimal level, there are significant relationships linking the social realities this theory seeks to explain in society; for instance, a contribution to the knowledge of this theory could be to concentrate on the social relations of individuals and how such impacted multiple exclusionary processes.

Apprehension concerning the degree of associational difference connecting different dimensions of social discrimination, marginalization and disparity of individuals/ groups in the society and the relative salience of these processes are necessary because of the considerable methodical prospects social exclusion has towards understanding and informing policy and action of the basic things required of them. Nevertheless, the insight offered by its theoretical perspective cannot change those obtainable by the lens of social status, ethnic groups, social group standing or order, age, and disability, among others. When the role played by these terminologies is considered separately, one tends to underscore the efforts toward realizing just, fair and unified societies in Nigeria.

It should be noted that a significant pattern of social exclusion as a theory centers on advanced asymmetrical power associations, which helps us to understand the basis of poverty and the implications of the discrimination of individuals and groups in society. These factors control and relate to economic, socio-political and cultural aspects in associations built by individuals, different communities, institutions of learning, or nation-states. Given this perspective, what could account for any government policy on benefit levels or different entry conditions is likely to influence poverty levels. Often, poverty is linked to its sufferers in the action of benefits and denials from governmental agencies or individuals and groups as the fault of those individuals concerned. Therefore, differentiating poverty and the social exclusion theory via organizational discrepancies appears to have failed. To this end, the best way to look at both is to consider or reflect on the roles played by different governmental structures that are likely to raise the threat of poverty and marginalization of people in society. Under these are procedures and processes that can be taken by individuals who were deprived of access to resources by the powers. Schuyt and Voorham (2000) showed how citizens of a particular society may instigate marginalization of other citizens by outright undermining people who are different in appointive positions, employment opportunities, and developmental projects. In most cases, this is done using bases such as ethnic group, gender, religious affiliation, social status, and age.

Sometimes, transitional businesses are used to carry out government policy objectives, which could make them serve as instruments of poverty and social exclusion via vague policy initiatives or goals and unproductive work initiatives while accommodating some individuals in employment opportunities over other people. The state and the central government can be regarded as the initiators of these processes if their policy inputs and outputs increase the chances of people being marginalized and excluded from the country's mainstream politics. At a more abstract level, the welfare state may even be regarded as an actor that causes poverty and social exclusion. It follows the well-known neo-liberal critique, which assumes that the welfare state does not help people but makes them dependent and passive (see Murray 1984, 1997). Exclusion, as an inevitable outcome of the institutions of the modern welfare state, takes away the incentive for people to shape their own lives, both through the safety net they provide and through the incentives administrative organizations have in sustaining a passive attitude of their clients. In addition to the possibility of actors at various levels functioning as excluders, social exclusion may also result from more general socioeconomic developments.

RESULTS AND DISCUSSION

The following are some indicators of the non-adherence to the FCP in Nigeria.

Exclusive Appointment of Northerners as Heads in The Security Architecture

As one of Nigeria's fourteen Independent Federal Executive Bodies, the Federal Character Commission (FCC) was established by Section 153(1) of the 1999 constitution, as amended. Its establishment predates the constitution by three years. An enabling Act, Decree No. 34 of 1996, was set up specifically to foresee, monitor and manage its affairs in line with the recommendations of the 1994/95 Constitutional Conference. The establishment of the FCC was facilitated by Section 14(3) and (4) of the 1999 Constitution, as amended. Details of the exclusive appointment of Northerners as heads in the security sector can be seen in Table 1.

Table 1

Heads of National Security Institutions appointed by President Muhammadu Buhari

S/N	Name	Position	State of Origin	Geopolitical Zone	Date appointed
1.	Brig Gen Mansur Muhammadu Dan Ali (Rtd).	Minister of Defence	Zamfara	North-West	15/11/2015
2.	Lt Gen Abdulrahman Dambazzua	Minister of Interior	Kaduna	North-West	15/11/2015
3.	Maj. Gen Mohammed Babagana Monguno (Rtd)	National Security Adviser	Borno	North-East	13/07/2015

S/N	Name	Position	State of Origin	Geopolitical Zone	Date appointed
4.	Abubakar Malami	Attorney Gen of the Federation	Kebbi	North-West	15/11/201:
5.	Lt Gen. Abayomi G. Olanishakin	Chief of Defence Staff	Ekiti	South-West	13/07/201
6.	Lt Gen Tukur Buratai	Chief of Army Staff	Borno	North-East	13/07/201
7.	Air Marshal Sadique Abubakar	Chief of Air Staff	Bauchi	North-East	13/07/201
8.	V Adm. Ibok-Ete Ekwe Abas	Chief of Naval Staff	Cross River	South-South	13/07/201
9.	Lawal Musa Daura	Director General Department of State Service	Katsina	North-West	02/07/201
10.	Abdullahi Gana Muhammadu	Commandant General Nigerian Security and Civil Defence Corps	Niger	North-Central	17/07/201
11.	Col Hameed Ibrahim Ali (Rtd)	Comptroller General Nigerian Correctional Service	Bauchi	North-East	27/08/201
12.	Muhammad Mustapha Abdullah	Chairman National Drug Law Enforcement Agency	Adamawa	North-East	11/01/201
13.	Ibrahim Idris Kpotum	Inspector General of Police	Niger	North-Central	21/03/201
14.	Muhammed Babandede	Comptroller General Nigerian Immigration Service	Jigawa	North-West	17/05/201
15.	Ja' afaru Ahmed	Comptroller General Nigerian Prison Service	Kebbi	North-West	17/05/201
16.	Ahmed Rufai Abubakar	Director Gen National Intelligence Agency	Katsina	North-West	11/01/201
17.	Boboye Olayemi Oyeyemi	Corps Marshall Federal Road Safety Corps	Kwara	North-Central	24/01/201

Source: Adapted from Nwangwu et al. (2020, p. 15)

Some of the official documents of the FCC show that the exclusive appointment of northerners as heads of the country's security agencies was facilitated by the fact that first, the Nigerian Constitution is silent on where and how to draw the heads of security agencies in the country. Second, expertise and necessary skills may be required for such positions. Third, the broad view of Section 14(3) of the 1999 Nigerian Constitution made it possible for some legal luminaries to find loopholes to favor some serving presidents For example, Mustapha (2007) notes that in March 2005, during his last tenure in office, former President Olusegun Obasanjo was accused by the Nigerian Supreme Council of Islamic Affairs (NSCIA) of marginalizing the Muslim faithful in his ministerial appointments. Out of 42 listed, there were only 16 Muslim ministerial nominees (38.1%), as opposed to 26 Christians (61.9%). However, this accusation could not be substantiated against the former president, given the lacuna in the wide-ranging view of Section 14(3) of the FCP Act. Implicit in this development is the Nigerian government's attitude in policy-making, which prioritizes the elites at the expense of the poor or disadvantaged groups (Okoye et al., 2021). More so, empirical evidence has it that the application of the FCP in Nigeria was marked by subjective appointment in different spheres across the country (Gboyega, 1989). Social exclusion as a theory adopted in this study tends to concentrate more on the multifaceted fundamental patterns that instigate poverty and disadvantaged groups

on the multidimensional nature of the occurrence or results of these processes.

Weak Enforcement Capacity of the Federal Character Commission

In 1979, the Nigerian government established the FCP to solve the problem encountered with the quota system through a constitutional provision (Agbaje, 1989; Osaghae, 1989). It was considered necessary at that time because inequalities existed at different levels-between the regions, within the major and minor ethnic groups, and in religious circles (Mustapha, 2007). The fear of being dominated by one ethnic group became more prominent in the country's politics. Thus, it became imperative to act to ensure that there would be no individuals or groups of individuals within the country that would dominate others. It led to the introduction of Section 14(3) of the 1979 Constitution, which stated as follows:

The total structure of the government at the center, its agencies and institutions should be done in a way that will represent the federal character of Nigeria and the call for unity, loyalty and progress, thereby ensuring that there shall be no predominance of persons from a few states or a few ethnic or sectional groups in government or any of its agencies ("Nigeria's Constitution," 2011, p. 35).

The FCC was established during the General Sani Abacha regime through Decree 34 of 1996 to achieve these objectives. Mustapha (2007) highlighted the power of the Commission to be: to map out effective methods for the distribution of posts and services, consistency in monitoring these posts and services, ensure conformity through a better legal process, review and order for data on staffing, and institutional investigations. Even as these roles are comprehensive, the FCC has not been able to implement this policy effectively. Hardly will one see efficiency in the distribution of posts and services nor consistency in monitoring those posts and services in the country (Omeje, 2018; The Nation, 2017). Babawale (n.d.) also notes that salient decisions which should be the exclusive preserve of the Commission are being carried out by the executive and approved by the legislature. It indicates the weak and subservient character of the commission. which creates the impression that it is a stooge in the hands of the executive and legislature. The weak structure of the commission can be seen from the Policy Act in Section 153 of the constitution, where the FCC's responsibility/task is made clear. Further clarifications about the commission's duties were also made in sections 8(1) and 8(3) of the extant law. Unfortunately, the commission was assigned a role it lacked the capacity to carry out. It is compounded by the politics inherent in the selection/emergence of members of the FCC. Also, none of the commission's legal action against erring individuals, including Ministries, Departments and Agencies (MDAs), can be effectuated without the consent of the Attorney General of the Federation (AGF). Okoye et al. (2021) show

that the weak enforcement capacity of the FCC can be traced to its faulty foundations, which have resulted in the president's discriminatory appointment of key officials to the commission.

Lopsided Distribution of Infrastructural Facilities

In the FCC Act established in 1996, the commission was lawfully authorized to follow a second directive centered on allocating and sharing socioeconomic and infrastructural facilities. Section 4(1d) of the FCC Act stated the modus operandi of the commission as follows:

- 1. An impartial method of sharing, pending the authorization of the President, for the allocation and distribution of socioeconomic and infrastructural facilities.
- 2. Proper forms and patterns, pending the authorization of the President, are needed to rectify or resolve the problem of exclusion in the federal system of Nigeria, which is obtainable in the public and private sectors.

Some sectors noted in (2) above are Education, Electricity, Health, Commerce and Industry, Telecommunications, Transport and Youth Development (FCC Act, 4,2b). Sadly, the commission has not followed these directives. Some studies noted that the main challenge lies in the nonimplementation of the provisions, including a lack of commitment to the distributional principles outlined in the Act (Demarest et al., 2020; Mustapha, 2007). It could be noticed from the perceived marginalization of certain areas of the country, especially the Southeast and South-South zones (The Nation, 2017).

In 2013, the FCC brought out a blueprint directing that a minimum of 2% and a maximum of 5% of the total budget of different agencies should be allocated to states (Demarest et al., 2020). It aimed to limit the absolute control of the FCC to implement equal distribution. Also, a three-year external borrowing budget sent to the National Assembly in 2016 for infrastructural development by the APCled government shows that the Southeast zone was not properly captured (Balogun, 2016). Festus and Saibu (2019) note that this borrowing initiative increased Nigeria's total external debt to \$41 billion in just three years. While unjust treatments perceived in the political appointment of people of the southeast continue to occur, the Conditional Cash Transfer (CCT), a federal government's social security scheme, followed a similar pattern. Figure 1 attests to the uneven distribution of CCT across the six geopolitical zones in Nigeria.

A cursory look at the figure shows that the Southeast zone had the least share of the CCT, which is less than 4% of the portion distributed to the Northeast (Nwangwu et al., 2020). The Nation (2017) argued that the attitude of the APC-led Federal Government contributed to why the South-South and Southeast governors decried the absence of federal presence in their respective zones.

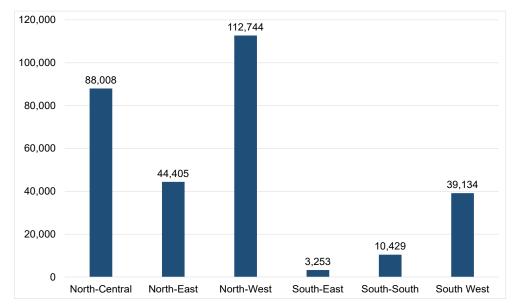


Figure 1. Beneficiaries of the Federal Government's CCT scheme

Pertanika J. Soc. Sci. & Hum. 32 (2): 651 - 674 (2024)

The Implication of Non-Adherence to The FCP to The Southeast Zone in Nigeria

Increased Agitation for Inclusion and Secession in the Southeast. The outright exclusion of the southeasterners in appointments to political positions in the country was evident during the administration of President Muhammadu Buhari (2015 to 2019). This development not only led to a series of agitations for inclusion but also triggered a secessionist agenda from groups such as the Movement for the Actualization of the Sovereign State of Biafra (MASSOB) and the Indigenous People of Biafra (IPOB). Some scholars have recounted how the leadership quagmire at various levels has failed to address nagging sociopolitical, economic and marginalization challenges in the nation's polity (Simon, 2022; U. Ukiwo & Chukwuma, 2012). The feelings of marginalization and deprivation nursed by the people of the Southeast zone were orchestrated by the high spate of negligence by the leadership of the Federal Government of Nigeria (FGN). This allegation of marginalization was perceived as denying their right to properly allocate values (Ikegbunam & Agudosy, 2020). The situation legitimized the separatist groups' case for inclusion and secession. These perceptions can equally be linked to issues relating to government neglect, deprivation, and marginalization of the Southeast region of Nigeria. Corroborating this, Okonta (2012) avers that the actions of the FGN have continued to pave the way for the marginalization of the people in the zone.

Some studies even hold that the Igbos in Nigeria are being subjected to different kinds of marginalization as a punishment for the Biafran war (Okonta, 2012; Orji, 2001). Consequently, the FGN tends to respond to all complaints and claims from the zone with suspicion and repression because the government of Nigeria uses force to stop any form of orientation aimed at exposing the younger generations to the pains of the war. Secession often occurs among countries with multi-ethnic nationalities and different sociocultural and ethno-religious diversities. Among the basic causes of secession are injustice and inequality resulting from a power imbalance, as in Nigeria (Osaretin, 2019). These groups are united by their desire to uphold their oneness and collective identity. Moreover, indigenous leaders worldwide are united by the burning desire for their people to be respected, given their dues, and then left to make their share of mistakes and progress (McMullen, 2010). Anything beyond this very desire brings about fear of domination and demand for self-determination, which are at best expressed through the media. It explains why IPOB resuscitated Radio Biafra to express the perceived marginalization of the Igbos in Nigeria. It also introduced a 'sit at home' in the zone every Monday to further ventilate their grievances against the Nigerian state.

Excessive Exclusion of Southeasterners from Key Political Appointments. The imbalance problem in the Nigerian federation dates to the 1914 amalgamation of the Southern and Northern protectorates. However, Richard's 1949 constitution tried to correct that anomaly by creating three different regions in Nigeria: the North, East and West. In 1963, however, the structural imbalance problem resurfaced when the Mid-Western region was carved out of the Western region. Accordingly, Bretton (1962) observed that the unusual or unique way the Northern region was created served as the foundation for what, once the nation gained its independence, was considered one of the biggest cases of gerrymandering in history. For example, the Northern region had 77% of Nigeria's land mass; the Eastern region had 8.3%, the Western region 8.5% and the Mid-Western region 4.2%. As for population, the 1963 census indicates that Northerners represented 53.3% of the total population of Nigeria, the Eastern region accounted for 22.3%, the Western region had 18.4%, and the Mid-Western region was 4.6% (Orluwene, 2018). The increase in the population of the North and the South-West region and the reduction in the population of the Igbos in the Southeast zone were attributed to the manipulations that always take place during census exercises in Nigeria. For instance, the population of the Igbo decreased from 17% in 1952/53 to 13.48% in 1991 (a decrease of 3.68%), while the population of the Yorubas in Western Nigeria increased from 16.00% in 1952/53 to 17.60% in 1991, an increase of 3.88% (Ohaneze, 2002).

This structural imbalance continued even after the creation of states by the military and the successive military regimes in Nigeria. The creation of 12 states in 1967, 19 in 1976, 21 in 1987, 30 in 1991, and 36 in 1996 did not alter the imbalance structure in the Nigerian federation. It equally extends to the creation of local governments in 1976. For instance, figures obtained from the 2006 Nigerian Population Census (NPC) indicate that Lagos and Kano states had similar population numbers, yet Lagos has 20 local government areas (LGAs), and Kano has 44.

The Southeast zone of Nigeria has enough manpower and resources to aspire for the office of the presidency in Nigeria. However, the occupation of the presidency by the Hausa/Fulani and Yoruba is seemingly immutable. A rundown of the elective positions at the federal level attests to this fact. Taking a cue from works like Azom et al. (2019), one would see that the power relations between the South and the North remain asymmetrical. This asymmetrical relationship continued even within the six geopolitical zones' structure, where the southeast has only five states compared to the other zones, which have six states each. Table 2 shows the degree of marginalization of the Southeast zone with regard to elective and appointive positions based on geopolitical zones.

In Nigeria, issues relating to asymmetric power relations have been an old-age issue that could be traced to the colonial era. It was in consideration of the loyalty of the Northern elite to the colonial masters. The lopsided nature of leadership positions and political appointments is so glaring that it has become clear that a certain zone was deliberatively meant to be sidelined. The

S/N	Positions	May 2011– May 2015	Name	Geopolitical zone	May 2015– May 2019	Name	Geopolitical zone
1.	President	Bayelsa	Goodluck Jonathan E.	South-South	Katsina	Muhammadu Buhari	North-West
2.	Vice-president	Kaduna	Namadi Sambo	North-West	Lagos	Yemi Osibanjo	South-West
3.	Senate President	Benue	David Mark	North- Central	Kwara	Bukola Saraki	North- Central
4.	Speaker, house of representatives	Sokoto	Aminu WaziriTambuwal	North-East	Bauchi	Yakubu Dogara	North-East
5.	Secretary to the government of the federation	Ebonyi	Anyim Pius Anyim	Southeast	Adamawa	Babachir David Lawal	North-East
					Adamawa	Boss Gida Mustapha	North-East

Table 2
Zoning of key positions and their distribution in Nigeria by geopolitical zones, 2011–2019

Source: Authors' compilation

then President General of the Ohanaeze Ndigbo, Chief John Nnia Nwodo (2017) states as follows:

Under the current Federal government, Igbo representation is abysmal and falls extremely short of the constitutional provisions for the reflection of federal character in the appointment into important government positions. No arm of government, namely, the executive, judiciary or legislature, is headed by an Igbo. No section of the armed forces or paramilitary organization is headed by an Igbo. Neither the Supreme Court, Court of Appeal, nor the Federal High Court is headed by an Igbo.... (p. 5)

Table 3 gives a clearer view of the incidences of lopsided appointments in the country compared to other regions.

Table 3

Group Managing Director of NNPC from 2015–2019

S/no	Name	Appointed by	Period	State	Geopolitical zone
1.	Mr. Andrew Yakubu	Former President Goodluck Jonathan	2012-2015	Kaduna	North-West
2.	Ibe Kachikwu	President Muhammadu Buhari	2015-2016	Delta	South-South
3.	Dr. Maikanti Baru	Muhammadu Buhari	2016-2019	Bauchi	North-East
4.	Mallam Mele Kyari	Muhammadu Buhari	2019-	Borno	North-East

Source: Odo (2019, p. 70); modified by the authors

From the tables above, it is obvious that the Northern region has dominated political positions in Nigeria, and this has been rationalized on various grounds of political, economic and social factors. Implementing the FCP in relation to ministerial appointments and permanent secretaries across the federation has been more successful, perhaps because it is specified in the 1999 Nigerian constitution. Otherwise, doing so would be considered unconstitutional (Adekanye, 1989).

Deplorable State of Federal Roads in the Southeast Zone of Nigeria

Road networks are seen to be important in many ways. Quality roads help develop and connect a wide-ranging network of people in society. The broad view of road networks cannot be overemphasized as they offer more than 90% of local passengers better opportunities to sell their products and meet and interact with others outside their locality. It accounts for why road networks are taken seriously in most advanced countries and are considered twice as important as other resources. In spite of how important good road networks are, the general state of roads in many African countries is still deplorable owing to poor management/maintenance of road infrastructure by different national and sub-national governments across the continent. Nigeria is one of the countries with similar challenges in terms of the quality of its road network. Although the worth of the country's national road network will improve when many of the ongoing projects are finished, some areas

or zones, such as the southeast, have been marginalized in the award of federal road infrastructure contracts in the country (Federal Road Maintenance Agency, 2019).

Perhaps the best way to explain the deplorable condition of federal roads in the Southeast zone is the cynical remark made by a citizen as follows: "that even an individual with poor sight needed not to be deceived on the nature of pitiable road networks in the zone, therefore, when a journey becomes tortuous and irregular, the Southeast region is nigh" (Anyaduba, 2011, p. 4). Almost all the federal roads in the five states that make up the zone are in bad condition, thus creating a nightmare for travelers around the zone. Clearly, this has created unpalatable experiences for road users in the southeast who are forced to spend huge sums of money on vehicle maintenance/repairs. The bad roads have also led to ghastly accidents that have led to the untimely death of many people in the zone (Anyaduba, 2011).

On 27th August 2018, the federal government released a record of 69 road projects and bridge construction works it had undertaken to alter the claims by people in the southeast that the zone had been neglected in the distribution of road projects. The alleged 69 projects were said to be part of the existing Niger Bridge works and the rebuilding process of the second Niger Bridge, which was estimated to cost over N680 billion. The then Minister of Information and Culture, Alhaji Lai Mohammed, also noted that the 69 roads and bridges in the country, which extended across the Southeast zone, were at different conclusion phases. Notwithstanding, the President-General of the Ohanaeze Ndigbo has this to say about the condition of the transportation network in the Southeast zone:

No railway construction is being done in Igboland. The Enugu/Port-Harcourt and Enugu/Onitsha Expressways have become a national embarrassment. State governors in Igbo state are now rehabilitating federal roads in Igboland from their lean budgets to keep the mobility of production factors alive. (Nwangwu et al., 2020, p. 14)

CONCLUSION

The motivation behind this paper emerged from the perceived increase in exclusionary politics against the Southeast zone of Nigeria. This incidence has taken many dimensions, culminating in the denial of opportunities for the enjoyment of social and political rights, deprivation of access to material resources, and unequal representation in key political appointments of the people of the Southeast zone. The extant literature reviewed reveals that there has been enormous scholarly research on political exclusion in many countries around the globe. The studies have variously etched their arguments for political exclusion on gender, educational level/attainment, age, colonialism, ethnicity, ethnic divisions and competitions, statesociety relations, disabled individuals, heterogeneous societies and globalization. However, these studies failed to account for why a policy safety net such as the FCP, which was implemented to address marginalization, has exacerbated it. It is the puzzle this paper set out to answer.

Data were assessed using the documentary method of data collection and analyzed using qualitative descriptive analysis to authenticate and validate our hypothesis. Social exclusion theory was adopted to strengthen the analysis. Thus, the federal government's non-adherence to the FCP increased the marginalization of the Southeast zone in Nigeria. Of course, a common notion of affirmative action is that it is built relatively on justice, parity and fairness. In this way, affirmative action is considered necessary for fostering unity, reducing acrimony and enhancing national integration. While acknowledging that FCP at inception was meant to solve the problems emanating from unnecessary civil strives, identity politics and conflicts resulting from ethnic and religious cleavages, it was also found that the FCC, which was instituted to help in checkmating the excesses from different government institutions, Ministries, and MDAs have not achieved much. Part of the reason observed was that some of the enabling laws and policies enacted in the country were contradictory, which hindered the operational success of the commission. The implication is that the commission has not maintained proper accountability in discharging its duties across the 36 states in Nigeria. The situation is compounded by some elites who use their leadership position to strategically allocate material resources and political positions to their members in the name of affirmative action.

It has contributed to instigating an increase in agitation for inclusion and secession from members of the marginalized or shunned geopolitical zones such as the southeast.

In light of the above, the goal of the FCP seems lucid. While the target populations have been identified, the problem of proportionality or equity in distributing political and economic benefits has not been properly addressed. The key to addressing the issues would be to repeatedly review the methodological problems of elective and appointive positions to institute an open structure where any challenges relating to political exclusion within the country can be probed and resolved. One thing noted in consideration of the workload of the FCC is that it is too broad and idealistic, especially in relation to the 1999 Constitution, as amended. In summary, we urgently need to review extant laws and policies enacted on inclusiveness, focusing on the yearly release of data by the FCC across the country and effective sanctions for defaulters.

ACKNOWLEDGEMENTS

The second and third authors wish to express their appreciation for the mentorship role of the lead author, Professor Emmanuel Onyebuchi Ezeani, who supervised them during their PhD Program. The authors are also grateful to the journal editors and the anonymous reviewers for their useful suggestions and incisive comments, which contributed to enhancing the quality of the paper.

REFERENCES

- Achebe, C. (1983). *The trouble with Nigeria*. Fourth Dimension Publishing.
- Adekanye, J. B. (1989). The quota recruitment policy: Its sources and impact on the Nigerian military. In P. P. Ekeh & E. E. Osaghae (Eds.), *Federal Character and Federalism in Nigeria* (pp. 41-60). Heinemann Educational Books.
- Adeshina, T. C. (2017). Ethnic conflict in Nigeria: A challenge to inclusive social and political development [Unpublished doctoral dissertation]. University of Fort Hare.
- Adetiba, T. C. (2019). Dynamics of ethnic politics in Nigeria: An impediment to its political system. *Journal of Economics and Behavioral Studies*, *11*(2), 132-144. https://doi.org/10.22610/jebs. v11i2(J).2828
- Afigbo, A. E. (1989). Federal character: Its meaning and history. In P. P. Ekeh & E. E. Osaghae (Eds.), *Federal Character and Federalism in Nigeria* (pp. 3-18). Heinemann Educational Books.
- Afigbo, A. E. (2000). *The tears of a nation and people: The Igbo and the human rights situation in Nigeria.* Whytem Publishers.
- Agbaje, A. (1989). Mass media and the shaping of federal character: A content analysis of four decades of Nigerian newspapers, 1950-1984.
 In P. P. Ekeh & E. E. Osaghae (Eds.), *Federal Character and Federalism in Nigeria* (pp. 30-48). Heinemann Educational Books.
- Agbo, P. O., Okoye, K. E., Uwaegbute, K., & Agbo, C. O. (2021). From Nigeria/Biafra War to increasing ethnic conflict: The imperative of Nehemiah's administrative strategy? *African Renaissance*, *18*(1), 91-114. https://doi.org/10.31920/2516-5305/2021/18n1a5
- Altheide, D. L. (1987). Reflections: Ethnographic content analysis. *Qualitative Sociology*, 10, 65-77. https://doi.org/10.1007/BF00988269

- Anyaduba, E. (2011, August 18). Nigeria: The deplorable state of federal roads in the Southeast. All Africa. https://allafrica.com/ stories/201108221240.html
- Asika, N. (1991). *Research methodology in the behavioural sciences*. Longman Publisher.
- Awolowo, O. (1947). *Paths to Nigerian freedom*. Faber and Faber.
- Azom, S. N., Alumona, I. M., & Iloh, E. (2019). The Nigerian state and the resurgence of separatist agitations: The case of Biafra. *Journal of Conflict Transformation and Nation Building*, 1(1), 95-119.
- Babawale, A. T. (n.d.). *Federal character commission:* An evaluation. Nigerian Law Guru http://www. nigerianlawguru.com/articles/constitutional%20 law/FEDERAL%20CHARACTER%20 COMMISSION,%20AN%20EVALUATION. pdf
- Balogun, A. (2016, March 28). Infrastructure development in Nigeria: Better late than never. Lexology. https://www.lexology.com/library/ detail.aspx?g=7814c253-4d29-44ac-a59ab2aa51e0276d
- Bello, A. (1962). My life. Cambridge University Press.
- Biereenu-Nnabugwu, M. (2006). *Methodology of political inquiry: Issues and techniques of research methods in political science*. Quintagon Publishers.
- Bretton, H. L. (1962). Africa: Power and stability in Nigeria: The politics of decolonisation, Praeger.
- Colman, S., & Gøtze, J. (2001). Bowling together: On line public engagement in policy Deliberation. Hansard Society.
- Committee for Development Policy. (2014). Global governance and global rules for development in the post-2015 era. United Nations. https://www. un.org/development/desa/dpad/publication/cdppolicy-note-2014/

- Demarest, L., Langer, A., & Ukiwo, U. (2020). Nigerian Federal Character Commission (FCC): A critical appraisal. Oxford Development Studies, https://doi.org/10.1080/13600818.2020.1727427
- Department of Economic and Social Affairs. (2009). *Youth with disabilities*. United Nations. https:// www.un.org/development/desa/disabilities/ youth-with-disabilities.html
- Eflova, M., Minzaripov, M., & Ishkineeva, G. (2017). Conceptualization of social exclusion phenomena in sociological theories. *The Turkish Online Journal of Design, Art and Communication,* (Special Edition), 1887-1892.
- Ezigbo, E. C. O. (2007). *The Biafra war and the Igbo in contemporary Nigerian politics*. Genius Press.
- Federal Republic of Nigeria. (1999). Constitution of the Federal Republic of Nigeria 1999. International Centre for Nigerian Law. http://www.nigeria-law.org/ ConstitutionOfTheFederalRepublicOfNigeria. htm
- Federal Road Maintenance Agency. (2019). General maintenance repairs of some federal roads nationwide (Phase 11). Annual Report for advert final corrected. https://ferma.gov.ng/wp-content/ uploads/2019/07/2.-SUBMISSION-OF-PHASE-2-FOR-ADVERT-FINAL-Corrected.docx
- Festus, G. E., & Saibu, M. O. (2019). Effects of external debt on Nigerian economy: Further evidences (MPRA Paper). Munich Personal RePEc Archive. https://mpra.ub.uni-muenchen. de/92704/
- Gboyega, A. (1989). The public service and federal character. In P. P. Ekeh, & E. E. Osaghae (Eds.), *Federal Character and Federalism in Nigeria* (pp. 17-32). Heinemann Educational Books.
- Gurr, T. R. (1970). *Why men rebel*. Princeton University Press.
- Hakim, L. G., & Jaganjac, N. (2005). A note on disability issues in the Middle East and North Africa (Report No. 37275). World Bank Group.

http://documents.worldbank.org/curated/ en/912231468110689787/A-note-on-disabilityissues-in-the-Middle-East-and-North-Africa

- Hammoud, H. R. (2005). *Illiteracy in the Arab world*. UNESCO Digital Library. https://unesdoc. unesco.org/ark:/48223/pf0000146282
- Ibeanu, O. (2015, December 6). Resolving the Igbo non-question: Pitfalls of Jibo's single strand ethnic narrative. *Premium Times*. http://blogs. premiumtimesng.com/?p=169904
- Ibeanu, O., Orji, N., & Iwuamadi, K. (2016). Biafra separatism causes, consequences and remedies. Institute for Innovations in Development.
- Ibenekwu, I. E. (n.d.). Igbo traditional political system and the crisis of governance in Nigeria. *Ikoro Journal of the Institute of African Studies UNN*, 9(1&2), 1-13.
- Ibrahim, J. (2015, November 30). Resolving the Igbo question. *Premium Time*. https://opinion. premiumtimesng.com/2015/11/30/resolving-theigbo-question-by-jibrin-ibrahim/
- Ikegbunam, P. C., & Agudosy, F. I. (2020). Cultivating Biafran agenda in Nigeria: Evaluation of the influence of radio Biafra's rhetoric of ethnic marginalization on rural dwellers in the South-East. Journal of Media and Communication Studies, 13(1), 23-37. https://doi.org/10.5897/ JMCS2020.0698
- Jameson, K. P. (2006). Political crises, social conflict and economic development: The political economy of the Andean Region. *Journal of Economic Issues*, 40(3), 850-853, https://doi.or g/10.1080/00213624.2006.11506961
- McMullen, J. (2010, September 8). The search for common ground. Reconciliation For Western Sydney: Building bridges between aboriginal peoples and other Australians. https:// reconciliation4westernsydney.org/buildingbridges/building-bridges-2010/321-2/
- Morgan, D. L. (1993). Qualitative content analysis: A guide to paths not taken. *Qualitative*

Health Research, *3*(1), 112-121. https://doi. org/10.1177/104973239300300107

- Murray, C. A. (1984). Losing ground: American Social Policy, 1950-1980. Basic Books.
- Murray, C. A. (1997). *What it means to be a libertarian: A personal interpretation*. Broadway Books.
- Mustapha, A. R. (2007). Institutionalizing ethnic representation: How effective is the Federal Character Commission in Nigeria? (CRISE Working Paper No. 43). Department of International Development, University of Oxford. https://assets.publishing.service.gov.uk/ media/57a08bf440f0b64974000ec6/wp43.pdf
- Nigeria's Constitution of 1999 with Amendments through 2011. (2011). *Constitute Project.* https://www.constituteproject.org/constitution/ Nigeria_2011
- Nwangwu, C., Onuoha, F., Nwosu, B., & Ezeibe, C. (2020). The political economy of Biafra separatism and post-war Igbo nationalism in Nigeria. *African Affairs*, 119(477), 526-551. https://doi.org/10.1093/afraf/adaa025
- Nwodo, N. (2017, January 28). Ndigbo: Our case, a ticking time bomb. *Vanguard.* https://www. vanguardngr.com/2017/01/ndigbo-case-tickingtime-bomb/
- Obiyan, A. S., & Akindele, S. T. (2002). The federal character principle and gender representation in Nigeria. *Journal of Social Sciences*, 6(4), 241-246. https://doi.org/10.1080/09718923.20 02.11892352
- Odo, T. (2019). Nigerian State and Neo-Biafra separatist agitation in the South-East, 1999-2019 [Unpublished bachelor's thesis]. University of Nigeria.
- Ohaneze. (2002). The violations of human and civil rights of Ndi Igbo in the Federation of Nigeria (1966-1999). Snaap Press.
- Okonta, I. (2012). Biafran ghosts: The Massob Ethnic Militia and Nigeria's democratization process

(Discussion Paper 73). Nordic African Institute. http://www.diva-portal.org/smash/record.jsf?pi d=diva2%3A538466&dswid=-8874

- Okoye, K., Ezeani, E., Ezugworie, C., Oranye, H., & Ekekwe, E., (2021). Federal character principle and political participation in Nigeria: Interrogating the relevance of the policy. *African Renaissance*, 18(4), 343-366.
- Olusoji, G., Oluwakemi, O., & Mofope, A. (2014). Meritocracy- 0 versus mediocrity-1: and mediocrity won: The case of the Nigerian Federal Character Principle (FCP). *International Review* of Social Sciences and Humanities, 7(1), 46-51.
- Omeje, C. (2018, June 27). Investigations: Poorest Nigerians deprived of federal government's cash transfer. International Centre for Investigative Reporting (ICIR). https://www.icirnigeria.org/ investigation-poorest-nigerians-deprived-offederal-governments-cash-transfer/
- Omoleke, I. I., & Olaiya, T. A. (2015). Democratisation process and governance crisis in contemporary Nigeria: A re-examination. *African Journal of Political Science and International Relations*, 9(4), 131-140. https://doi.org/10.5897/ AJPSIR2014.0702
- Onimisi, T., Ku Samsu, K. H., Ismail, M. M., & Mohd Nor, M. W. (2019). Implementation of federal character policy in Nigeria civil service. *International Journal of Recent Technology and Engineering*, 8(2S9), 570-577.
- Ononogbu, D. C. (2017). Ethnicity, ethnic identity and conflict in Africa. In A. O. Onu, J. Eze, & K. C. W. Udegbunam (Eds.), *Social science perspectives to peace and conflict* (Vol. 2; pp. 55-63). Grand-Heritage Global Communications.
- Onu, G. (2008). Contemporary issues in Nigerian politics and government and implications for sustainable development in Nigerian. *Journal of Politics and Administration*, 2(1), 56-72.

- Onuoha, G. (2011). Contesting the space: The 'New Biafra' and ethno-territorial separatism in South-Eastern Nigeria. *Nationalism and Ethnic Politics*, *17*(4), 402-422. https://doi.org/10.1080/135371 13.2011.622646
- Orji, E. I. (2001). Issues on ethnicity and governance in Nigeria: A universal human rights perspective. *Fordham International Law Journal*, 25(2), 431-482.
- Orluwene, O. B. (2018). The challenges and pathologies of Nigerian federalism. *Social Science and Law Journal of Policy Review and Development Strategies*, 6(1), 72-87.
- Osaghae, E. E. (1989). The federal cabinet, 1951-1984. In P. P. Ekeh & E. E. Osaghae (Eds.), *Federal Character and Federalism in Nigeria* (pp. 1-25). Heinemann Educational Books.
- Osaretin, U. S. (2019). Biafra agitation and politics of imbalance in Nigeria. *Journal of Civil and Legal Sciences*, 8(2).
- Owen, O. (2016, March 8). The new Biafrans: Historical imagination and structural conflict in Nigeria's separatist revival [Paper presentation]. The Changing Character of War Series Seminar, Pembroke College, Cambridge, United Kingdom.
- Ozoeze, V. A. (2005). Ethnicity and politics of exclusion in Nigeria: Employing Rawls' Theory of justice in plural societies [Master's thesis, Linköpings Universitet]. https://urn.kb.se/resol ve?urn=urn:nbn:se:liu:diva-2913
- Ozohu-Suleiman, A. (2013). Public administration and the collapse of probity and good governance in Nigeria: The impact of political superstructure. *Global Journal of Political Science and Administration*, 2(1), 8-25.
- Peters, S. J. (2009). Review of marginalization of people with disabilities in Lebanon, Syria and Jordan. UNESCO Digital Library. https:// unesdoc.unesco.org/ark:/48223/pf0000186600

- Reinhold, G., Lamnek, S., & Recker, H. (2000). Sociological-lexicon. Oldenbourg.
- Riley, C. E., Griffin, C., & Morey, Y. (2010). The case for 'everyday politics': Evaluating Neo-tribal theory as a way to understand alternative forms of political participation, using electronic dance music culture as an example. *Sociology*, 44(2), 345-363. https://doi. org/10.1177/0038038509357206
- Rindap, M. R., & Mari, I. M. A. (2014). Ethnic minorities and the Nigerian state. *International Journal of Arts and Humanities*, 3(3), 89-101. https://doi.org/10.4314/ijah.v3i3.8
- Sanchez, M. A. (2019). Ethnic and cultural homogeneity: An obstacle for development? Research Gate. https://doi.org/10.13140/ RG.2.2.15506.68807
- Sandelowski, M. (2000). Focus on research methods. Whatever happened to qualitative description? *Research in Nursing & Health*, 23, 334-340. https://doi.org/10.1002/1098-2 4 0 X (2 0 0 0 0 8) 2 3 : 4 < 3 3 4 : : A I D -NUR9>3.0.CO;2-G
- Schuyt, C. J. M., & Voorham, C. A. (2000). Sociale uitsluiting (Stichting Leger des Heils welzijns- en gezondheidszorg) [Social exclusion (Salvation Army Foundation for welfare and healthcare)]. Social Wetenschappelijke Pers.
- Simon, N. (2022). Poor political leadership: Quagmire to national and political unity in Nigeria. African Journal of Humanities and Contemporary Education Research, 6(1), 1-12.

- The Nation. (2017, October 9). South-South, South East governors decry federal presence in regions. *The Nation*. https://thenationonlineng.net/ south-south-south-east-governors-decry-federalpresence-regions/
- Ugobude, F. (2018, November 18). Culture: The Osu caste system in Igboland. *Guardian*. https:// guardian.ng/life/culture-the-osu-caste-systemin-igboland/
- Ukiwo, O. (2009). Violence, identity mobilization and the reimagining of Biafra. *Africa Development*, 34(1), 9-30. https://doi.org/10.4314/ ad.v34i1.57353
- Ukiwo, U., & Chukwuma, I. (Eds.). (2012). Governance and insecurity in South-East Nigeria. Malthouse.
- Vecchione, M., & Caprara, G. V. (2009). Personality determinants of political participation: The contribution of traits and self-efficacy beliefs. *Personality and Individual Differences*, 46(4), 487-492. https://doi.org//10.1016/j. paid.2008.11.021
- Yagboyaju, D. A., & Akinola, A. O. (2019). Nigerian state and the crisis of governance: A critical exposition. Sage Open, 9(3). https://doi. org/10.1177/2158244019865810



SOCIAL SCIENCES & HUMANITIES

Journal homepage: http://www.pertanika.upm.edu.my/

Retirement Village Design Features: Generation X's Expectation

Asmah Alia Mohamad Bohari¹*, Farah Ajlaa Julaihi¹, Kuryati Kipli², Mohd Azrai Azman¹, Sharifah Rahama Amirul³ and Xin Hu⁴

¹College of Built Environment, Universiti Teknologi MARA, Cawangan Sarawak, 93400 Kota Samarahan, Sarawak, Malaysia ²Department of Electrical and Electronic Engineering, Faculty of Engineering, Universiti Malaysia Sarawak,

93400 Kota Samarahan, Sarawak, Malaysia ³Faculty of Business, Economics & Accountancy, Universiti Malaysia Sabah, 88400 Kota Kinabalu, Sabah Malaysia

⁴School of Architecture and Built Environment, Faculty of Science, Engineering and Built Environment, Deakin University, 3220, Geelong, Victoria, Australia

ABSTRACT

The retirement village is increasingly accepted as a suitable living arrangement for older people post-retirement. Nevertheless, the specific design elements that should be included in the village to cater for the needs of elderly individuals in Malaysia remain unclear and open to interpretation. Thus, this research examines Generation X's expectations of the required features that a retirement village should have for more sustainable living. Generation X is selected as the case study as this generation will be the nearest generation that will be the occupant of the retirement village. In this quantitative study, the questionnaire survey method is utilised to investigate the correlation between two primary concepts: the design feature of retirement villages and their influence on the motivation to relocate to such communities. The factors are identified from the integrative literature review conducted. The structural equation model is used to verify if the retirement village design features can significantly influence Generation X's motivation to move into a retirement village

ARTICLE INFO

Article history: Received: 19 July 2023 Accepted: 10 January 2024 Published: 12 June 2024

DOI: https://doi.org/10.47836/pjssh.32.2.15

E-mail addresses:

asmahalia@uitm.edu.my (Asmah Alia Mohamad Bohari) farah-ajlaa@uitm.edu.my (Farah Ajlaa Julaihi) kkuryati@unimas.my (Kuryati Kipli) mohdazrai@uitm.edu.my (Mohd Azrai Azman) sra@ums.edu.my (Sharifah Rahama Amirul) xin.hu@deakin.edu.au (Xin Hu) *Corresponding author in Malaysia. The retirement village posed three important design features: seniororiented basic settings, age-friendly social environment, and environmentally friendly design features. The outcome could guide stakeholders to view the retirement village concept based on the local context and set the stage for future research on age-friendly housing facilities for older individuals. However, the results derived from this paper are purely based on the quantitative approach and can be further validated through a qualitative approach to understand each outcome better.

Keywords: Ageing, generation X, retirement village

INTRODUCTION

Globally, the 2030 Agenda for Sustainable Development blueprint has been the universal guidance for better living. There are 17 Sustainable Development Goals (SDGs) efforts underlining for future generations. These Sustainable Development Goals (SDGs) aim to promote equal access to secure, inclusive and environmentally friendly public spaces, focusing on women, children, older adults and individuals with disabilities.

The retirement village concept has emerged in all regions depending on the locals' response and the residents' awareness of the importance of retirement villages. For example, Australia, New Zealand, the United Kingdom, and the United States have widely adopted this idea. Nevertheless, its implementation differs based on the location of the retirement village. Some say that Asian society's ethic of family loyalty discourages the provision of the retirement village concept since children are supposed to take care of their parents. In this case, children of East Asian customs are encouraged to return the favour, especially because of their parents' past efforts to care for them as they get old (Takagi & Silverstein, 2006). In East Asian households, the elderly prefer to live with their married son according to the deeply ingrained patrilineal society (Takagi & Silverstein, 2006). However, this has become more subjective since the population's economy has evolved into high-income earners apart from large middle-income earners. Therefore, the elderly may now have more choices, and their perspective on the current tradition could have also changed (Takagi & Silverstein, 2011).

The retirement village is still very new in the Malaysian context but has become a crucial development. By 2030, the population of individuals aged over 65 years old in Malaysia is expected to grow by over 15% (Department of Statistics Malaysia, 2019). Therefore, by 2030, Malaysia will be classified as an 'aged' nation where the older population exceeds 14 years old and younger. In Malaysia, older people refer to individuals aged 60 and above, as adopted during the United Nations World Assembly on Ageing in Vienna, which is also being adopted by ASEAN countries. The enactment of the National Older Person Policy in 1995 prepared the country to handle the increase in the ageing population. The enactment of such policy is to produce independent, dignified and respectful older people by creating a healthy, positive, active and productive ageing population that can still support the country's development (Ministry of Women, Family and Community Development, 2018). In terms of preparation, the country needs to adapt to the ageing lifestyle that would impact its demographic features and, more importantly, its future economy.

Therefore, it is now necessary for the country's policymakers to look into housing options for its future older people (Lim et al., 2020).

The recently released Twelfth Malaysian Plan (12MP) blueprint document has emphasised different themes that include strengthening security, well-being, and inclusivity of the population. The Priority Area F in Chapter 5 underscores the importance of prioritising the well-being of the elderly population to improve care, protection and support for older individuals as valued contributors to society. This strategy encompasses several elements, such as implementing legislation to safeguard the rights of older individuals, establishing a comprehensive framework for long-term care, improving the quality of caregivers and their services and revitalising the social care industry (Economic Planning Unit, 2021). Lim et al. (2019) state that the projected increase in the growing population in Malaysia shows the need for tailor-made senior homes in tandem with the change in sociodemographic and socioeconomic factors.

The demand for proper housing is a need. Thus, the housing options for greying citizens have expanded beyond the usual choice of remaining in their homes (Julaihi et al., 2022). The elderly may experience mobility or cognitive impairment during their retirement years; hence, comprehensive housing care support is needed. There are four accommodation options to fulfil the elderly's needs: family homes (ageing in place), elderly care, medical facilities and retirement villages (Aini et al., 2016). The concern related to 'older people's well-being was also highlighted under the revised National Policy for Older Persons (2010–2015) under the Ministry of Women, Family and Community Development Malaysia. The policy focuses on empowering individuals, families, and communities by providing older people-friendly services and enabling environments to improve the well-being of old age, encouraging the establishment and provision of specific facilities to ensure appropriate care and protection are available for older people.

Active ageing refers to optimised opportunities and involvement of elderlies, including their families and society, towards the elderlies' empowerment to improve their well-being. These aspects include the quantity, quality, and scope of social networks, reciprocal roles and intergenerational relationships over a lifetime. Maintaining a healthy lifestyle in old age is crucial to mitigate the rise in medical expenses and minimise the risk of potential disabilities, especially if individuals need to continue working later. In order to ensure the ageing population can live a healthy, active and productive lifestyle, empowerment of knowledge, skills and appropriate environment, as well as optimum health facilities and services, are necessary. The concern has been underlined in the National Health Policy for Older Persons 2008 (Ministry of Health Malaysia, 2018).

In a retirement village, residents benefit from a living environment that effectively meets their social, economic and environmental needs, ensuring their well-being and satisfaction (Xia et al., 2015). Major characteristics of a retirement village include independent living, institutionalisation, and an age-friendly environment (Hu et al., 2017). However, the current concept of a retirement village in Malaysia is ambiguous and still needs to be clarified, as there is a lack of technical and legal definitions. The progress of retirement villages in Malaysia still needs to catch up with the cultural norm in Malaysia, wherein older individuals are typically cared for by their children and extended family members (Sritharan et al., 2019). Furthermore, Malaysia's first-generation retirement village is plagued with pitfalls, such as poor housing design and its deterrent cost. In general, the negative perception of retirement villages has been the major challenge in introducing retirement villages to the community. Hopefully, this study could pave the way for a suitable village environment based on the local context preference, particularly Generation X residing in Malaysia. As a result, this paper aims to identify the determinants of retirement village design features within the Malaysian context based on Generation X's expectations.

LITERATURE REVIEW

The Concept of Retirement Villages (RV)

According to Xin et al. (2019), the

phenomenon of an ageing population has become a global trend, leading to the emergence of retirement villages designed to cater to the lifestyle needs of older individuals in their retirement years. The definition of a retirement village is based on its configuration, encompassing whether it solely offers accommodation similar to other types of housing or provides services and support for its residents (Xia et al., 2015). The major characteristics of a retirement village include independent living, institutionalisation and an agefriendly environment (Hu et al., 2017).

Xia et al. (2015) suggested that retirement villages must also be designed to support sustainability. Environmental sustainability components encompass familiar concerns associated with resource efficiency, reduced impact on climate change and preservation of ecological systems. Economic sustainability means savings in construction, operation, living expenditure, future modifications and longterm maintenance, good resale value and cost efficiency to the community. Social sustainability entails incorporating design features that promote flexibility, comfort, safety, security, a sense of belonging and opportunities for social engagement (Xia et al., 2014).

There are several concerns related to the development of retirement villages. One of the main concerns involving retirement villages is the upfront cost and maintenance costs that need to be borne by the older people. Without early planning and available funds to support relocation, relocating older people will encounter slight challenges. Thus, government intervention and finance institution involvement are crucial to support and materialise the best practices' implementation in the retirement village. Adopting public-private partnerships (PPP) in the global retirement village market has become a new approach to address some emerging challenges (Osei-Kyei et al., 2020). So far, little focus has been on identifying an effective market mechanism for a self-reliant retirement village industry to meet this rising and unforeseen demand.

Another consideration, as highlighted by Petersen et al. (2017), is that residents prioritise financial and legal requirements while deciding on moving in. Expert guidance and choices are limited during residency because needs and capacities vary. In Australia, issues and disputes related to retirement villages are increasing (Malta et al., 2018).

The elderly encounter unforeseen circumstances, such as an urgent care crisis. Elderlies are fragile as they may encounter declining mobility, and they would be frequent events with severe consequences for the individual. They will also contribute to the cost of healthcare, affecting one's quality of life. According to Haraldstad et al. (2019), this concept is crucial in health and medicine. According to the World Health Organization, the main goal of healthcare is to ensure "adding life to year" in recognition of the significance of high QoL for people (Schoene et al., 2019). Hence, providing them with the services and facilities that enable them to be independent is important.

However, relocation is perceived as stressful (Cheek et al., 2007). The transition from their own home to another unfamiliar living option is often difficult as it frequently makes older persons feel uncomfortable and unwelcomed, thus causing their caregivers or family members also to feel guilty or depressed. The inability to contact their family is one of the drawbacks that discourage the older population from migrating to a retirement home (Buys et al., 2006), as well as the fear of losing one's privacy and autonomy (Crisp, Windsor, Butterworth & Anstey, 2013).

The Theoretical Baseline of a Retirement Villages (RV) Concept

The effort to provide older people with better living abilities also means making changes to older people's environments, such as house arrangements that are more accessible and supportive of older people with varying needs and capacities (Ministry of Health Malaysia, 2018). However, the government also requires support from the private sector to provide a more suitable housing arrangement to support and maintain the functional ability that allows older people to do things and preserve both physical and mental capacity as they age. The research conducted by Oswald et al. (2006) has revealed that individuals residing in homes that were easier to manage had a greater perception of their residence as meaningful and valuable. Additionally, they experienced increased independence in their daily activities and a stronger sense of well-being.

The Ecological Theory of Ageing (ETA; Lawton & Nahemow, 1973) offers a conceptual framework for comprehending the ageing process in relation to the individual's surrounding environment. ETA suggests that the ageing process is impacted not just by internal biological components but also external environmental aspects such as living circumstances, social support, and access to resources. ETA can be utilised to evaluate the influence of the residential setting on the wellbeing of senior individuals in retirement communities (Chandler & Robinson, 2014). ETA offers a theoretical framework highlighting the dynamic interplay between individuals and their environment as they age. Within the ETA, the term "press" pertains to the requirements imposed by the environment on individuals. The elderly benefited from a basic setting specifically tailored to their needs, which entails adapting the environmental demands to align with their degree of ability. Within the framework of retirement village design, this entails developing living environments specifically customised to accommodate the requirements and capabilities of elderly individuals. Thus, this study investigates the relationship between senior-oriented basic settings and retirement village design features.

Retirement village housing units may have age-friendly amenities. The survey conducted by Plouffe and Kalache (2010) is highly pertinent to the Ecological Theory of Ageing (ETA) concept and the requirements of an aging-friendly environment. Their research explores the urban characteristics that encourage active ageing, which is in line with the idea of establishing age-friendly environments that cater to the requirements of the senior individual. A greener living environment aligns with the ETA's emphasis on the significance of the physical context, encompassing natural factors, in impacting individual well-being. Additionally, the study conducted by Xia et al. (2014) examines the level of sustainability literacy among elderly residents in retirement villages. The research emphasises the importance of environmental consciousness and conduct among the elderly (Xia et al., 2014). Lawton and Nahemow's Ecological Theory of Ageing provides a framework for understanding how independent variables, such as senior-oriented basic settings, age-friendly social environments, and greener living environments, interact with the dependent variable of retirement village design features. This theory highlights the dynamic relationship between individuals and their environment. The aim is to synchronise the requirements of the environments with elderly individuals, establishing an atmosphere that fosters their well-being and self-sufficiency as they grow older inside retirement communities.

Lawton and Nahemow's Ecological Theory of Aging (ETA; 1973) states that the types and levels of personal skills and environmental characteristics, such as housing standards, neighbourhood conditions and public transportation, influence the ageing pattern of elderlies (Wahl et al., 2012). The ETA emphasises the issue of person-environment interaction in old age (Hu et al., 2015), indicating that older adults' behaviours are the function of their competence and the environment. Two implications of the ETA theory on the development of retirement villages are to show the importance of the residents' competence and that the village's environment should be balanced to maintain the healthy ageing pattern of older people. Older people's competence is seen from the perspective of older people's fundamental features, such as the ambience of living style and social needs. The retirement village concept should emphasise senior-oriented basic settings, including the residents' day-to-day management, to demonstrate a greater sense of a healthy lifestyle (Oswald et al., 2006).

Satariano (2006) also emphasises the importance of the residential conditions as well as the lives of older people. The residential conditions must suit the condition of each older person so that they can live comfortably. The Satariano research also suggests that demographic factors such as age, gender, and race directly influence the ageing pattern, as well as the dynamic between biological and behavioural interaction. The motivation for older people to live and enjoy their life after retirement could help them live comfortably.

Determinants for Retirement Village (RV) Design Features

The central question asked in this research was, what factors influence the retirement village's design features? The determinants for the retirement village design features are derived from the compilation of worldwide integrative literature reviews. The three main design determinants identified are as follows:

Senior-oriented Basic Settings. The risk of suffering from physical, psychological, and mental impairments grows with age, and residents perceive that a retirement village's supportive living environment provides effective support (Jones et al., 2010). Seniororiented basic settings can be defined as a physical environment design following the code of design for older people (Wahl et al., 2012) and meet the minimal requirements of older people to create their residential environment. It is an assisted living facility with a range of in-home support services to cater to the individual needs of those who require help with daily living activities. With senior-oriented basic settings, the elderly residing in retirement villages can fully utilise an array of services and facilities available to cater for their daily activities. It is a crucial component in providing care for older people with deteriorating health and declining physical and mental capabilities.

Table 1 summarises the oriented basic settings criteria for retirement villages. From the table, six senior-oriented basic settings criteria that have been identified are panic buttons for emergency assistance, grab bars to assist movement and safety reasons, lower height switches to allow independent movement, slip resistance flooring for safety reasons, barrier-free design for movement accessibility and reasonable distance to the surrounding family members' location. Asmah Alia Mohamad Bohari, Farah Ajlaa Julaihi, Kuryati Kipli, Mohd Azrai Azman, Sharifah Rahama Amirul and Xin Hu

Senior-oriented basic settings	Sources
Panic buttons for emergency assistance	
Grab bars to assist movement and safety reason	
Lower height switches to allow independent movement	Broadbent et al. (2012) Osei-Kyei et al. (2020)
Slip resistance flooring for safety reasons	Hu et al. (2020)
Barrier-free design for movement accessibility	Xia, Chen, Buys, et al. (2021)
Reasonable distance to the surrounding family members' location	

Table 1The senior-oriented basic settings criteria

Source: Authors' work

Age-friendly Social Environment. An age-friendly social environment is also important for the elderly to enjoy an independent lifestyle enhanced with social connection and participation, serving as a medium to communicate and share information. In addition, an age-friendly social environment highly benefits the physical and mental capacity of the elderly. Retirement villages are a practical living concept that can improve the societal well-being of older people by enabling them to maintain their independence, strengthen their social connections, and live in their residences while surrounded by care services, if necessary (Mansor et al., 2016). The age-friendly social environment criteria are listed in Table 2. From the table below, ten age-friendly social environment criteria have been identified in which the criteria are independent living, security, private lifestyles, daily activities support, healthcare support, enhanced accessibility for daily activities support, social connection with SRV community, social activities participation, continuous learning activities in SRV and spiritual gathering.

Age-friendly social environment	Sources
Independent living	Cheek et al. (2007) Crisp, Windsor, Butterworth and Anstey (2013) Hu et al. (2015) Petersen et al. (2017) Xia, Chen, Buys, et al. (2021)

The age-friendly social environment criteria

Retirement Village Design Features: Generation X's Expectation

Tab	le 2	(Continue)	
-----	------	------------	--

Age-friendly social environmental	Sources
Security	Goldhaber and Donaldson (2012)
	Hu et al. (2015)
	Xia, Chen, Buys, et al. (2021)
Private lifestyles	Broadbent et al. (2012)
	Crisp, Windsor, Anstey and Butterworth (2013) Hu et al. (2015)
	Petersen et al. (2017)
	Hu et al. (2020)
Daily activities support	Buys and Miller (2007)
	Crisp, Windsor, Butterworth and Anstey (2013) Hu et al. (2017)
	Irvine et al. (2020)
	Xia, Chen, Walliah, et al. (2021)
Healthcare support	Broadbent et al. (2012)
	Zuo et al. (2014)
	Mansor et al. (2016)
Enhanced accessibility for daily	Holland et al. (2017)
activities supports	Xia, Olanipekun, et al. (2021)
Social connection with the SRV community	Xia et al. (2015)
Social activities participation	Xia et al. (2015)
	Irvine et al. (2020)
	Xia, Olanipekun, et al. (2021)
Continuous learning activities in the SRV	Irvine et al. (2020)
Spiritual gathering	Xia, Chen, Buys, et al. (2021)

Source: Authors' work

Green Features. Green is regarded as incorporating anything that pertains to environmental benefit. The retirement village industry should take environmental sustainability seriously as it has given older people more energy (Kronenberg, 2009). Environmental sustainability refers to energy and resource efficiency, materials efficiency, and enhancement of the quality of the indoor environment for sustainable retirement villages. It aims to reduce the negative impacts of the village development and the village-built environment on the natural environment and residents.

A building's green features (Table 3) minimise and eliminate negative consequences by reducing energy usage, water, or natural resources. From Table 3, ten green features criteria that have been identified based on various sources are energy efficiency, water efficiency, building material efficiency, enhanced indoor environment quality, green compounds and garden, ease of access, ease of maintenance, waste management, smart building sensor for lighting system and internet connectivity. Economically, green features incorporation into a building facilitates long-run cost savings, including utility bill savings through less electricity and water usage.

Positive impacts of the said buildings can be observed through the well-being of the people who reside or work in green homes or offices. Performance boosters can spike up to 8% when the tenants experience improved indoor quality, for example, low carbon dioxide and pollutant concentrations and high ventilation rates (Park & Yoon, 2011). People who live or work in green buildings record a 101% increase in cognitive scores (Allen et al., 2015).

The summary of the design features of a retirement village can be seen in Figure 1. As elaborated in this paper, three identified factors for a retirement village design features are an age-friendly social environment, senior-oriented basic settings, and green features.

better support facilities and engagement in social activities. The retirement village is

Table 3				
The green features	criteria	Green features	Sources	
Green features Sources		Ease of	Hwang and Tan (2012)	
Energy efficiency	Fan & Xia (2018) Hu et al. (2020)	maintenance Waste management	Illankoon and Lu (2020)	
Water efficiency	Waidyasekara et al. (2013) Ismail et al. (2021)	Smart building sensor for the lighting	Pan et al. (2008) Azis (2021) B. C. Tan et al. (2021)	
Building materials efficiency	Vatalis et al. (2013) Salem et al. (2019)	system Internet connectivity	B. C. Tan et al. (2021)	
Enhanced indoor environment	Wei et al. (2020) Xia, Olanipekun, et al. (2021)	Source: Authors' we	ork	
quality		The motivat	tion to move to retirement	
Green Xia, Olanipekun, et al. compounds (2021) and garden		villages can be seen in many ways. However, three factors are identified: reducing		
Ease of access	Darko and Chan (2017)	maintenance cost of living after retirement		

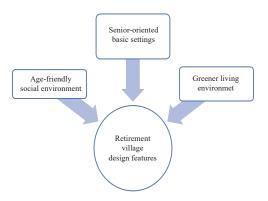


Figure 1. The design features a retirement village determinant *Source:* Authors' work

preferred because living in the retirement village will help reduce maintenance costs after retirement.

Most retirement villages use the lease model compared to the outright sale model, and the units might later be rented, on-sold, or transferred to people not of retirement age (Samsudin et al., 2023). The purpose of the lease model is so that entrepreneurs can control the operation of the retirement village and the project's character. It includes maintenance and is charged to the retirement village residents periodically and in bulk. Retirement village residents can skip maintenance costs such as changing lights, tidying the lawn, and surrendering to the retirement village operator.

Adults prefer a life that gives them more control over their home environment (E. P. Tan et al., 2022) and, at the same time, to have better support facilities (Samsudin et al., 2023). A good housing environment can help support the health level of adults with a better life (Adlakha et al., 2021)— for example, a good housing environment, security, and pedestrian streets. Walkability conditions with appropriate space can motivate adults to maintain momentum for good physical condition.

Social interaction is an important factor in ensuring that adults are able to maintain a good mental and memory capacity (Chan & Mansor, 2022). Adults need to remain independent in daily life. Bozo et al. (2010) suggest that the ability to manage daily life well can reduce stress for adults. Therefore, moving to a retirement village can help adults always increase the development of potential elderly. Tobi et al. (2017) prove that good social activity management can increase the potential of adults to understand self-value better. Kylén et al. (2019) mentioned that interaction at home with family members and friends could significantly maintain a sense of purpose after retirement.

METHODOLOGY

Research Approach

This research used questionnaires on a sizeable number of respondents, which were developed to meet the study's objectives. The targeted respondents are Generation X individuals residing in major towns in Sarawak. Generation X is defined as those born between 1965–1979 and aged between 41–55 years old when the study was conducted. Self-administered online survey questionnaires were used for their advantages in obtaining responses from a geographically dispersed sample. The

survey was carried out online due to the COVID-19 pandemic through Google Forms. The online survey was distributed between 1st May–30th May 2021. This survey is categorised as cross-sectional as it occurs in one session.

Ouestionnaires were tested and reviewed before being distributed to respondents through pilot surveys. It ensures that the questions are clearly understood and that no ambiguities arise. The initial survey encompassed 36 participants, with the sample size selected based on the estimation method proposed by Viechtbauer et al. (2015). This study's participants consisted of residents of Sarawak who belonged to the Generation X demographic. Generation X refers to those who are between the age range of 42 to 56 years old. Samples taken were based on a random sampling method, where respondents were selected based on the purpose of the survey. This research used close-ended questions with multiple choice answers and Likert scale questions to assess the respondents' agreement or opinion towards the given statements.

The questionnaire is divided into a few sections, such as Section A for demographic questions that use close-ended questions to obtain the respondents' information. The questionnaire will ask objective questions comprising a Likert scale and close-ended questions. Likert Scale questions allow the respondents to choose the answer level, standardising the answers using the scale option. Each level is labelled "Strongly Disagree" as the minimum level, moving up to "Disagree," "Neutral," and "Agree," and ends with "Strongly Agree" being the maximum level. The four variables, (1) senior-oriented basic settings, (2) agefriendly social environment, (3) green features, and (4) motivation, were measured using the Likert scale. Each level is labelled "Strongly Disagree" as the minimum level, moving up to "Disagree," "Neutral," and "Agree," and ends with "Strongly Agree" being the maximum level. The survey was disseminated in English and Malay to facilitate respondents' participation, given that English is not the predominant language in Malaysia. The questionnaire is structured into five distinct sections. The initial section pertains to demographics, while sections two through five are dedicated to the primary categories outlined in the study framework. These categories include seniororiented basic settings, green features, agefriendly social environment, and motivation to relocate to a retirement village.

Sample Size and Selection of Target Population

This study focuses on the X generation as the target age band. Generation X consists of those between 42 and 56 years old who were involved in the data collection of this study. Studies have found that there has yet to be a study on the level of readiness or seeking the opinion of the X generation to support the concept of this retirement village when they retire. The retirement village concept in Malaysia is new and expected to grow as the ageing population in Malaysia increases (Lim et al., 2019), thus indicating the relevance of choosing Generation X as the targeted respondents.

The sample size is calculated based on the study population, followed by confidence level and interval. Alternatively, the sample size could be calculated based on statistical power ($p = 1 - \beta$). The study would use statistical power based on the multi-regression technique according to the number of independent variables included in the analysis due to resources and time-saving factors. Prajapati et al. (2010) further argued that it would not be ethically acceptable to conduct a study that would not be stringent enough to detect a real effect due to a lack of statistical power. Statistical power conventionally was set at 0.80 or 80%, and the effect size based on Pearson's correlation coefficient, as suggested by Cohen (1988), is 0.10 and alpha or probability error value is 0.05. The calculation of statistical power or multi-regression sample size was run using a Priori Sample Size Calculator for multiple regression in accordance with Soper (2013).

The total population of Generation X in Sarawak is estimated at 430,000 (unpublished Department of Statistics Malaysia Report, 2019). The minimum sample required for this study is 124. The sample size was drawn using statistical power ($p = 1 - \beta$; set at 0.80 and the effect size based on Pearson correlation coefficient at 0.10 and alpha value is 0.05).

The ETA has indicated that older adults' environments influence their ageing patterns (Satariano, 2006). Daily activities are influenced by demographic backgrounds such as ethnicity, religion, and place (Ng et al., 2020). Because of this, the nation and society need to get ready for the shift and adaptation in the lives of older people, which might impact the nation's demographics and economics. According to Tey (2017), 14% of Malaysia's population will be 60 or older by 2030. The largest state in Malaysia, Sarawak, showed that the population has gotten older throughout the last three decades (Chung et al., 2020). Lim et al. (2020) noted that planning this generation's lifestyle is essential. There is just one RV in Sarawak, Eden-on-the-Park (Samsudin et al., 2023). The absence of a retirement village in Sarawak suggests a potential lack of emphasis on proactive planning and accommodation for the evolving needs of the elderly population. This observation may warrant further investigation through additional research endeavours.

Ethical Consideration

The study was conducted in accordance with the UiTM Research Ethics approval – number REC/04/2021 (MR/237). The returned questionnaire is deemed consent given by the respondents to participate in this study. The confidentiality of data was ensured, and participants were made aware that they, without any justification, could withdraw themselves from the study as and whenever they wished.

FINDINGS

A total of 148 responses were received at the end of the data collection. There were nine invalid questionnaires due to the location factor and six incompletely answered questionnaires by the respondents. Therefore, the total number of valid questionnaires stood at 133.

Demographic Background

Three demographic dimensions were asked of the survey (refer to Table 4): gender, religion, and race. Table 4 shows the descriptive analysis of respondents' demographic background. Most respondents were female (62.87%) compared to male (37.12%). In terms of ethnicity, 81.2% of them are Malay, 15.79% Iban, and 1.50% Chinese and Indian, respectively. In terms of religion, 92.48% of the respondents are Muslims and 7.52% Christians.

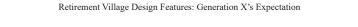
Table 4Demographic background

		Frequency	Percentage
Gender	Female	83	62.24%
	Male	50	37.59%
Race	Malay	108	81.2%
	Chinese	2	1.50%
	Indian	2	1.50%
	Iban	21	15.79%
Religion	Islam	123	92.48%
	Christian	10	7.52%

Source: Authors' work

The Determinants for The Retirement Village Design Features

Based on the survey findings, this study uses SEM-AMOS to find out and verify the features of the retirement village that can significantly influence Generation X's motivation to move into a retirement village in Malaysia. Based on previous studies, this study hypothesises that three design features influence the motivation to move to the retirement village. Model fit tests are performed to give an overview of relationships between measured and latent variables and assess the relationships among the latent variables in the model. **Confirmatory Factor Analysis (CFA).** Confirmatory Factor Analysis (CFA) was conducted as part of the validity test for the convergent and discriminant (refer to Figure 2). Four main constructs are the senior-oriented basic settings (Design), agefriendly social environment (Age), green features (Green) and motivation (Mot). The CFA revealed that all factor loadings are above the threshold of 0.60, as suggested by Hair et al. (2010). Furthermore, Hair et al. (2010) indicated that all the measured items under four main constructs are within the acceptable standardised loading. All factor loadings are also positive numbers, showing that this measurement model has achieved unidimensionality.



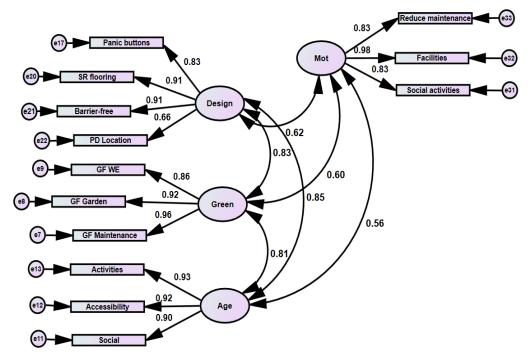


Figure 2. The PCFA results from SEM-AMOS *Source:* Authors' work

For construct validity, this measurement model has achieved the required fitness. The final PCFA revealed that the model with RMSEA below the 0.08 threshold value and the CFI with 0.984 was identified as an excellent fit. The GFI is within the proposed threshold of 0.908 (Table 5).

Table 5 Model fit

		Threshold (Hair et al., 2010)	Result	
CMIN/DF	Chi-square/degree of freedom (Evaluates overall model fit)	>1.0 and <3.0	1.471	Model fit
GFI	Goodness of Fit Index (Evaluates the proportion of variance)	>0.90 and <0.95	0.908	
CFI	Comparative Fit Indices (Estimates how well the model fits)	>0.90 and <0.95	0.984	
RMSEA	Root Mean Square Residual (Estimates how well the model fits)	<0.08	0.060	

Source: Authors' work

Table 6 indicates that the bold figure is the square root of the Average Variance Extracted (AVE). The AVE is mainly used to indicate convergent validity. The square root AVE should be higher than the values in its row and column. The value within the threshold indicates that the measurement model is reliable and will not have a serious multicollinearity problem (Fornell & Larcker, 1981). The AVE value in Table 7 indicates that all values are above the recommended threshold of 0.50 (Xiong et al., 2015). These results also show the reliability of the measurement model in measuring the latent construct.

Table 6
Discriminant validity

	GF	Design	Mot	Age
GF	0.913			
Design	0.831	0.832		
Mot	0.604	0.625	0.882	
Age	0.809	0.850	0.562	0.920

Source: Authors' work

The composite reliability (CR) of this research (Table 7) shows the reliability of this model. The CR value must be above 0.70, and as for the Cronbach Alpha coefficient, the consistent measure of the measured items in the questionnaire indicates good consistency.

	Composite Reliability (CR) Threshold >0.70	Average Variance Extracted (AVE) Threshold >0.50	Cronbach Alpha (Threshold >0.70)
GF	0.938	0.834	0.934
Design	0.899	0.693	0.890
Mot	0.913	0.778	0.907
Age	0.943	0.847	0.923

Table 7

Source: Authors' work

Structure Model. This paper used a twostage method to develop the structural model. The sub-constructs are the seniororiented basic settings (Design), agefriendly social environment (Age), and green features (Green), which are placed under the criteria of retirement village (Criteria) and motivation (Mot), which were measured using three variables. CFA result demonstrates a satisfactory fit of the model in Figure 3. All the factor loadings for sub-constructs that are the senior-oriented basic settings (Design), age-friendly social environment (Age), and green features (Green) are above 0.60, as suggested by Hair et al. (2010), showing that the sub-construct items fit in measuring their main construct.

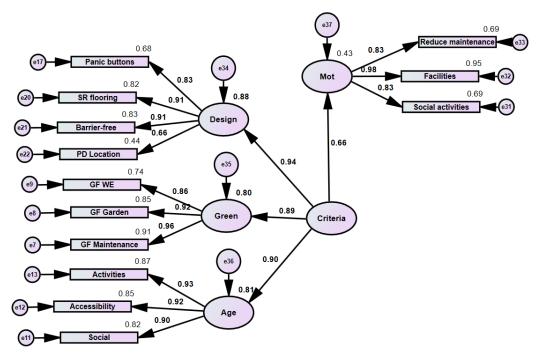


Figure 3. The standardised path coefficients between construction in the model *Source:* Authors' work

The next stage is to determine the causal relationship between the variables. The conclusion in Table 8 shows that the structure model achieves the suggested goodness of fit. The R^2 for the model is 0.43, which indicates that the model could capture more than 43 per cent of the estimate

on the endogenous construct. That means 43 per cent of the motivation to move to a retirement village can be anticipated by using the criteria of the retirement village. The criteria of the retirement village are strongly measured using sub-constructs such as design, green and age.

		Threshold (Hair et al., 2010)	Re	sult
CMIN/DF	Chi-square/ degree of freedom	>1.0 and <3.0	1.444	Model fit well
GFI	Goodness of Fit Index	>0.90 and <0.95	0.908	

Table 8	
Final structure model fit	

Asmah Alia Mohamad Bohari, Farah Ajlaa Julaihi, Kuryati Kipli, Mohd Azrai Azman, Sharifah Rahama Amirul and Xin Hu

Table 8 (Continue)

		Threshold (Hair et al., 2010)	Result
CFI	Comparative Fit Indices	>0.90 and <0.95	0.984
RMSE	Root Mean Square Residual	<0.08	Model fit 0.058 well
R ² Value for the model			The whole model R2 value is 0.43. The model captures at least 43 per cent of the estimate on the construct
			The RV Criteria are strongly measured using sub- constructs such as design, green and age-friendly features

Source: Authors' work

DISCUSSION

The concept of a retirement village that foresees the suitability of the local context is necessary to ensure the comfort of the older residents later. As the study on the sustainability of retirement village's needs in Malaysia is still considered new and has not been fully explored, this study was considered a preliminary step. This study refers to the theories that have already been established, as well as the results of studies from other countries such as Australia, New Zealand, and several other countries. The ETA model also suggests demographic factors and characteristics of the environment, such as housing and neighbourhood (Satariano, 2006), to justify the need to establish the criteria for a retirement village. This research proposed the framework of sustainable retirement villages based on three features: seniororiented basic settings, age-friendly social environment, and green features.

Senior-oriented Basic Settings

A senior-oriented basic setting is normally an arrangement for physical environment design following the code of design for older people. Based on the final model, the availability of safety features is very important. Humpel et al. (2010) state that the elderly may suffer from various health issues due to unhealthy lifestyles, hence the need for safety features for emergency purposes. Four final criteria are crucial: panic button, non-step flooring, barrier-free design and the location of the retirement village. The need to set these criteria is important to emphasise to the owner and designer the design needed to suit the requirements of the elderly.

Age-friendly Social Environment

The age-friendly social environment provides an independent lifestyle with social connection, participation, and a medium for communication and information sharing among the elderly. Older people need emotional support from the surrounding community. Maintaining a healthy and cheerful lifestyle will help these elderly to have a peaceful life. Given the fact that the physical abilities of these older people will decline, providing emotional support is critical. Taylor et al. (2014) mentioned that most future elderlies prefer to participate in activities and continue to be active as they value social participation. Based on the final model, three main criteria are being considered: the activities carried out in the retirement village, accessibility and social support from the relevant parties. Group activities such as daily exercise, religious activities and leisure activities such as watching movies will make the elderly feel more engaged among the residents in the retirement village.

Green Concept

The green concept is related to the environment and is necessary for development. Integrating green features while redesigning retirement villages will enable the economy to move towards a more circular model, which may reduce environmental pressure. It is said that the future elderly are concerned about energy consumption due to their lifestyle (Quine & Carter, 2006). Referring to the final model, the three criteria formulated as important are efficient use of water, green compounds and garden provision, and ease of maintenance. Efficient water use is closely related to the provision of water-saving plumbing equipment and water usage practised by retirement village residents. Morseletto et al. (2022) asserted that water is a resource, product, and service with no counterpart in the economic system. Because of this, it is an essential component of the circular economy that should be considered and valued. Water conservation measures that residents of retirement villages put into practice will greatly help bolster the circular economy. Green compounds and gardens will stimulate comfort for older people and make them feel restful, thus encouraging them to be more involved in recreational activities. Due to the declining physical ability of more senior people, the ease of maintenance factor is also considered important. It will ease their daily lives.

The ETA establishes a connection between the competencies of older individuals and their surrounding environment. The results of this study reflected the anticipated preferences of Generation X individuals residing in East Malaysia regarding the characteristics of retirement villages and their surrounding environment. The skills of people and the village environment are subject to dynamic changes influenced by several factors such as circumstances, time, and generational demands. Senior-oriented basic settings and Age-friendly social environments are essential to meet the balanced life needs of older people. At the same time, the need

for the green concept is an approach that is the choice of Generation X because of the urgent need to restore the state of nature and awareness of individual functions for environmental balance.

The main objective of the retirement village is to offer a carefully kept and contemporary environment that meets the needs of older people. By combining sustainable practices and embracing green ideas, retirement villages may greatly influence Generation X, which is the target generation that will need these retirement villages in a few years. The Green ideas are related to reducing negative impacts on the ecosystem close to the retirement community, thus facilitating a sustainable and prosperous lifestyle for residents (Xia, Chen, Walliah, et al., 2021). Generation X is a demographic cohort that is now acquainted with achieving a well-rounded lifestyle, with the ability to make informed choices about the development of retirement communities based on considerations such as cost, safety, and sustainability preferences.

CONCLUSION

Relating to the objectives, this paper highlights the criteria of a retirement village from the perspective of Generation X residing in East Malaysia. The lifestyle pattern of the ageing population has changed due to the current living situation and demands; hence, the retirement village is seen as a comfortable and healthier option for the elderly to enjoy their life. This study does not intend to negate the responsibility of family members and society in caring for retired elders but rather to provide options for them to live more comfortably. The retirement village concept is a residential concept that emphasises the needs of older people by providing access to friendly elder facilities, moral support, and social activities among the residents. This study takes the opinion of Generation X, who will soon be entering retirement and hopes to give them ideas on how to plan their lives postretirement.

In conclusion, this study highlighted the current push factors of the future elder generation's wishes and needs to move into retirement villages. Based on the literature review, it is evident that retirement villages have gained acceptance and recognition within the community as they are considered viable choices for living arrangements. The findings of this research align with the objectives of the Sustainable Development Goals (SDGs) mentioned in Chapter 11 of the Economy and Nation, specifically emphasising the importance of ensuring universal access to safe and environmentally friendly spaces, including for older individuals. Theoretically, the outcomes from this paper provide initial findings on the push factors for more senior people to relocate to retirement villages when they retire from the East Malaysian context. The outcomes offer new insights based on the local perspective. Nevertheless, it is essential to conduct further investigation with a larger sample size of respondents to enhance the results' reliability.

This paper also offers two contributions to the industry practices: (1) identifying

push factors for older people to move to a retirement village, and (2) raising awareness among the industry practitioners regarding the potential of green procurement to pave the way for sustainability. In the Sarawak context, a small demographic with homogenous characteristics can help guide a successful, sustainable retirement living path. Hence, these findings will help local authorities and developers understand, plan and establish future retirement villages based on knowledge of the local context.

Limitations of The Study

This study does have limitations, such as the need to conduct qualitative research to obtain the opinions of stakeholders such as existing retirement village entrepreneurs, the government, non-profit organisations and investors. A series of focus group discussions involving all generations should be formed to identify differences and similarities in opinions and support towards establishing this retirement village. This study can also be improved by expanding the number and location of respondents to obtain more accurate and reliable results.

Nevertheless, the results of this study will open more platforms to highlight the needs of retirement villages that will benefit the residents. Careful research and good planning should be done by stakeholders so that the establishment of retirement villages in East Malaysia is in line with current needs in the context of Malaysian culture. Malaysia hopes the policy will produce an independent, dignified, and respectable elderly through a healthy, positive, active, and productive ageing population and support the country's development (Ministry of Women, Family and Community Development, 2018). Moreover, the outcome of this paper has important implications for creating awareness among policymakers, the community, and researchers regarding the needs of retirement villages for the elderly in Malaysia.

Recommendation for Future Research

The present study employs purposive sampling to target and acquire the necessary characteristics. The primary objective of this research is to examine the perspectives of individuals belonging to Generation X residing in Sarawak, a state located in East Malaysia. Hence, to establish the necessity of expanding the scope of retirement village characteristics, employing a broader sample methodology encompassing many generational cohorts is imperative, thereby enabling a more accurate assessment and ultimate determination. This research can be duplicated in several states within Malaysia and other regions to get a more comprehensive scope. By considering the influence of demographics, such as local culture and income, comparisons of outcomes can be made. The result of the comparable requirement is of utmost importance for both local authorities and private developers to facilitate informed decision-making during the planning and construction phases of the retirement village. Designing the retirement villages concept might be challenging as one size only fits some. This study should be broadened to

include viewpoints from residents who have lived in retirement communities, as their perspectives are essential. The opinions of retirement village operators and developers should also be considered because each feature option will impact the needs of providing a retirement village's facilities, management, and operating costs.

ACKNOWLEDGEMENTS

The research data collection is partially supported by the SDG-Borneo research grant (Grant Number: 600-RMC/SDG-BORNEO 5 (014/2020). We thank Professor Corina Joseph from Universiti Teknologi MARA Cawangan Sarawak, Malaysia for her guidance and advice.

REFERENCES

- Adlakha, D., Chandra, M., Krishna, M., Smith, L., & Tully, M. A. (2021). Designing agefriendly communities: Exploring qualitative perspectives on urban green spaces and ageing in two Indian megacities. *International Journal* of Environmental Research and Public Health, 18(4), Article 1491. https://doi.org/10.3390/ ijerph18041491
- Aini, A. M., Murni, N., & Wan Abd Aziz, W. N. A. (2016). Housing aspirations of the elderly in Malaysia: A comparison of urban and rural areas. *Journal of Design and Built Environment*, 16(2), 30-43. https://doi.org/10.22452/jdbe.vol16no2.2
- Allen, J. G., MacNaughton, P., Satish, U., Santanam, S., Vallarino, J., & Spengler, J. D. (2015). Associations of cognitive function scores with carbon dioxide, ventilation, and volatile organic compound exposures in office workers: A controlled exposure study of green and conventional office environments. *Environmental Health Perspectives*, 124(6), 805-812. https:// doi.org/10.1289/ehp.1510037

- Azis, S. S. A. (2021). Improving present-day energy savings among green building sector in Malaysia using benefit transfer approach: Cooling and lighting loads. *Renewable and Sustainable Energy Reviews*, 137, Article 110570. https:// doi.org/10.1016/j.rser.2020.110570
- Bozo, Ö., Anahar, S., Ateş, G., & Etel, E. (2010). Effects of illness representation, perceived quality of information provided by the healthcare professional, and perceived social support on depressive symptoms of the caregivers of children with leukemia. *Journal of Clinical Psychology in Medical Settings*, 17, 23-30. https://doi.org/10.1007/s10880-009-9177-4
- Broadbent, E., Tamagawa, R., Patience, A., Knock, B., Kerse, N., Day, K., & MacDonald, B. A. (2012). Attitudes towards health-care robots in a retirement village. *Australasian Journal on Ageing*, 31(2), 115-120. https://doi.org/10.1111/ j.1741-6612.2011.00551.x
- Buys, L., & Miller, E. (2007). The physical, leisure and social activities of very old Australian men living in a retirement village and the community. *Geriaction*, 25(2), 15-19.
- Buys, L., Miller, E., & Barnett, K. (2006). The personal, practical and policy implications of older Australians' residential choice. *Journal of Housing for the Elderly*, 20(1-2), 31-46. https:// doi.org/10.1300/J081v20n01_03
- Chan, K. W., & Mansor, N. (2022). Elderly independent living in elderly care homes. MAJ-*Malaysia Architectural Journal*, 4(3), 36-42.
- Chandler, R., & Robinson, O. (2014). Wellbeing in retirement villages: Eudaimonic challenges and opportunities. *Journal of Aging Studies*, 31, 10-19. https://doi.org/10.1016/j.jaging.2014.08.001
- Cheek, J., Ballantyne, A., Byers, L., & Quan, J. (2007). From retirement village to residential aged care: what older people and their families say. *Health & Social Care in the Community*, 15, 8-17. https://doi.org/10.1111/j.1365-2524.2006.00646.x

- Chung, C. F., Pazim, K. H., & Mansur, K. (2020). Ageing population: Policies and programmes for older people in Malaysia. Asian Journal of Research in Education and Social Sciences, 2(2), 92-96.
- Cohen, J. (1988). *Statistical power analysis for the behavioral science* (2nd ed.). Lawrence Erlbaum Associates.
- Crisp, D. A., Windsor, T. D., Anstey, K. J., & Butterworth, P. (2013). Considering relocation to a retirement village: Predictors from a community sample. *Australasian Journal on Ageing*, 32(2), 97-102. https://doi.org/10.1111/ j.1741-6612.2012.00618.x
- Crisp, D. A., Windsor, T. D., Butterworth, P., & Anstey, K. J. (2013). What are older adults seeking? Factors encouraging or discouraging retirement village living. *Australasian Journal on Ageing*, *32*(3), 163-170. https://doi.org/10.1111/j.1741-6612.2012.00623.x
- Darko, A., & Chan, A. P. (2017). Review of barriers to green building adoption. Sustainable Development, 25(3), 167-179. https://doi. org/10.1002/sd.1651
- Department of Statistics Malaysia. (2019, July 15). Current population estimates, Malaysia, 2018-2019 [Press Release]. https:// v1.dosm.gov.my/v1/index.php?r=column/ cthemeByCat&cat=155&bul_id=aWJZRkJ4UE dKcUZpT2tVT090Snpydz09&menu_id=L0phe U43NWJwRWVSZkIWdzQ4TlhUUT09#:~:text =Malaysia's%20population%20in%202019%20 is,1.1%20per%20cent%20in%202018
- Economic Planning Unit. (2021). *RMK12 Rancangan Malaysia Kedua Belas* [*The Twelfth Malaysia Plan*]. Ministry of Economy. https://rmke12. epu.gov.my/en
- Fan, Y., & Xia, X. (2018). Energy-efficiency building retrofit planning for green building compliance. *Building and Environment*, 136, 312-321. https:// doi.org/10.1016/j.buildenv.2018.03.044
- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of*

Marketing Research, 18, 39-50. https://doi. org/10.2307/3151312

- Goldhaber, R., & Donaldson, R. (2012). Alternative reflections on the elderly's sense of place in a South African gated retirement village. *South African Review of Sociology*, 43(3), 64-80. https://doi.org/10.1080/21528586.2012.727548
- Hair, J. F., Black, W. C., Balin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis* (7th ed.). Pearson.
- Haraldstad, K., Wahl, A., Andenæs, R., Andersen, J. R., Andersen, M. H., Beisland, Beisland, E., Borge, C. R., Engebretsen, E., Eisemann, M., Halvorsrud, L., Hanssen, T. A., Haugstvedt, A., Haugland, T., Johansen, V. A., Larsen, M. H., Løvereide, L. Løyland, B., Kvarme, L. G., Moons, P., Norekvål, T. M., ... LIVSFORSK network. (2019). A systematic review of quality of life research in medicine and health sciences. *Quality of Life Research*, 28(10), 2641-2650. https://doi.org/10.1007/s11136-019-02214-9
- Holland, C., Boukouvalas, A., Wallis, S., Clarkesmith, D., Cooke, R., Liddell, L., & Kay, A. (2017). Transition from community dwelling to retirement village in older adults: Cognitive functioning and psychological health outcomes. *Ageing & Society*, 37(7), 1499-1526. https://doi. org/10.1017/S0144686X16000477
- Hu, X., Xia, B., Chong, H. Y., Skitmore, M., & Buys, L. (2020). Improving the sustainable retirement village framework: From theory to practice. *Journal of Cleaner Production*, 248, Article 119290. https://doi.org/10.1016/j. jclepro.2019.119290
- Hu, X., Xia, B., Skitmore, M., & Buys, L. (2015). Conceptualizing sustainable retirement villages in Australia. In A. B. Raidén & E. Aboagye-Nimo (Eds.), *Proceedings 31st Annual ARCOM Conference* (pp. 357-366). Association of Researchers in Construction Management.
- Hu, X., Xia, B., Skitmore, M., Buys, L., & Hu, Y. (2017). What is a sustainable retirement village? Perceptions of Australian developers. *Journal of Cleaner Production*, 164, 179-186. https://doi. org/10.1016/j.jclepro.2017.06.227

Asmah Alia Mohamad Bohari, Farah Ajlaa Julaihi, Kuryati Kipli, Mohd Azrai Azman, Sharifah Rahama Amirul and Xin Hu

- Humpel, N., O'Loughlin, K., Wells, Y., & Kendig, H. (2010). The health of Australian baby boomers. *Australasian Journal on Ageing*, 29, 8-13. https:// doi.org/10.1111/j.1741-6612.2010.00412.x
- Hwang, B. G., & Tan, J. S. (2012). Green building project management: Obstacles and solutions for sustainable development. *Sustainable Development*, 20(5), 335-349. https://doi. org/10.1002/sd.492
- Illankoon, I. C. S., & Lu, W. (2020). Cost implications of obtaining construction waste management-related credits in green building. *Waste Management*, 102, 722-731. https://doi. org/10.1016/j.wasman.2019.11.024
- Irvine, J., Ran, G. J., Terruhn, J., & Cain, T. (2020). Ageing and wellbeing in Northcote. CADDANZ Brief, (10). https://www.waikato.ac.nz/ assets/Uploads/Research/Research-entities/ CaDDANZ/10-Ageing-andCaDDANZ-Brief-8-Wellbeing-in-Northcote_JT-final-edits.pdf
- Ismail, K., Alauddin, K., Talib, Y. A., & Salleh, N. (2021). Conceptualization of cultural sustainability for elderly Pondok Village (EPV). *IOP Conference Series: Earth and Environmental Science*, 881, Article 012024. https://doi. org/10.1088/1755-1315/881/1/012024
- Jones, A., Howe, A., Tilse, C., Bartlett, H., & Stimson, B. (2010). Service integrated housing for Australians in later life (AHURI Final Report No. 141). Australian Housing and Urban Research Institute. https://apo.org.au/ sites/default/files/resource-files/2010-01/aponid20085.pdf
- Julaihi, F. A., Bohari, A. A. M., Azman, M. A., Kipli, K., & Amirul, S. R. (2022). The preliminary results on the push factors for the elderly to move to retirement villages in Malaysia. *Pertanika Journal of Social Sciences & Humanities*, 30(2), 761-778. https://doi.org/10.47836/pjssh.30.2.18
- Kronenberg, T. (2009). The impact of demographic change on energy use and greenhouse gas emissions in Germany. *Ecological Economics*, 68(10), 2637-2645. https://doi.org/10.1016/j. ecolecon.2009.04.016

- Kylén, M., Löfqvist, C., Haak, M., & Iwarsson, S. (2019). Meaning of home and health dynamics among younger older people in Sweden. *European Journal of Ageing*, *16*, 305-315 https:// doi.org/10.1007/s10433-019-00501-5
- Lawton, M. P., & Nahemow, L. (1973). Ecology and the aging process. In C. Eisdorfer & M. P. Lawton (Eds.), *The psychology of adult development and aging* (pp. 619-674). American Psychological Association. https://doi.org/10.1037/10044-020
- Lim, X. J., Ng, S. I., & Basha, N. K. (2019). To retire or not to retire: Intention towards concept of retirement village in Malaysia. *Asian Journal* of Business Research, 9, 60-80. https://doi. org/10.14707/ajbr.190056
- Lim, X. J., Ng, S. I., Basha, N. K., Cheah, J. H., & Ting, H. (2020). To move or not to move? A study of sustainable retirement village in Malaysia. *Current Psychology*, 41, 2122-2138. https://doi. org/10.1007/s12144-020-00734-z
- Malta, S., Williams, S. B., & Batchelor, F. A. (2018). 'An ant against an elephant': Retirement village residents' experiences of disputes and dispute resolution. *Australasian Journal on Ageing*, 37(3), 202-209. https://doi.org/10.1111/ ajag.12524
- Mansor, M. N. M., Maon, S. N., Ahmad, M., & Daud, N. M. (2016). Attracting factors of retirement village migration: A literature review. *Advances in Business Research International Journal*, 2(2), 48-51. https://doi.org/10.24191/abrij.v2i2.10024
- Ministry of Health Malaysia. (2018). Pelan tindakan perkhidmatan kesihatan warga emas [National health policy for older persons]. https://www.kpwkm.gov.my/kpwkm/uploads/ files/Penerbitan/Plan/Pelan%20Tindakan%20 Perkhidmatan%20Kesihatan%20Warga%20 Emas.pdf
- Ministry of Women, Family and Community Development. (2018). Dasar warga Emas Negara [*National senior citizens policy*]. https://www. kpwkm.gov.my/kpwkm/uploads/files/Dokumen/ Dasar/Dasar%20Warga%20Emas 2011.pdf

- Morseletto, P., Mooren, C. E., & Munaretto, S. (2022). Circular economy of water: Definition, strategies and challenges. *Circular Economy* and Sustainability, 2, 1463-1477. https://doi. org/10.1007/s43615-022-00165-x
- Ng, S. I., Zhao, F., Lim, X. J., Lim, X.-J., Kamal Basha, N., & Sambasivan, M. (2020). Retirement village buying intention: A case study on the Muslim and non-Muslim Malaysian elderly. *Asia Pacific Journal of Marketing and Logistics*, 32(7), 1451-1473. https://doi.org/10.1108/ APJML-05-2019-0295
- Osei-Kyei, R., Wuni, I. Y., Xia, B., & Minh, T. T. (2020). Research trend on retirement village development for the elderly: A scientometric analysis. *Journal of Aging and Environment*, 34(4), 402-416. https://doi.org/10.1080/268926 18.2019.1707738
- Oswald, F., Wahl, H.-W., Naumann, D., Mollenkopf, H., & Hieber, A. (2006). The role of the home environment in middle and late adulthood. In H.-W. Wahl, H. Brenner, H. Mollenkopf, D. Rothenbacher, & C. Rott (Eds.), *The many faces* of health, competence and well-being in old age (pp. 7-24). Springer, Dordrecht. https://doi. org/10.1007/1-4020-4138-1 2
- Pan, Y., Yin, R., & Huang, Z. (2008). Energy modeling of two office buildings with data center for green building design. *Energy and Buildings*, 40(7), 1145-1152. https://doi.org/10.1016/j. enbuild.2007.10.008
- Park, J. S., & Yoon, C. H. (2011). The effects of outdoor air supply rate on work performance during 8-h work period. *Indoor Air*, 21(4), 284-290. https:// doi.org/10.1111/j.1600-0668.2010.00700.x
- Petersen, M., Tilse, C., & Cockburn, T. (2017). Living in a retirement village: Choice, contracts, and constraints. *Journal of Housing for the Elderly*, *31*(3), 229-242. https://doi.org/10.1080/027638 93.2017.1280580
- Plouffe, L. J., & Kalache, A. (2010). Towards global age-friendly cities: Determining urban features that promote active aging. *Journal of Urban Health*, 87(5), 733-739. https://doi.org/10.1007/ s11524-010-9466-0

- Prajapati, B., Dunne, M. & Armstrong, R. (2010). Sample size estimation and statistical power analyses. *Optometry Today*. https:// floppybunny.org/robin/web/virtualclassroom/ stats/basics/articles/gpower/Gpower_tutorial_ Prajapati 2010-.pdf
- Quine, S., & Carter, S. (2006). Australian baby boomers' expectations and plans for their old age. *Australasian Journal on Ageing*, 25, 3-8. https:// doi.org/10.1111/j.1741-6612.2006.00147.x
- Salem, R., Bahadori-Jahromi, A., & Mylona, A. (2019). Investigating the impacts of a changing climate on the risk of overheating and energy performance for a UK retirement village adapted to the nZEB standards. *Building Services Engineering Research and Technology*, 40(4), 470-491. https://doi.org/10.1177/0143624419844753
- Samsudin, S., Latif, M. R. S. A., Ngadiman, N., & Jagun, Z. T. (2023). An ideal of retirement villages business model in Malaysia: Analysis of case studies. *Environment-Behaviour Proceedings Journal*, 8(23), 107-113. https:// doi.org/10.21834/ebpj.v8i23.4471
- Satariano, W. (2006). *Epidemiology of aging: An ecological approach*. Jones & Bartlett Learning.
- Schoene, D., Heller, C., Aung, Y. N., Sieber, C. C., Kemmler, W., & Freiberger, E. (2019). A systematic review on the influence of fear of falling on quality of life in older people: Is there a role for falls? *Clinical Interventions in Aging*, 14, 701-719. https://doi.org/10.2147/cia.s197857
- Soper, D. S. (2013). A-priori sample size calculator for multiple regression [Online software]. Retrieved November 15, 2023, from http://www. danielsoper.com/statcalc
- Sritharan, K., Hong, K. Y., Krishnan, K., Khor, B. N.,
 K., Manickam, M. K., Phua, C. U., Chin M. Y.
 R., Razak, S. S. A., Muthu, S. D., & Yong, W. S.
 W. (2019). Factors that influences the intention of middle-aged adults' in Johor to move into a retirement village. *Malaysian Journal of Social Sciences and Humanities*, 4(5), 34-42.

Asmah Alia Mohamad Bohari, Farah Ajlaa Julaihi, Kuryati Kipli, Mohd Azrai Azman, Sharifah Rahama Amirul and Xin Hu

- Takagi, E., & Silverstein, M. (2006). Intergenerational coresidence of the Japanese elderly: Are cultural norms proactive or reactive? *Research on Aging*, 28(4), 473-492. https://doi. org/10.1177/0164027506287788
- Takagi, E., & Silverstein, M. (2011). Purchasing piety? Coresidence of married children with their older parents in Japan. *Demography*, 48(4), 1559-1579. https://doi.org/10.1007/s13524-011-0053-0
- Tan, B. C., Lau, T. C., Khan, N., Tan, W. H., & Ooi, C. P. (2021). Elderly customers' open innovation on smart retirement village: What they want and what drive their intention to relocate? *Journal* of Open Innovation: Technology, Market, and Complexity, 7(4), Article 207. https://doi. org/10.3390/joitmc7040207
- Tan, E. P., Chong, S. C., Bui, W. K. T., & Lim, C. Y. (2022). Economics of ageing in Malaysia: A study of older adults' perception towards retirement villages. *International Journal of Business, Economics and Law*, 26(2), 1-7.
- Taylor, A., Pilkington, R., Feist, H., Dal Grande, E., & Hugo, G. (2014). A survey of retirement intentions of baby boomers: An overview of health, social and economic determinants. *BMC Public Health*, 14, Article 355. https://doi. org/10.1186/1471-2458-14-355
- Tey, N. P. (2017). Population ageing in Malaysia. In A. Abeykoon, N. Murat, G. Rocas, & A. C. Naraval (Eds.), Ageing: Thailand, Malaysia, Indonesia and Cambodia: Demographic transition, policy and programmatic responses (pp. 48-69). International Council on Management of Population Programmes (ICOMP). https://psu. um.edu.my/images/Reading/TNP%20book%20 chapter%20ICOMP-IPPF-AGEING_casestudies.pdf
- Tobi, S., Fathi, M. S., & Amaratunga, D. (2017). Ageing in place, an overview for the elderly in Malaysia. *AIP Conference Proceedings*, 1891, Article 020101. https://doi.org/10.1063/1.5005434
- Vatalis, K. I., Manoliadis, O., Charalampides, G., Platias, S., & Savvidis, S. (2013). Sustainability

components affecting decisions for green building projects. *Procedia Economics and Finance, 5*, 747-756. https://doi.org/10.1016/ S2212-5671(13)00087-7

- Viechtbauer, W., Smits, L., Kotz, D., Budé, L., Spigt, M., Serroyen, J., & Crutzen, R. (2015). A simple formula for the calculation of sample size in pilot studies. *Journal of Clinical Epidemiology*, 68(11), 1375-1379. https://doi.org/10.1016/j. jclinepi.2015.04.014
- Wahl, H.-W., Iwarsson, S., & Oswald, F. (2012). Aging well and the environment: Toward an integrative model and research agenda for the future. *Gerontologist*, 52(3), 306-316. https:// doi.org/10.1093/geront/gnr154
- Waidyasekara, K. G. A. S., De silva, M. L., & Rameezdeen, R. (2013). Comparative study of green building rating systems: In terms of water efficiency and conservation. In Y. G. Sandanayake & N. G. Fernando (Eds.), Socio-economic sustainability in construction: Practice, policy and research (pp. 108-117). Ceylon Institute of Builders.
- Wei, W., Wargocki, P., Zirngibl, J., Bendžalová, J., & Mandin, C. (2020). Review of parameters used to assess the quality of the indoor environment in Green Building certification schemes for offices and hotels. *Energy and Buildings*, 209, Article 109683. https://doi.org/10.1016/j. enbuild.2019.109683
- Xia, B., Chen, Q., Buys, L., Skitmore, M., & Walliah, J. (2021). Sustainable living environment in retirement villages: What matters to residents? *Journal of Aging and Environment*, 35(4), 370-384. https://doi.org/10.1080/26892618.2020.1 848965
- Xia, B., Chen, Q., Walliah, J., Buys, L., Skitmore, M., & Susilawati, C. (2021). Understanding the dynamic behaviour of the Australian retirement village industry: A causal loop diagram. *International Journal of Strategic Property Management*, 25(5), 346-355. https:// doi.org/10.3846/ijspm.2021.15063

- Xia, B., Olanipekun, A., Hu, X., Chen, Q., Jiang, X., & Liu, Y. (2021). Optimising facilities provision in retirement villages-a case study in Australia. In F. Long, S. Zheng, Y. Wu, G. Yang, & Y. Yang (Eds.), Proceedings of the 23rd International Symposium on Advancement of Construction Management and Real Estate (CRIOCM 2018; pp. 1225–1236). Springer Singapore. https://doi. org/10.1007/978-981-15-3977-0_94
- Xia, B., Zuo, J., Skitmore, M., Buys, L., & Hu, X. (2014). Sustainability literacy of older people in retirement villages. *Journal of Aging Research*, 2014, Article 919054. https://doi. org/10.1155/2014/919054
- Xia, B., Zuo, J., Skitmore, M., Chen, Q., & Rarasati, A. (2015). Sustainable retirement village for older people: A case study in Brisbane, Australia. *International Journal of Strategic Property Management*, 19(2), 149-158. https://doi.org/1 0.3846/1648715X.2015.1029564

- Xin, S., Li, J., & Wang, Y. (2019). The development of smart pension with benefits and challenges (EasyChair Preprint no. 1652). https://easychair. org/publications/preprint download/VRdh
- Xiong, B., Skitmore, M., & Xia, B. (2015). A critical review of structural equation modeling applications in construction research. *Automation in Construction*, 49, 59-70. https:// doi.org/10.1016/j.autcon.2014.09.006
- Zuo, J., Xia, B., Barker, J., & Skitmore, M. (2014). Green buildings for greying people: A case study of a retirement village in Australia. *Facilities*, 32(7/8), 365-381. https://doi. org/10.1108/F-08-2011-0060



SOCIAL SCIENCES & HUMANITIES

Journal homepage: http://www.pertanika.upm.edu.my/

Pemaknaan Semula Cerita Rakyat Melayu dalam Filem Animasi *Upin & Ipin: Keris Siamang Tunggal* (2019)

Steven Alezender¹ and Jacquelina Karimon^{2*}

¹Jabatan Bahasa Melayu, Fakulti Bahasa Moden dan Komunikasi, Universiti Putra Malaysia, 43400 Serdang, Malaysia

²Pusat Pengajian Pendidikan Jarak Jauh, Universiti Sains Malaysia, 11800 Pulau Pinang, Malaysia

ABSTRAK

Produksi Les' Copaque pada tahun 2019 tampil dengan filem animasi terbaharu berjudul Upin & Ipin Keris Siamang Tunggal. Menariknya filem ketiga jenama animasi Upin & Ipin ini tidak hanya terletak pada telatah dua beradik kembar dan kawan-kawannya malah turut dipengaruhi oleh keberanian pihak produksi yang mengadaptasi cerita rakyat Melayu untuk menggerakkan keseluruhan naratif filem ini. Namun begitu, cerita rakyat Melayu yang diadaptasi tersebut tidak hanya dieksploitasi sebaliknya pihak produksi telah mengolah naratif asal pada kadar minimum sehingga menghadirkan sebuah pemaknaan semula yang dilihat lebih baik dan segar dalam konteks semasa. Sehubungan dengan itu, makalah ini bertujuan mengenal pasti dan menganalisis pemaknaan semula cerita rakyat Melayu yang diadaptasi ke dalam filem animasi Upin & Ipin: Keris Siamang Tunggal. Kajian berbentuk kualitatif ini akan memanfaatkan filem animasi Upin & Ipin: Keris Siamang Tunggal yang ditonton menerusi pelantar penstriman Netflix sebagai data kajian. Pemaknaan semula cerita rakyat Melayu yang dikesan dalam bentuk dialog akan dicatat dan dianalisis menggunakan Teori Adaptasi yang diketengahkan oleh Brain McFarlane (1996). Justifikasi pemilihan teori ini diwajarkan oleh salah satu teknik teori ini iaitu transposisi yang membincangkan adaptasi dilakukan secara terus dengan melakukan sedikit perubahan. Hasil penelitian mendapati bahawa pihak produksi filem ini telah menerapkan teknik transposisi terhadap tiga cerita rakyat Melayu iaitu Si Tanggang, Bawang Putih Bawang Merah dan juga Mat Jenin sehingga berjaya menghadirkan sebuah pemaknaan semula. Justeru itu, implikasi

ARTICLE INFO

Article history: Received: 18 August 2023 Accepted: 26 January 2024 Published: 12 June 2024

DOI: https://doi.org/10.47836/pjssh.32.2.16

E-mail addresses: GS63579@student.upm.edu.my (Steven Alezender) jacquelina@usm.my (Jacquelina Karimon) *Corresponding author kajian ini akan dapat mengetengahkan perutusan nilai dalam pemaknaan semula terhadap cerita rakyat Melayu tersebut agar dapat meningkatkan kerohanian dan nilai kemanusiaan khalayak.

Kata kunci: Adaptasi, cerita rakyat, filem animasi, transposisi, *Upin & Ipin: Keris Siamang Tunggal*

ISSN: 0128-7702 e-ISSN: 2231-8534

Reinterpretation of Malay Folktales in the Animated Film Upin & Ipin: Keris Siamang Tunggal (2019)

ABSTRACT

Les' Copaque Production 2019 presented their latest animated film, Upin & Ipin: Keris Siamang Tunggal. Interestingly, the third film in the Upin & Ipin animation brand is not only centered around the antics of the twin siblings and their friends but is also influenced by the production team's audacity in adapting Malay folklore to propel the narrative of this film. However, the adapted Malay folklore is not merely exploited; rather, the production team has reshaped the original narrative of the Malay folklore to present a reinterpreted version seen as more refined and relevant in the current context. Therefore, this paper aims to identify and analyze the reinterpretation of the adapted Malay folklore in the animated film Upin & Ipin: Keris Siamang Tunggal. This qualitative study will utilize the animated film Upin & Ipin: Keris Siamang Tunggal, streamed on the Netflix, as the research data. The reinterpretation of the Malay folklore detected in dialogues will be recorded and analyzed using the Adaptation Theory proposed by Brian MacFarlane (1996). The justification for selecting this theory is substantiated by one of its techniques, transposition, which discusses adaptation conducted with slight alterations. The research findings indicate that this film's production team applied the transposition technique to three Malay folklore stores: Si Tanggang, Bawang Putih Bawang Merah, and Mat Jenin, successfully presenting a reinterpretation. The implication of this study is to highlight the message of value in the reinterpretation of these Malay folklore stories, with the hope of enhancing the spirituality and human values of the audience.

Keywords: Adaptation, animated film, folklore, transposition, Upin & Ipin: Keris Siamang Tunggal

PENGENALAN

Pemaknaan semula terhadap kisah sejarah dan kesusasteraan Melayu dalam genre epik, jenaka, hikayat dan cerita lisan menurut Abdul Halim Ali (2012) bukanlah suatu fenomena yang baharu di Malaysia. Meskipun tidak menjadi aliran utama dalam ranah penulisan kreatif, namun kewujudannya dalam karya berbentuk drama, novel, cerpen dan puisi mengisyaratkan bahawa pemaknaan semula sudah pun lama diterapkan oleh penulis tanah air dalam karya yang ditukangi. Keperluan untuk memberikan pemaknaan semula terhadap kisah lampau khususnya kesusasteraan Melayu mengikut Ali (2012) ialah rentetan daripada sifat yang tidak hanya mewajahkan kehidupan masyarakat yang menciptanya sebaliknya turut mengandungi lapisan makna citra dan *weltahcauung*. Barisbaris ayat yang dihulurkan dalam bentuk kesusasteraan oleh generasi terdahulu perlu sentiasa ditafsir kerana maknanya sentiasa bergerak melangkaui zaman demi zaman. Keadaan ini akan menyebabkan makna sesebuah teks yang ditafsir pada sesuatu zaman akan berubah pada zaman berikutnya apabila melalui proses pentafsiran semula dalam belahan zaman yang berbeza. Melalui proses pemaknaan semula tersebut, maka sebuah makna baharu yang bersesuaian dengan pandangan hidup dan sosiobudaya masyarakat Melayu masa kini akan dapat diselongkar (Ali, 2012). Bersabit dengan perihal tersebut, adaptasi terawal yang menghidupkan watak Hang Tuah dan Jebat di layar perak iaitu filem Hang Tuah (1956) dan Hang Jebat (1961) umpamanya menurut Wan Hasmah Wan Teh (2017) telah tampil dengan bacaan dan interpretasi yang berbeza. Sekiranya dicermati, kedua-dua filem ini sebenarnya memiliki tujuan yang sama iaitu ingin mengangkat Hang Jebat sebagai tokoh wira yang dikenang dan bukannya sebagai penderhaka seperti yang diketahui selama ini.

Mutakhir ini, gejala pemaknaan semula terhadap kisah sejarah dan kesusasteraan Melayu tidak hanya dikesan dalam karya kreatif malah turut dapat dirasa tempiasnya dalam ranah perfileman tanah air dan salah satunya ialah menerusi filem animasi Upin & Ipin Keris Siamang Tunggal. Filem animasi ketiga keluaran Syarikat Les'Copaque ini terlihat tampil berbeza apabila berani menoleh kembali ke akar umbi dengan mengadaptasi khazanah cerita rakyat dalam perbendaharaan kesusasteraan Melayu tradisional sebagai landasan untuk menggerakkan keseluruhan naratif filem animasinya itu. Usaha produksi Les' Copaque yang mengadaptasi cerita rakyat

Melayu sebagai landasan penceritaan filem animasi Upin & Ipin Keris Siamang Tunggal merupakan sesuatu yang amat terpuji. Ini kerana, ia tidak hanya memberikan nikmat hiburan kepada penonton malah turut memugarkan semula cerita rakyat Melayu dalam era kontemporari agar terus lestari dan diketahui oleh generasi yang masih hijau. Bak cebisan perca, cerita rakyat Melayu seperti Si Tanggang, Mat Jenin, Bawang Merah Bawang Putih, Batu Belah Batu Bertangkup, Nakhoda Ragam dan Nujum Pak Belalang digabungjalinkan dengan teliti untuk menggerakkan keseluruhan naratif filem ini. Hasilnya, filem animasi ketiga produksi Les' Copaque ini berjaya pecah panggung dengan meraih kutipan keuntungan sebanyak 25 juta selepas 21 hari tayangan. Meskipun filem animasi ini memanfaatkan cerita rakyat Melayu sebagai landasan penceritaannya, namun naratif cerita rakyat Melayu yang diadaptasi tersebut tidaklah diterapkan secara bulatbulat oleh pihak produksi. Sebaliknya, pihak produksi telah melakukan pengolahan kreatif terhadap naratif asal cerita rakyat Melayu yang diadaptasi khususnya Si Tanggang, Bawang Merah Bawang Putih dan Mat Jenin. Hasilnya, sebuah pemaknaan semula berjaya dihadirkan terhadap cerita rakyat Melayu yang dinyatakan itu dengan menawarkan kesudahan yang lebih baik dan positif serta mengembleng perutusan nilai yang lebih segar dan baharu seperti penyesalan, kemaafan dan kebaikan.

SOROTAN KAJIAN

Sebagai sebuah jenama animasi negara

yang sudah sekian lama mencipta fenomena yang tersendiri baik di tanah air mahupun negara tetangga seperti di Indonesia dan Brunei, Upin & Ipin sering kali menarik perhatian para sarjana untuk menekuninya dari pelbagai sudut pandang. Walaupun masih bersifat kekinian, namun filem animasi Upin & Ipin Keris Siamang Tunggal (2019) juga turut tidak ketinggalan daripada mengaktifkan perhatian para sarjana untuk turun tangan menekuninya. Berhubung dengan perihal tersebut, Jumrah dan Jumrah (2021) telah menekuni filem ketiga keluaran produksi Les' Copaque ini menerusi makalah yang berjudul Upin & Ipin Keris Siamang Tunggal: Agen Didaktik Pada Layar Budaya. Bertitiktolak daripada permasalahan kajian tentang kemampuan filem ini dalam melaksanakan tanggungjawabnya sebagai agen penyebaran nilai didaktik, hasil dapatan menemukan nilai didaktik yang menjadi objektif kajian tercerna menerusi tiga aspek iaitu renda persahabatan merentasi sempadan perkauman, apresiasi kepada khazanah warisan bangsa dan kemurnian nilai diri insani. Secara keseluruhannya, impak kajian ini memberikan kesedaran bahawa filem, khususnya Upin & Ipin: Keris Siamang Tunggal, tidak hanya sematamata menyajikan hiburan kepada khalayak sebaliknya turut berfungsi sebagai agen didaktik kepada masyarakat.

Lanjutan itu, penyelidikan Mahmood (2021) yang bertajuk Keris Siamang Tunggal: Unveiling Malay Artistic Culture terhadap filem animasi yang sama dalam salah satu objektif kajiannya ingin mengenal pasti item budaya Melayu yang diketengahkan

lewat filem ini. Analisis yang dilakukan mendapati bahawa filem animasi Upin & Ipin Keris Siamang Tunggal telah berjaya memperkenalkan seni budaya Melayu menerusi gambaran 30 item identiti Melayu yang terdiri daripada tokoh cerita rakyat Melayu, bahasa Diraja dan budaya Melayu meliputi senjata tradisional, kesusasteraan, seni persembahan, bahasa klasik, slanga dan gastronomi. Lewat kajian ini, maka dapat diketahui bahawa filem terutamanya filem animasi Upin & Ipin: Keris Siamang Tunggal merupakan salah satu medium yang terbaik untuk mengetengahkan imej dan identiti budaya Melayu ke pentas dunia serta meluaskan ufuk budaya dan ideologi seni Melayu ke seluruh pelosok dunia.

Penulisan Hashim (2021) pula yang berjudul Penceritaan Transmedia: Pengalaman Naratif Baharu dalam Filem Animasi Upin & Ipin: Keris Siamang Tunggal bertitik-tolak daripada permasalahan kajian iaitu, adakah filem animasi tersebut layak dilabelkan sebagai sebuah penceritaan transmedia ataupun sebaliknya? Hasil kajian beliau mendapati bahawa filem Upin & Ipin Keris Siamang Tunggal memenuhi kriteria sebagai penceritaan transmedia ekoran hadirnya lima ciri transmedia dalam filem animasi tersebut iaitu lengkap dan mandiri, struktur penceritaan yang sama, ruang terbuka, fandom dan auteur. Renteten itu, impak yang disuguhkan dalam penulisan ini ialah menyentak kesedaran mengenai potensi penceritaan transmedia untuk mengembangkan sebuah budaya yang dikenali sebagai "budaya partisipatif" (budaya serta sama).

Sementara itu, Adibah (2022) menggariskan objektif ingin meneliti nilai pendidikan karakter dalam filem Upin & Ipin Keris Siamang Tunggal dalam disertasinya yang berjudul Nilai Pendidikan dalam Film Upin dan Ipin: Keris Siamang Tunggal dan Relevansinya dengan Aspek Perkembangan Sosial Emosional pada Anak Usia Dini. Penyelidikan yang dijalankan menemukan nilai pendidikan karakter dalam filem tersebut iaitu jujur, toleransi, disiplin, persahabatan dan peduli sosial. Manakala korelasinya dengan perkembangan sosial emosional anak usia dini pula ialah perilaku kesedaran diri berkait dengan nilai karakter jujur, rasa tanggungjawab berhubungan dengan nilai karakter disiplin dan perilaku prososisal mempunyai pertalian dengan nilai karakter toleransi, persahabatan serta peduli sosial. Impak kajian ini dilihat berjaya mengetengahkan potensi nilai pendidikan yang terkandung dalam filem animasi Upin & Ipin Keris Siamang Tunggal dan menghubungkannya dengan perkembangan sosial emosional kanak-kanak.

Pada masa yang sama, nilai pendidikan karakter turut menjadi tujahan perbincangan Nurfalaah et al. (2022) dalam makalah yang berjudul Analisis Nilai Pendidikan Karakter yang Terkandung dalam Film Kartun Upin dan Ipin khususnya terhadap filem Upin & Ipin Keris Siamang Tunggal. Menariknya, nilai pendidikan karakter yang dianalisis dalam filem tersebut dipertalikan dengan ayat al-Quran dan Hadis. Hasil kajian terhadap filem ini mendapati bahawa nilai-nilai pendidikan karakter terdiri pada nilai kerja keras yang mempunyai pertalian dengan Surah at-Taubah ayat 105 serta Hadis yang menggalakkan umat Islam bekerja keras, nilai rasa ingin tahu berkait rapat dengan Hadis yang menganjurkan umatnya untuk bertanya sekiranya tidak mengetahui sesuatu, nilai bersahabat pula sejajar dengan Surah al-Hujurat ayat 10, nilai mencintai kedamaian mempunyai pertalian dengan Surah al-Ahzab ayat 25 dan nilai peduli sosial yang selari dengan Surah al-Maidah ayat 2 serta Hadis berkaitan tolong-menolong sesama umat muslim. Impak kajian ini ialah dapat mengemukakan nilai pendidikan karakter dalam filem yang sejajar al-Quran dan Hadis.

Berdasarkan kajian lepas tersebut, maka dapat diketahui bahawa kajian yang dijalankan oleh para sarjana terdahulu telah membincangkan filem animasi Upin & Ipin Keris Siamang Tunggal dari pelbagai sudut kaca mata. Tujahan kajian yang dijalankan terhadap filem animasi ini merangkumi agen didaktik pada layar, keupayaan dalam memperkenalkan seni budaya masyarakat Melayu, ciri-ciri penceritaan transmedia dan nilai pendidikan karakter. Namun begitu, kajian khusus berkaitan pemaknaan semula cerita rakyat Melayu yang diadaptasi ke dalam filem ini masih lagi kurang dibincangkan oleh para sarjana sebelumnya. Terdapat juga para sarjana yang menyentuh tentang pentafsiran berbeza yang dilakukan oleh pihak produksi terhadap cerita rakyat Melayu yang diadaptasi tetapi ia hanya bersifat umum dan tidak menjadi fokus sebenar dan tujahan utama dalam kajian yang dijalankan sebagaimana kajian ini. Bertitik-tolak daripada kelompangan kajian

yang ditinggalkan itu, fokus kajian ini akan ditujahkan untuk membincangkan secara khusus seputar pemaknaan semula cerita rakyat Melayu yang diadaptasi ke dalam filem animasi *Upin & Ipin Keris Siamang Tunggal*.

Sinopsis Filem *Animasi Upin & Ipin Keris Siamang Tunggal* (2019)

Filem animasi Upin & Ipin: Keris Siamang Tunggal (2019) merupakan filem ketiga terbitan produksi Les' Copaque selepas Geng Pengembaraan Bermula (2009) dan Upin & Ipin: Jeng Jeng Jeng! (2016). Naratif filem animasi siri ketiga ini bermula apabila Upin dan Ipin bersama-sama kawankawannya iaitu, Ehsan, Fizi, Mail, Mei Mei, Jarjit dan Susanti (Rajah 1) menemui sebilah keris mistik di bilik stor kepunyaan Tok Dalang. Tidak semena-mena, keris tersebut telah membuka sebuah portal yang membawa mereka masuk ke sebuah dimensi lain iaitu sebuah kerajaan yang dikenali sebagai kerajaan Inderaloka. Dalam usaha mencari jalan untuk kembali ke alam realiti, mereka telah mengharungi pengembaraan dalam kerajaan Inderaloka yang pada ketika itu sedang terjerumus ke dalam pergolakan angkara Raja Bersiong yang ingin menguasai kerajaan tersebut. Malah, Upin dan Ipin berserta kawan-kawannya turut berada dalam bahaya kerana membawa keris yang menjadi anak kunci kepada Raja Bersiong untuk merebut kerajaan Inderaloka. Sepanjang pengembaraan tersebut, mereka telah bertemu dengan beberapa watak cerita rakyat Melayu seperti Mat Jenin, Belalang, Bawang

Merah dan Bawang Putih, Nakhoda Ragam, Deruma dan Pak Belalang. Upin dan Ipin bersama-sama dengan kawan-kawannya perlu bekerjasama dengan watak cerita rakyat Melayu tersebut untuk melawan Raja Bersiong demi memulihkan semula ketenteraman kerajaan Inderloka seperti sedia kala sebelum mereka kembali ke alam realiti.



Rajah 1. Poster filem animasi Upin & Ipin: Keris Siamang Tunggal Sumber: Les' Copaque Production (n.d.)

METODOLOGI

Kajian ini merupakan kajian kualitatif terhadap filem animasi ketiga terbitan Les' Copaque berjudul *Upin & Ipin: Keris Siamang Tunggal* (2019) yang ditonton menerusi pelantar penstriman *Netflix* sebagai data penyelidikan. Justeru itu, hanya dua kaedah sahaja yang digunakan dalam penyelidikan ini iaitu kaedah kepustakaan dan analisis kandungan. Kaedah kepustakaan diaplikasikan untuk mencari dan mencatat semua maklumat yang diperlukan bagi memenuhi objektif kajian ini. Maklumatmaklumat yang diperlukan dalam kajian ini diambil daripada bahan-bahan rujukan seperti buku, majalah, latihan ilmiah, jurnal, tesis, artikel, kertas seminar, kertas persidangan dan sebagainya sama ada dalam bentuk bercetak mahupun salinan lembut. Kesemua bahan rujukan tersebut diperoleh daripada Perpustakaan Tun Seri Lanang dan Perpustakaan Institut Alam dan Tamadun Melayu (ATMA) yang terletak di Universiti Kebangsaan Malaysia, Perpustakaan Sultan Abdul Samad di Universiti Putra Malaysia dan Perpustakaan Hamzah Sendut di Universiti Sains Malaysia.

Sementara itu, kaedah analisis kandungan pula dimanfaatkan untuk menganalisis filem Upin & Ipin Keris Siamang Tunggal bagi mengetahui secara mendalam sesuatu aspek atau kejadian yang dikaji khususnya pemaknaan semula dalam filem animasi tersebut. Dalam masa yang sama, Teori Adaptasi, khususnya teknik transposisi, akan digunakan untuk menjalankan analisis terhadap pengubahsuaian yang dilakukan oleh pihak produksi dalam memberikan pemaknaan semula terhadap cerita rakyat Melayu yang digunakan dalam filem animasi Upin & Ipin: Keris Siamang Tunggal. Proses analisis menggunakan teknik transposisi tersebut dijalankan dengan membawa naratif asal cerita rakyat Melayu untuk dibandingkan

dengan naratif cerita rakyat Melayu yang diadaptasi ke dalam filem menerusi bentuk dialog. Perubahan yang dikesan menerusi perbandingan terhadap naratif cerita rakyat Melayu yang adaptasi akan dibincangkan sebagai pemaknaan semula yang dihadirkan oleh pihak produksi.

Teori Adaptasi

Adaptasi dalam ranah perfileman bukanlah sesuatu yang asing. Di Barat, ia diduga sudah pun bermula seawal era Griffith lagi dengan menyaksikan terhasilnya buah tangan beliau seperti The Cloister and the Hearth, Juat Meat dan Resurrection (Giddings et al., 1990). Oleh sebab kehadirannya dalam mewarnai dunia perfileman sudah begitu lama, maka wujud pelbagai terminologi yang digunakan oleh para sarjana untuk merujuk kepada pemindahan sebahagian ataupun keseluruhan karya cereka ke dalam sebuah lakon layar iaitu adaptasi. Malah, takrifan para sarjana terhadap istilah adaptasi tersebut juga saling bertentangan antara satu sama lain berikutan isu kesetiaan ataupun sebaliknya terhadap karya asal yang digeserkan ke lakon layar. Namun, daripada sekian banyak takrifan yang diberikan tersebut, adaptasi secara umumnya dapat dirumuskan sebagai pengubahan dan transformasi sesuatu kepada satu situasi yang baharu (Hamid et al., 2020).

Seperti mana terminologi dan persepsi terhadap adaptasi yang dihinggapi oleh pelbagai pandangan dan teori, adaptasi juga turut berhadapan dengan sarwapandang yang pelbagai daripada para sarjana yang menanganinya. Dudley Andrew, V. Swain Dwight dan Geoffery Wagner merupakan antara sarjana yang saling mengemukakan pandangan tersendiri seputar teknik adaptasi (Othman, 2000). Pun begitu, antara teori adaptasi yang tuntas menurut Hamid et al. (2020) ialah teori yang diperkenalkan oleh Brain McFarlane lewat bukunya Novel into Filem: An Introduction to the Theory of Adaptation (1996). Dalam buku terbabit, McFarlane mengujarkan bahawa Geoffery Wagner (1975) yang melanjutkan pandangan Bela Balaz terhadap definisi adaptasi dalam bukunya yang berjudul The Novel and The Cinema telah menurunkan tiga teknik atau kaedah yang dapat dilakukan dalam pengadaptasian iaitu:

(a) transposition, 'in which a novel is given directly on the screen with a minimum of apparent interference. This has been the most dominant and most pervasive method... it has also been the least satisfactory—and typically puerille. The film was envisaged as a book illustration an effect frequently heightened by an opening in which the page of the original are turned over, (b) commentary, 'where an original is taken and either purposely or inadvertently altered in some respect . . . when there has been a different intention on the part of the film-maker, rather than infidelity or outright violation, and (c) analogy, which must represent a fairly considerable departure for the sake of making another work of art (McFarlane, 1996, p. 10).

Hamid et al. (2020) ketika mengulas secara lanjut terhadap ketiga-tiga teknik tersebut menyatakan transposisi membawa maksud adaptasi dapat dilakukan secara terus oleh penulis skrip dan pengarah filem dengan melakukan sedikit perubahan. Komentari pula membolehkan pengarah melakukan perubahan dengan kadar sedikit dan memberikan pentafsiran terhadap sesebuah karya berdasarkan konsep penampilan dalam filem. Teknik terakhir iaitu analogi pula melibatkan perubahan dalam usaha untuk menghasilkan karya berbentuk lain. Oleh yang demikian, kajian ini akan memanfaatkan teknik transposisi dengan membawa naratif asal cerita rakyat Melayu untuk dibandingkan dengan naratif cerita tersebut yang diadaptasi ke dalam filem menerusi dialog bagi menganalisis pemaknaan semula yang dihadirkan oleh pihak produksi terhadap cerita yang diadaptasi.

ANALISIS DAN PERBINCANGAN

Stam (2005) ketika memberikan pandangannya terhadap proses adaptasi menyatakan bahawa adaptasi merupakan sebuah tafsiran semula terhadap teks dengan membawa sebuah ideologi yang baharu. Selaras dengan kenyataan tersebut, Ingham (1998) pula menyatakan bahawa adaptasi berupaya "memunculkan makna yang lebih segar" (p. 430) dan menyuntik tenaga baharu terhadap teks lama. Justeru, berdasarkan kenyataan kedua-dua sarjana itu, Wan Teh (2017) merumuskan bahawa adaptasi merupakan satu usaha untuk mencukupkan makna daripada karya asal. Proses mencukupkan makna tersebut merujuk kepada keinginan untuk menggantikan satu ilusi sebenar dengan sesuatu yang lain. Sekiranya diteliti, gejala adaptasi seperti yang diperkatakan itu dapat dikesan dengan begitu ketara dalam cerita rakyat Melayu yang diadaptasi ke dalam filem animasi *Upin & Ipin Keris Siamang Tunggal*. Pemaknaan semula cerita rakyat Melayu dalam filem animasi tersebut akan dibincangkan seterusnya.

Transposisi Cerita Rakyat Melayu Si Tanggang. Di sisi masyarakat Melayu sendiri, Si Tanggang merupakan figura dalam cerita rakyat yang paling dikenali dan popular. Kemasyhurannya tidak hanya sebatas di Malaysia malah mencakupi wilayah Nusantara yang lain sehingga dianggap sebagai satu bentuk warisan budaya yang dimiliki oleh serantau (Radzi, 2015). Cerita rakyat Si Tanggang menurut Radzi (2015) diklasifikasikan sebagai cerita legenda di bawah subklalsifikasi legenda pendosa. Keberadaan cerita rakyat Si Tanggang dalam longgokan subklasifikasi tersebut adalah berikutan daripada perbuatan derhaka yang dilakukan oleh Si Tanggang terhadap ibunya iaitu Deruma setelah berjaya memperbaiki kehidupannya. Bertitik-tolak dari itu, naratif cerita rakyat Si Tanggang cenderung menyuguhkan perutusan nilai dan teladan seputar tidak menderhaka kepada ibu bapa di samping melukiskan gambaran tentang masyarakat Melayu yang menempatkan ibu bapa khususnya ibu di tingkat yang paling atas dalam sesebuah organisasi kekeluargaan.

Ringkasnya, cerita rakyat tersebut mengisahkan Si Tanggang yang ditangkap oleh seorang nakhoda untuk dijadikan pekerja dalam bahteranya. Lantaran sikap rajin dan amanah yang dipamerkan oleh Si Tanggang, nakhoda tersebut telah mengambilnya menjadi anak angkat lalu dikahwinkan dengan anak perempuannya. Setelah nakhoda tersebut uzur, Si Tanggang diberikan kepercayaan sebagai nakhoda baharu untuk meneruskan perniagaannya. Berbekalkan kecekapan dan kebijakan berniaga, nama Si Tanggang mulai terkenal sehingga dipanggil ke istana dan seterusnya berkahwin dengan puteri sultan yang terpikat kepadanya. Pada suatu ketika, kapal Si Tanggang telah berlabuh di kampung halamannya dan berita kepulangannya telah sampai ke pengetahuan ibunya, Deruma. Lantas Deruma menyiapkan pisang salai iaitu makanan kegemaran Si Tanggang lalu bergegas ke pelabuhan untuk menemui anak yang sudah begitu lama dirinduinya. Malangnya, Deruma telah dianiaya oleh Si Tanggang yang menghalau dan menyakitinya lantaran malu dengan kedaifan ibunya itu. Deruma yang merasa kecewa dengan perlakuan anaknya telah memohon kepada Tuhan agar memberikan pembalasan kepada Si Tanggang. Rentetan itu, Si Tanggang telah berubah menjadi batu akibat perbuatan derhakanya terhadap Deruma (Puteh & Said, 1995).

Menariknya dalam pembikinan filem animasi Upin & Ipin Keris Siamang Tunggal, cerita rakyat Melayu Si Tanggang ini telah dipugar kembali oleh pihak produksi dengan menjadikannya sebagai salah satu fragmen untuk menggerakkan alur penceritaan dalam filem tersebut. Pun begitu, pihak produksi tidak hanya mengeksploitasi cerita rakyat Si Tanggang ini sematamata tetapi turut menerapkan teknik transposisi di bahagian peleraian naratif asal cerita rakyat Melayu yang diadaptasi. Berhubung perihal tersebut, tumpuan khusus diberikan kepada watak Deruma yang diselubungi oleh kekesalan dalam dirinya seraya melepaskan kemarahan kepada si Tanggang hingga tersumpah menjadi batu di tengah laut. Rasa menyesal, menurut Landman (1987), memainkan peranan untuk menterjemahkan suasana sedih (sorrow) dan kekecewaan (disappointment) disebabkan oleh sesuatu yang dilakukan ataupun tidak dilakukan. Berdasarkan takrifan tersebut, maka penyesalan yang menyelubungi Deruma mempunyai pertalian dengan tindakannya yang terburu-buru menyumpah Si Tanggang menjadi batu. Babak yang menyuguhkan rasa penyesalan Deruma tersebut disuguhkan oleh Amiruddin et al. (2019) menerusi dialog dalam filem animasi Upin & Ipin Keris Siamang Tunggal seperti berikut:

Upin: Itu anak nenek ye? Macam mana nenek sumpah dia?

Deruma: (teresak)

Upin: Nek, janganlah sedih.

Deruma: Nenek kesal bertindak terburuburu... tak sabar.. sepatutnya nenek maafkan dia. Upin: Jadi, sekarang nenek sudah maafkan dia?

Deruma: (Bingkas bangun dan berteriak) Tangganggggggg... hati mak dah lama maafkan kau Tanggang.. tapi mulut ni berat sangat nak ucapkan.. mak maafkan kau Tanganggggg....

(Sejurus itu, Tanggang berserta dengan kapalnya yang menjadi batu perlahanlahan tenggelam ke dasar laut)

Deruma: (teresak) Mak maafkan kamu. (Amiruddin et al., 2019, 1:04:25-1:02:35)

Berdasarkan dialog yang dipetik daripada babak tersebut, maka jelas bahawa pihak produksi filem animasi telah melakukan transposisi terutamanya di bahagian peleraian cerita rakyat Si Tanggang yang diadaptasi ke dalam filem Upin & Ipin Keris Siamang Tunggal. Transposisi menyaksikan watak Deruma bergelumang dan dihantui oleh penyesalan ekoran tindakan terburu-buru menyumpah Si Tanggang sehingga bertukar menjadi batu. Perasaan menyesal yang menghinggapi Deruma telah memungkinkan dia menyatakan isi hatinya yang sebenar untuk memaafkan Si Tanggang atas perbuatan derhakanya. Sekiranya dicermati, peristiwa ini sama sekali tidak ditemui dalam naratif asal cerita Si Tanggang yang tamat setelah bertukar menjadi batu akibat perbuatan derhakanya kepada Deruma.

Oleh itu, transposisi yang dilakukan terhadap perleraian cerita rakyat Si Tanggang tersebut telah berhasil menyuguhkan sebuah pemaknaan semula lewat kemaafan yang diberikan oleh Deruma kepada Si Tanggang. Meskipun kemaafan yang dizahirkan oleh Deruma itu sudah pun terlewat dan tidak dapat mengubah semula keadaan seperti sedia kala, namun perutusan nilai yang paling penting yang dicerap menerusinya ialah ketinggian nilai dan kasih sayang yang tidak berbelah bahagi seorang ibu terhadap anaknya. Hakikatnya, ia merupakan gambaran sebenar kasih sayang yang dimiliki oleh seorang ibu kerana walau sebesar manapun dosa dan kejahatan yang dilakukan oleh seorang anak terhadap ibunya, ia sama sekali tidak berupaya menyurutkan genangan kasih sayang seorang ibu. Walaupun kemaafan Deruma hanya berlaku dalam konteks filem animasi ini semata-mata, namun setidak-tidaknya pemaknaan semula yang diketengahkan lewat transposisi tersebut merupakan suatu bentuk alternatif untuk mendamaikan konflik yang berlaku antara Si Tanggang dengan Deruma. Kesudahan yang sedemikian adalah lebih baik berbanding kedua-duanya berterusan terjerumus ke dalam konflik kekeluargaan yang berpanjangan di samping menepati konteks masyarakat semasa.

Transposisi Cerita Rakyat Bawang Putih Bawang Merah

Cerita rakyat Bawang Putih Bawang Merah juga merupakan salah satu cerita rakyat yang tidak asing dalam ranah kesusasteraan rakyat. Cerita rakyat yang satu ini turut

menyebar dengan meluas dalam wilayah Nusantara sehingga tampil dengan pelbagai versi tersendiri mengikut negara masingmasing. Judul bagi cerita rakyat ini di Malaysia umpamanya dikenali sebagai Bawang Putih Bawang Merah manakala di Indonesia judulnya ialah Bawang Merah Bawang Putih (Hasanudin et al., 2021). Cerita rakyat Melayu Bawang Putih Bawang Merah ini secara keseluruhannya menurut Puteh dan Said (1995) mengisahkan perihal Bawang Merah yang tinggal di bawah jagaan ibu tirinya bersama saudara tirinya, Bawang Putih yang begitu membencinya setelah ibunya meninggal dunia. Dalam tempoh tersebut, Bawang Merah telah mengharungi kehidupan seharian yang sukar angkara perbuatan ibu dan saudara tirinya itu. Nasib Bawang Merah bagaimanapun mulai berubah setelah seorang putera raja menyuntingnya menjadi isteri dan hidup dengan gembira serta bahagia di dalam istana.

Dalam filem animasi Upin & Ipin Keris Siamang Tunggal, cerita rakyat Bawang Putih Bawang Merah ini turut tidak ketinggalan dijadikan sebagai landasan untuk menggerakkan alur penceritaan filem terbabit. Seperti mana cerita rakyat Melayu Si Tanggang sebelumnya, teknik transposisi turut diterapkan dalam naratif cerita rakyat Melayu Bawang Putih Bawang Merah yang diadaptasi pada bahagian peleraian. Penggunaan teknik transposisi terhadap cerita rakyat ini digerakkan oleh elemen kemaafan yang menyaksikan Bawang Merah dijadikan sebagai watak kakak berjiwa besar yang bersedia memaafkan kesalahan Bawang Putih manakala Bawang Putih pula dijadikan sebagai watak yang menyedari kesalahan sendiri dan ingin memohon maaf kepada Bawang Merah. Perihal tersebut digambarkan oleh Amiruddin et al. (2019) menerusi dialog filem animasi *Upin & Ipin Keris Siamang Tunggal* iaitu seperti berikut:

(Babak I)

Nakhoda Ragam: Mengapa kau berada di sini?

Bawang Merah: Dulu....

Upin: Ceritalah... ceritalah

Bawang Merah: Sebenarnya Merah dipenjarakan di sini akibat difitnah Bawang Putih, adik Merah sendiri. Hati ini sakit sangat pada dia.

(Pada masa yang sama, dibabak II)

Bawang Putih: Putih tak patut buat dia begitu. Putih rasa bersalah dan kesal sangat. Putih teringin nak jumpa dia dan minta maaf.

Mei Mei: Tapi kenapa kakak dalam penjara?

Bawang Putih: Hahhh! Kerana kakak jahat! Fitnah kakak sendiri. Raja murka.

(Kembali ke babak I)

Bawang Merah: Hei! Bertuah punya budak! Jangan usik Nian!

Upin: Garangnya. Macam Kak Ros. Betul tak Ipin?

Bawang Merah: Kak Ros?

Upin: Ya, kakak kami nama dia Ros. Walaupun garang dia baik hati. Dia gorengkan ayam untuk kami.

Ipin: Apabila kami sakit, dia jaga. Apabila kami nakal....

Upin: Dia marah! Dia piat telinga kami.

Bawang Merah: (teringat memori sewaktu kecil bersama dengan Bawang Putih)

Ipin: Tapi, macam mana Kak Ros marah pun, dia tetap sayang kami.

Upin: Ya. Kalau kami salah dia mesti maafkan. Sebab dia kakak.

Ipin: Kakak kan kena jaga adik-adik. Betulkan kak?

Bawang Merah: (teresak) Ya, betul. Kakak mesti maafkan adik. Air dicincang tak akan putus. Dialah satusatunya keluarga Merah. Putih, di manakah kau? Merah rindukan putih. Merah maafkan putih. (Amiruddin et al., 2019, 36:57–32:48)

Petikan dialog pada babak I dan II menyuguhkan tentang pemaknaan semula menerusi teknik transposisi yang dilakukan oleh pihak produksi terhadap cerita rakyat Bawang Putih Bawang Merah yang diadaptasi. Penggunaan teknik tersebut dapat dilihat menerusi rasa tanggungjawab seorang kakak di samping perasaan kasih sayang sesama ahli keluarga yang berjaya melembutkan hati Bawang Merah untuk memaafkan Bawang Putih yang

memfitnahnya sehingga menyebabkannya terkurung di sebuah tempat. Bawang Merah juga sedar bahawa perselisihan yang berlaku antaranya dengan Bawang Putih tidak akan berkekalan kerana jika sudah sampai masanya adik-beradik yang berseteru sudah tentu akan kembali berbaik-baik semula bertepatan dengan peribahasa "carik-carik bulu ayam, lama-lama bercantum juga". Pada masa yang sama, Bawang Putih yang berada di penjara turut meluahkan rasa bersalah dan kekesalannya terhadap perbuatan yang dilakukan pada Bawang Merah. Perasaannya itu mendorong Bawang Putih ingin segera berjumpa dengan Bawang Merah untuk memohon maaf atas kejahatan yang dilakukannya kepada Bawang Merah sebelum ini.

Perseteruan antara Bawang Merah dengan Bawah Putih yang didamaikan lewat filem animasi ini juga merupakan sesuatu yang asing dalam naratif asal cerita rakyat Bawang Putih Bawang Merah seperti yang dibawakan pada awal perbincangan. Transposisi yang dilakukan oleh pihak produksi ke atas cerita rakyat Melayu yang satu ini telah berjaya menghadirkan pemaknaan semula yang lebih baik dan segar apabila kedua-dua adik beradik yang selama ini berseteru menjadi rukun dengan bermaaf-maafan antara satu sama lain setelah menyesali kekhilafan yang dilakukan. Peristiwa bermaafan antara Bawang Merah dengan Bawang Putih yang diolah dalam filem ini menjadi kesudahan yang lebih baik bagi kedua-dua adik-beradik yang terkenal dengan perseteruan mereka berbanding terus bermusuhan seperti dalam naratif asal yang sudah sedia diketahui. Ia sekali gus mewajahkan kejayaan pihak produksi mengetengahkan perutusan nilai yang ditunjangi oleh elemen kemaafan menerusi pemaknaan semula yang dilakukan terhadap cerita rakyat Melayu ini.

Transposisi Cerita Rakyat Mat Jenin

Mat Jenin merupakan cerita rakyat Melayu yang berada dalam kategori cerita jenaka. Walaupun cerita ini bersifat jenaka tetapi naratifnya tetap sarat mengujarkan ibrah yang dapat diambil oleh khalayak yang menikmatinya. Cerita rakyat Melayu berjudul Mat Jenin secara ringkasnya berkisar tentang seorang pemuda bernama Mat Jenin yang sedang memasang angan-angan di atas pokok kelapa ketika mengambil upah memetik buah kelapa. Dalam angan-angannya itu, upah yang diperoleh akan digunakan membeli telur ayam dan kemudiannya dieramkan. Setelah menetas dan membiak, Mat Jenin akan menjual ayam tersebut untuk membeli beberapa ekor kambing. Setelah kambing belaannya itu membiak dan membesar, kambing itu juga akan dijual dan hasilnya digunakan untuk membeli lembu. Sampai pada masanya, Mat Jenin akan turut menjual lembunya itu setelah membiak dan gemuk untuk membeli gajah dan banyak lagi keinginannya sehingga dia akhirnya berjaya mengahwini puteri raja yang memeluknya lalu membuatnya menggeliat dan terjatuh dari pokok (Winstedt, 1996).

Di samping cerita Si Tanggang dan Bawang Putih Bawang Merah, naratif filem *Upin & Ipin Keris Siamang Tunggal* turut berpaut kuat pada cerita rakyat Melayu Mat Jenin. Menariknya, figura Mat Jenin telah dijadikan sebagai watak utama dalam kerajaan Inderaloka setelah Upin dan Ipin berserta kawan-kawannya memasuki kerajaan tersebut melalui Batu Belah Batu Bertangkup. Dalam filem animasi ini, Mat Jenin diceritakan sedang mencari rambut untuk dijual dengan nilai sepuluh emas bagi sehelai rambut. Keuntungan yang diperoleh daripada jualan rambut tersebut melorongkan Mat Jenin memasang niat untuk mengahwini anak raja. Niat Mat Jenin yang ingin menjadi kaya dalam filem ini tidak jauh berbeza dengan naratif asal yang sudah diketahui dalam cerita rakyat. Namun, seperti mana dua cerita rakyat yang telah diperincikan sebelumnya, pihak produksi filem animasi ini juga turut menerapkan teknik transposisi terhadap naratif asal cerita rakyat Mat Jenin yang diadaptasi. Transposisi yang dilakukan ini didasari oleh elemen kebaikan yang menyaksikan Mat Jenin tampil sebagai watak yang positif apabila angan-angannya yang ingin menjadi kaya direalisasikan sebagai pewaris takhta sebenar kerajaan Inderaloka. Perkara tersebut diperlihatkan oleh Amiruddin et al. (2019) menerusi petikan dialog filem animasi Upin & Ipin Keris Siamang Tunggal seperti berikut:

Nakhoda Ragam: Jenin!

Mat Jenin: Kau! Panglima! Kau yang bawa aku lari! Kenapa? Kenapa kau lari? Kenapa tak tolong raja? Kenapa? Apa yang kau dah buat, Ragam? Raja ditinggalkan!

Nakhoda Ragam: Tuanku! Patik diperintah menyelamatkan dan melindungi Tuanku daripada bahaya!

Mat Jenin: Atas perintah siapa?

Nakhoda Ragam: Ayahanda Tuanku, Raja Inderaloka! Tuanku saja pewaris.... (Amiruddin et al., 2019, 26:51-26:21)

Dialog antara Mat Jenin dengan Nakhoda Ragam memaparkan dengan jelas teknik transposisi yang dilakukan terhadap naratif asal cerita rakyat Mat Jenin. Sikap Mat Jenin yang berangan-angan ingin menjadi kaya dalam naratif sebenar telah dikesampingkan dengan menaikkan status sosial Mat Jenin daripada rakyat biasa menjadi golongan aristokrat. Dalam filem ini, Mat Jenin tidak dikekalkan sebagai pemuda yang menyara hidupnya dengan melakukan kerja-kerja kampung dan meninggal akibat berangan sebaliknya diubah sebagai pewaris takhta kerajaan Inderloka. Di saat Raja Inderloka sebelumnya tewas ketika bertarung dengan Raja Bersiong, Mat Jenin telah diselamatkan oleh Nakhoda Ragam yang pada ketika itu menjadi panglima kerajaan Inderaloka. Sejak peristiwa tersebut, Mat Jenin melalui hari-harinya sebagai rakyat biasa sehingga dia kembali semula ke istana Inderaloka untuk mengingati semula kejadian yang lampau.

Sebagai pewaris sah Kerajaan Inderaloka, Mat Jenin dalam filem animasi ini bertanggungjawab melawan Raja Bersiong yang sekian lama ingin merampas kerajaan tersebut. Setelah melalui pertarungan yang sengit, Mat Jenin berjaya mengalahkan Raja Bersiong dan sekali gus memulihkan semula kerajaan Inderaloka yang sudah lama terpuruk. Transposisi yang dilakukan terhadap cerita rakyat Mat Jenin ini telah mengemukakan pemaknaan semula apabila watak Mat Jenin tidak dikekalkan sebagai pemuda yang tenggelam dalam angan-angan sebaliknya beliau dijadikan pewaris sebuah kerajaan. Perspektif baharu yang dibawa oleh filem ini memberikan kesudahan yang lebih baik kepada watak Mat Jenin berbanding naratif asal yang memperlihatkan Mat Jenin meninggal kerana jatuh dari pokok kelapa akibat berangan-angan. Interpretasi yang segar terhadap watak tradisional yang negatif tersebut menurut Hashim (2021) dilakukan sesuai dengan semangat zaman semasa, membina arketaip abad ke-21 yang optimistik dan berfikiran jauh ke hadapan.

KESIMPULAN

Teknik transposisi dalam Teori Adaptasi telah dimanfaatkan oleh pihak produksi filem animasi *Upin & Ipin Keris Siamang Tunggal* untuk menghadirkan sebuah pemaknaan semula terhadap cerita rakyat Melayu yang diadaptasi ke dalam filem ini. Fokus pihak produksi ternyata tidak hanya ditujahkan sepenuhnya untuk menyajikan kisah seputar Upin dan Ipin berserta kawankawannya sebaliknya tiga daripada cerita rakyat yang digunakan dalam filem ini iaitu Si Tanggang, Bawang Putih Bawang Merah dan Mat Jenin telah digarap dengan baik oleh pihak produksi untuk dibaurkan dalam filem ini sehingga berjaya menyuguhkan sebuah pemaknaan semula terhadap naratif asal cerita rakyat Melayu yang diadaptasi. Pemaknaan semula terhadap cerita rakyat Melayu menerusi teknik transposisi tersebut menyaksikan Deruma diselubungi rasa menyesal akibat terburu-buru sehingga memungkinkan dirinya memaafkan penderhakaan Si Tanggang. Sementara itu, Bawang Merah ditampilkan sebagai seorang kakak yang berjiwa besar dan bersedia memaafkan kesalahan Bawang Putih yang memfitnahnya. Pada masa yang sama, Bawang Putih juga turut dihinggapi oleh rasa bersalah dan kesal kerana memfitnah kakaknya dan ingin segera memohon maaf kepada Bawang Merah. Mat Jenin pula tidak diteruskan sebagai watak yang meninggal akibat kuat berangan-angan sebaliknya dijadikan sebagai pewaris takhta kerajaan Inderloka. Teknik transposisi yang diterapkan terhadap naratif asal cerita rakyat Melayu yang diadaptasi telah berhasil menawarkan pemaknaan semula terhadap ketiga-tiga cerita rakyat terbabit dengan mengemukakan kesudahan yang lebih baik, segar dan bertepatan dengan pandangan hidup dan konteks masyarakat semasa.

Implikasi secara Praktis

Penyelidikan yang dilakukan pada masa yang akan datang perlu dijalankan untuk meneliti pemaknaan semula yang dihadirkan oleh pengkarya dalam lapangan yang lain. Ini kerana, fenomena pemaknaan semula tidak hanya dituangkan dalam bentuk filem semata-mata sebaliknya ia turut diwajahkan dalam bentuk yang lain seperti novel, cerpen dan puisi baik yang dihasilkan oleh pengkarya tempatan mahupun antarabangsa. Pada masa yang sama, pemaknaan semula tersebut turut dapat diteroka dalam bidang sejarah yang diolah ke dalam sesebuah karya kerana fenomena pemaknaan semula tidak hanya terhad dalam ranah kesusasteraan semata-mata. Kesan dari itu, sudut pandang, pegangan tradisional dan naratif berunsur negatif dalam sesebuah karya sastera mahupun sejarah yang ditafsir semula oleh seseorang pengkarya akan dapat diselongkar dan disebarkan kepada khalayak untuk meningkatkan kerohanian, nilai kemanusiaan dan kenegaraan khalayak yang menikmatinya yang sama sekali tidak dapat dicapai menerusi proses saintifik dan empirikal.

Limitasi Kajian dan Cadangan Kajian Masa Hadapan

Limitasi kajian ini adalah hanya menggunakan filem animasi Upin & Ipin Keris Siamang Tunggal untuk menyelongkar pemaknaan semula yang dihadirkan oleh pihak produksi Les'Copaque terhadap cerita rakyat Melayu yang diadaptasi ke dalam filem ini. Namun begitu, filem animasi ketiga ini bukanlah satu-satunya medium yang digunakan oleh pihak produksi untuk mengadaptasi cerita rakyat Melayu. Ini kerana pihak produksi turut mengadaptasi beberapa cerita rakyat Melayu yang lain ke dalam animasi Upin & Ipin menerusi tayangan secara bermusim seperti Upin & Ipin Pim Pim Pom. Oleh itu, wujud kebarangkalian bahawa pihak produksi turut melakukan pemaknaan semula terhadap cerita rakyat Melayu dalam animasi Upin & Ipin yang ditayangkan secara bermusim. Bertolak dari itu, cadangan kajian pada masa yang akan datang dapat dijalankan dengan meneliti pemaknaan semula yang diberikan oleh pihak produksi Les'Copaque terhadap cerita rakyat Melayu yang diadaptasi ke dalam siri animasi Upin & Ipin yang ditayangkan secara bermusim sama ada dengan menggunakan kerangka kajian dan teori yang sama ataupun yang lain.

PENGHARGAAN

Penulis ingin merakamkan setinggi penghargaan kepada Assoc. Prof. Dr. Salmah Jan Noor Muhammad dari Fakulti Bahasa Moden dan Komunikasi, Universiti Putra Malaysia yang memberi pandangan dan kritikan dalam menghasilkan artikel ini.

RUJUKAN

- Adibah, H. (2022). Nilai pendidikan karakter dalam Film Upin Dan Ipin: Keris Siamang Tunggal dan relevansinya dengan aspek perkembangan sosial emosional pada anak usia dini [Nilai pendidikan peribadi dalam Filem Upin dan Ipin: Keris Siamang Tinggal dan kerelevanannya dengan aspek perkembangan sosial emosional kepada kanak-kanak prasekolah; Tesis Sarjana Pendidikan, Universitas Islam Negeri]. Repository UIN Profesor Kiai Haji Saifuddin Zuhri. https://repository.uinsaizu.ac.id/id/ eprint/17264
- Ali, A. H. (2012). Satu analisis pengkisahan semula sastera Melayu tradisional dalam perspektif baharu. Jurnal Perspektif, 4(2), 16-27.

- Amiruddin, A., Razuri, A., & Khalid, N. S. (Pengarah). (2019). Upin & Ipin Keris Siamang Tunggal [Filem]. Les' Copaque Production.
- Giddings, R., Selby, K., & Wesley, C. (1990). Screening the novel: The theory and practice of literary dramatization. Macmillan.
- Hamid, M. N. S., Yaapar, M. S., & Nitiphak, S. (2020). Adaptasi teks sejarah kepada filem: Kajian bandingan teks sejarah Kerajaan Melayu Patani kepada filem Quees of Langkasuka. Jurnal Antarabangsa Dunia Melayu, 13, 299-318. https://doi.org/10.37052/jm.13(2)no6
- Hasanudin, M. I. W., Azlizan, M. A. A., & Jamian, M. N. (2021). Cerita rakyat Bawang Putih Bawang Merah Versi Malaysia & Indonesia: Perbandingan latar budaya. *Jurnal Wacana Sarjana*, 5(3), 1-21.
- Hashim, R. (2021, Ogos 1). Penceritaan transmedia: Pengalaman naratif baharu dalam filem animasi Upin & Ipin Keris Siamang Tunggal. *Dewan Sastera*, 8, 9-14.
- Ingham, M. (1998). The theatre of storytelling: The prose fiction stage adaptation as social allegory contemporary British drama. University of Hong Kong.
- Jumrah, M. H., & Jumrah, Z. (2021, Jun 2-3). Upin & Ipin Keris Siamang Tunggal: Agen didatik pada layar budaya. Persidangan Antarabangsa Bahasa, Sastera Dan Budaya Melayu, Sintok, Alor Setar, Malaysia. https://www.researchgate.net/ publication/355201357_UPIN_IPIN_KERIS_ SIAMANG_TUNGGAL_AGEN_DIDAKTIK_ PADA_LAYAR_BUDAYA
- Landman, J. (1987). Regret: A theoretical and conceptual analysis. *Journal for the Theory of Social Behaviour*, 17(2), 135-160. https://doi. org/10.1111/j.1468-5914.1987.tb00092.x

- Mahmood, W. H. W. (2021). Keris Siamang Tunggal: Unveiling Malay artistic culture. International Journal of Language, Literacy and Translation, 4(1), 28-44. https://doi.org/10.36777/ ijollt2021.4.1.041
- McFarlane, B. (1996). *Novel into film: An introduction to the theory of adaptation*. Clarendon Press.
- Nurfalaah, D., Hakim, A., & Dudi, A. (2022). Analisis nilai pendidikan karakter yang terkandung dalam film kartun Upin dan Ipin. Jurnal Riset Pendidikan Guru Paud, 2(2), 95-106. https:// doi.org/10.29313/jrpgp.v2i2.1292
- Othman, H. (2000). Adaptasi novel ke filem: Analisis perbandingan antara filem Melayu dan filem barat [Tesis sarjana, Universiti Malaya]. UM Student's Repository. http://studentsrepo. um.edu.my/681/
- Puteh, O., & Said, A. (1995). Himpunan 366 cerita rakyat Malaysia. Utusan Publications & Ditributors.
- Radzi, S. B. M. (2015). Si Tanggang moden dan perubahan makna dalam cerita bermotifkan anak derhaka. *Malaysian Journal of Communication*, 31(2), 247-261. https://doi.org/10.17576/ JKMJC-2015-3102-16
- Stam, R. (2005). Introduction: The theory and practice of adaptation. Dlm. R. Stam & A. Raengo (Pnyt.), *Literature and film: Guide to the theory* and practice of film adaption (hlm. 1-52). Blackwell Publishing.
- Wan Teh, W. H. (2017, Mei 5-7). Wangi jadi saksi: Satu bacaan semula terhadap sejarah setiakawan Tuah-Jebat [Kertas Pembentangan]. Persidangan Antarabangsa Historiografi Melayu, Kuantan, Malaysia.
- Winstedt, R. O. (1996). *A history of classical Malay literature*. Eagle Trading Sdn. Bhd.



SOCIAL SCIENCES & HUMANITIES

Journal homepage: http://www.pertanika.upm.edu.my/

Infectious Disease Epidemics in Kazakhstan in the 1900–1930s and Their Impact on Healthcare Development

Gulzhaukhar Kokebayeva^{1*}, Sabit Shildebai² and Aigul Smanova³

¹Department of World History, Historiography and Source Studies, Faculty of History, Al-Farabi Kazakh National University, Al-Farabi Avenue 71, Almaty 050040, Kazakhstan ²Central State Archive of the Republic of Kazakhstan, Abay Ave., 39, Almaty 050000, Kazakhstan ³Department of History, Institute of Social Sciences, Humanities and Art, Kazakh National Women's Teacher Training University, Ayteke Bi Str., 99, Almaty 050000, Kazakhstan

ABSTRACT

Before the COVID-19 pandemic, an optimistic belief prevailed worldwide that the protracted struggle against infectious diseases had ended. However, COVID-19 later emerged as a truly global phenomenon with a considerably higher fatality rate than that of other infectious diseases. To date, no country has been unaffected by this virus. COVID-19 has tested the resilience of healthcare systems and the deployment of response forces globally. This circumstance underscores the relevance of assessing past experiences in combating infectious diseases and eradicating certain dangerous infections. This article attempts to uncover the challenges encountered in implementing imperial and Soviet government policies related to epidemic control in Kazakhstan. It analyses the major epidemics in Kazakhstan, measures taken against them, and initial steps toward vaccinating the population. In pre-revolutionary Kazakhstan, infectious disease control was episodic owing to limited resources and insufficient well-trained and experienced doctors, paramedics, and nurses. Despite the post-civil war complexities of rebuilding the economy, the Soviet Union has prioritised the prevention of epidemics. Infectious diseases, such as

ARTICLE INFO

Article history: Received: 21 March 2022 Accepted: 13 February 2024 Published: 14 June 2024

DOI: https://doi.org/10.47836/pjssh.32.2.17

E-mail addresses: kokebayeva@gmail.com (Gulzhaukhar Kokebayeva) S.Shildebai@mail.ru (Sabit Shildebai) aigulsmanova@mail.ru (Aigul Smanova) *Corresponding author typhus, typhoid fever, cholera, smallpox, and dysentery that spread via the digestive tract have presented the greatest challenge. The government has funded vaccination programs and adopted sanitation measures to prevent the transmission of these diseases.

Keywords: Epidemic, healthcare system, incidence rate, infectious diseases, outbreaks, preventive measures, vaccination

INTRODUCTION

In the second half of the 20th century, the world witnessed notable successes in controlling epidemics and increasing average life expectancy. The outbreak of the novel coronavirus or COVID-19 pandemic has claimed more than 3 million lives worldwide and revealed the importance of examining long-term experiences in overcoming global epidemics.

The historiography of epidemics covers a wide range of scientific literature on various aspects regarding the emergence, spread, and consequences of previous epidemics. Hays' (2005) Epidemics and Pandemics: Their Impacts on Human History analyses the general history of epidemics in Europe, America, Africa, and Asia from ancient times to the present day. Each essay in the book combines biological and social information regarding major epidemics that have significantly impacted the course of world history. Loomis' book (2018) comprehensively overviews the ten most influential epidemics in human history. The author believes that epidemic diseases constitute the main driving force in shaping the world and reveals their important role in decision-making regarding wars, overthrowing empires, making major technological leaps, and even altering the human genome. Snowden (2019) conducted a large-scale study examining the relationship between epidemic diseases and social changes. In his multidisciplinary and comparative study of the medical and social histories of major epidemics, the author revealed the impact of epidemics on the

development of medicine and public health and demonstrated their influence on the history of art, religion, and social thought. Many studies have focused on the economic and social consequences of COVID-19 transmission. For example, Kalkın et al. (2021) investigated the problem of emergent xenophobia and strategies for combating this negative consequence of the pandemic.

The American researcher Davis (2018) studied the history of cholera in Russia in 1817–1917. He evaluated the ecological approach of pre-revolutionary Russian doctors toward dealing with infectious diseases, their strategies for addressing cholera epidemics, and the formation of the Soviet public health system based on extensive archival materials. However, the spatial framework underlying Davis' study did not cover the territory of Kazakhstan.

Vasiliev and Segal (1960) describe the history of epidemics in Russia: the plague of 1660–1664, eight cholera epidemics in the 19th century, the Spanish flu of 1918–1919, the spread of typhus and their consequences. Lotova and Idelchik (1967) and Baroyan (1968) explored the causes of infectious disease transmission in the Union of Soviet Socialist Republics (USSR) and methods of combating epidemics. These two books illuminate the history of the spread of infectious diseases in the territory of Russia.

However, Kazakhstan's history of the struggle against infectious diseases has been understudied. Information regarding the spread of infectious diseases and the state of the epidemic situation in the territory of Kazakhstan can only be found in the works devoted to the development history of the healthcare system (Chesnokov, 1946; Samarin, 1958). In Chesnokov's book (1945), only one chapter pertains to the period under study, where the author provides comparative statistics on the development of the healthcare system in Kazakhstan during the colonial and Soviet periods, with a brief description of the fight against epidemics.

In Samarin's book (1958), some information about the struggle against the spread of infectious diseases in Kazakhstan during the colonial period can be found, but the statistics provided by the author mainly concern settlers—Russian peasants who arrived from Russia to Kazakhstan. In the two chapters dedicated to the history of the formation of the healthcare system, one can find some information about the fight against epidemics in Kazakhstan during the Soviet period. However, in these chapters, the author focuses primarily on the decrees and decisions of Soviet authorities and the Communist Party.

A book by Birtanov and Birtanov (1998) delves into the historical development of medicine in Kazakhstan, offering a concise overview of early healing methods and the emergence of the first hospitals during the studied period. Nevertheless, the book does not have a history of specific cases of spreading infectious diseases in Kazakhstan. The history of establishing the sanitary-epidemiological service in Kazakhstan in the 1920s–1930s is very briefly outlined, as is the history of mobile medical teams that fought against infectious diseases in remote areas of Kazakhstan and introduced sanitary culture among the population. Thus, this book is only a brief overview of the development of medicine in Kazakhstan. Furthermore, a book authored by Kamaliev et al. (2004) provides an in-depth exploration of the evolution of traditional medicine and public health in Kazakhstan throughout antiquity, the Middle Ages, as well as the colonial and Soviet eras. In the book, some information about establishing the system to combat the spread of infectious diseases and the work of Kazakh doctors can be found. However, there is a lack of information about specific cases of epidemics in Kazakhstan.

Junisbayev (2019) investigated the establishment of the Soviet healthcare system by analysing archival documents. It also examined the endeavours of the People's Commissariat of Health of the Turkestan Republic in creating a medical network within the province during 1917-1919, when the south-eastern region of Kazakhstan was part of the Turkestan Republic. Furthermore, in their article, Shildebay et al. (2021) thoroughly examined the history of the Regional Sanitary and Bacteriological Institute. This institute played a pivotal role in shaping the healthcare system in Kazakhstan and the activities of the scientists and physicians associated with it in combating infectious diseases and epidemics. As evident from the historiographical overview, books on this topic primarily consist of brief surveys of the establishment of medical institutions in Kazakhstan, while articles delve into

the history of the creation and activities of individual medical institutions.

Consequently, existing literature lacks a comprehensive history of epidemics in Kazakhstan and systematic efforts to combat infectious diseases, resulting in the eradication of the most dangerous infectious diseases in the country. This article attempts a new interpretation of the history of epidemic control in Kazakhstan, the institutionalisation of the healthcare system, and the evolution of state health protection policies from 1900 to 1930. These years encompass the final period of the colonial system and the emergence of the Soviet medical service in Kazakhstan.

The history of epidemic control in Kazakhstan encompasses vast spatial and temporal scales. Therefore, we have limited the chronological scope of the study to the 1900–1930s. This period was the most difficult phase for Kazakhstan, a former outskirt of tsarist Russia with a backward healthcare system. In addition, this territory suffered the hardships of revolutionary events and civil war and experienced forced collectivisation and famine.

MATERIALS AND METHODS

This study is based on information acquired from the Central State Archive of Scientific and Technical Documentation of the Republic of Kazakhstan (CSASTDRK), published reports of state institutions on the statistics of major infectious disease transmission in pre-revolutionary and Soviet Kazakhstan, measures for preventing epidemics, and the history of the formation of state structures targeted at preventing infectious diseases.

In exploring this study's topic, we employed a world-system approach, enabling us to perceive the study subject as an integral component of an intricately organised system. The functioning and development of this system encompassed essential components, treating them as separate specific events, historical situations, and global processes. In our case, infectious disease outbreaks in Kazakhstan served as separate specific events. At the same time, the historical situation entailed the struggle against infectious disease transmission and the evolution of the healthcare system during the colonial and Soviet periods. At the global level, epidemics are recurring worldwide, spanning the Russian Empire and USSR. These real events, phenomena, and processes were interconnected and interdependent, featuring cause-and-effect relationships. Identifying these internal connections facilitated a comprehensive understanding and assessment of the research object.

Our research relied on a narrative method, commonly employed in studying issues about 'real life'. This method permitted us to reconstruct the circumstances surrounding the emergence and proliferation of epidemics in Kazakhstan, as well as the methods employed to combat them. To scrutinise specific historical material, we utilised a historical–genetic method to examine the genesis (origin and developmental stages) of specific historical phenomena and analyse the causality of changes. The primary objective of the historical–genetic method is to elucidate factual events, pinpoint the reasons for their occurrence, trace the features of their development, and discern their consequences, effectively delving into causality. In this study, the historical–genetic method allowed us to methodically uncover the essence and dynamics of the epidemic situation in Kazakhstan during the imperial and Soviet eras as well as identify the role of healthcare system institutionalisation in the battle against infectious disease transmission in Kazakhstan.

To analyse the evolution of epidemic control methods, we employed a historical– comparative approach, which enabled the identification and comparison of different developmental stages within the research object. This approach allowed us to track changes and determine the developmental patterns. In our study, this method proved invaluable in identifying the various periods of epidemic outbreaks and evaluating the effectiveness of efforts to combat infectious diseases. Furthermore, we also employed this method in the analysis of statistical data.

RESULTS AND DISCUSSION

Kazakhstan's Healthcare Background

At the beginning of the 20th century, all developed countries had established national health systems that helped them efficiently eradicate dangerous infectious diseases, such as the plague, cholera, smallpox, and scarlet fever, owing to the discovery of various vaccines. However, all these corrective measures were predominantly undertaken in the centres, while the epidemic situation in colonial countries remained unabated. During the colonial period, only 98 hospitals and 96 outpatient clinical institutions were present in Kazakhstan, employing 196 doctors (Chesnokov, 1946). The nomadic population did not have access to specialised medical care, thus resulting in the spread of various infectious diseases.

The most common disease was malaria, the prevalence of which in Kazakhstan exceeded that in the entire Central Asian region. Specifically, in 1911-1913, the malaria incidence rate per 10,000 population was 208 in Central Asia and 216 in Kazakhstan (Koryakin, 1930). Western Kazakhstan exhibited the highest malaria incidence rates (Koryakin, 1930). In 1914, the region's malaria mortality rate reached 12% of the total cases (Chesnokov, 1946). The vast Caspian lowland represents the territory of Western Kazakhstan. This territory is rich in rivers, swamps, lakes, and flood meadows. Approximately 650,000 hectares of land are occupied by swamps, and the average relative humidity is 45%-70%. The combination of such conditions is likely to have influenced the high incidence of malaria in the region. In addition, the lack of medical care also contributed to the widespread transmission of malaria across the indigenous population. Of the entire population, 51.3% lived in nomadic areas, 22.3% in semi-nomadic areas, and 26% in settled areas (Koryakin, 1936). One medical station in Western Kazakhstan served an average of 49,800 people; one doctor accounted for an average of 2,450 urban dwellers and 68,450 rural residents (Koryakin, 1930). No medical

care covered Kazakh nomads since small medical institutions were in cities. The Akmola region, which covered 479,200 square versts (a verst is a Russian measure of length equal to 1.06 km), only had nine medical institutions with 109 beds (Samarin, 1958).

At the beginning of the 20th century, infectious diseases, such as smallpox, measles, diphtheria, and whooping cough, were prevalent as few effective measures of controlling them were available, and the mortality rate was high. In 1905–1906, a plague outbreak was registered in the Naryn region, where 659 people fell ill, and 621 subsequently died (Sagiev, 2020). The Anti-Plague Commission, established in 1897, was responsible for organising the fight against the spread of the plague, while the Imperial Institute of Experimental Medicine studied the challenges associated with the spread of the plague in the Russian Empire. The institute examined the scientific materials collected by previous expeditions and performed detailed research on the incessant plague outbreaks in the Astrakhan province from 1899 to 1913 (1,758 cases with 1,581 deaths) (Blokhina, 2012). Laboratory staff organised expeditions, identified the natural foci of the plague and identified the carriers and vectors of the plague. However, despite their active research and anti-epidemic work, they could not halt the spread of this infectious disease across this territory of the Russian Empire. Plague outbreaks in the Kazakhstani population were also noted in 1907, 1910-1914, 1918, 1924, and 1928.

In 1910, in the Akmola region, the mortality rates from smallpox, diphtheria, typhoid fever, typhus, dysentery, and scarlet fever were 18.6%, 19.3%, 10%, 10.4%, 12.5%, and 11.4%, respectively. In 1913, measles, diphtheria, and scarlet fever were registered in all areas in the Semirechensk region, and in some places, these diseases assumed the nature of an epidemic (Samarin, 1958). During the First World War, typhus epidemics occurred in prisoner-of-war camps in Russia and occasionally spread to the surrounding territories. Specifically, in 1915, a typhus epidemic broke out in Western Kazakhstan, with 1,129 cases of infection and 115 deaths (Patterson, 1993).

During the colonial period, only a few dozen healthcare institutions existed across the vast territory of Kazakhstan, unable to provide systematic efforts against the spread of infectious diseases. Moreover, these healthcare facilities were mainly located in large settlements inhabited by representatives of colonial authorities and wealthy Russian settlers. Naturally, in such a situation, epidemics frequently occur among the local population in Kazakhstan, leading to high mortality from infectious diseases.

Institutionalisation of the Healthcare System during Epidemics in Kazakhstan in 1900–1930

During the 1917 Revolution and 1918–1920 Civil War, during the Spanish flu epidemic, various typhus outbreaks, and famine, organising systematic medical care was impossible. The People's Commissariat of Health, established in 1920, formulated plans for the organisation of medical care and prevention of epidemics; however, these plans were not implemented owing to the circumstances associated with postwar devastation and chaos. In the 1920s, infectious disease transmission in the republic territory was considerably high. Comparative analyses of the 1921, 1922, and 1923 data did not reveal any improvement in the dynamics of the population's morbidity rate in Kazakhstan. In 1923, 285,857 patients contracted infectious diseases in Kazakhstan, among whom 82,268 were in the provinces and 203,589 in the counties (Solov'ev, 1924). In 1920, among the registered patients in Kazakhstan, 6,186 had scurvy, 2,575 smallpox, 1,589 scarlet fever, 1,887 measles, 2,138 whooping cough, 16,591 typhoid fever, 31,435 typhus, 28,982 recurrent typhus, 6,271 typhus of unknown origin, 11,447 dysentery, 14 cholera, 225 anthrax, and 35,572 malaria (People's Commissariat of Health of the KASSR, 1921).

In 1899–1923, the sixth cholera pandemic reportedly occurred worldwide, and the outbreak of this infectious disease originated in India because of the consumption of contaminated food and water. In 1921, the number of people infected with cholera in Russia reached 207,000, of which 44.8% died (Rosenberg, 1962). By the end of June 1921, the cholera epidemic from Samara had spread to Kazakhstan. By the end of August, 13,789 people had fallen ill, and 5,706 people had died (People's Commissariat of Health of the KASSR, 1921). In 1922, 4,733 deaths occurred in 8,158 patients who had contracted cholera. Most of those infected were rural residents (6,394 people), and 59% of them died. During this period, cholera was among the most dangerous and deadly epidemics (Report of the Council, 1922). In 1922, a major cholera epidemic occurred in the Semirechensk region, killing 2,533 people (74.6%) out of 3,395 cases (Sagiev, 2020). The spread of cholera was predominantly exacerbated by the poor state of water supply and sanitation in Kazakhstani cities. Cholera prevention required data collection on the state of the water, soil, and air, food quality control, and sewerage and water supply improvement.

After establishing the Kazakh Autonomous Soviet Socialist Republic in 1920, the People's Commissariat of Health was founded, and its operational structure began to take shape. In December 1921, the Central Emergency Sanitary Commission was established under the People's Commissariat of Health of the USSR to systematically combat infectious diseases and epidemics; moreover, it was responsible for mobilising all possible means of controlling epidemics. The same commission was established in Kazakhstan, including the People's Commissar of Health of the Republic, the commissioner of the All-Union Emergency Commission, and the head of the Military Sanitary Department of the People's Commissariat of Health. At the provincial executive committees, emergency sanitary commissions were also constituted to monitor and formulate measures to combat the epidemic (these commissions were referred to as "sanitarnaya troika"

in documents and correspondence related to the challenge of eliminating epidemic sources).

The spread of malaria, typhoid fever, cholera, and other infectious diseases was not only associated with the poor social conditions of the population but also with unfavourable environmental conditions and the inaccessibility of clean drinking water. The population's nutritional intake was the next significant factor in infectious disease transmission. In the empire, during the First World War and Civil War, the nutritional intake of the population gradually decreased because of the partial crop failure of 1920 and the complete crop failure of a vast part of the republic in 1921. These events caused a terrible disaster: famine in Kazakhstan, where the hungry population had to make use of various kinds of surrogates, some of which were certainly harmful, severely affecting people's health. The most popular surrogates were straw, quinoa seeds, a mixture of potato peel and beetroot, wild cherries, liquorice root, flour made from fresh bones, rubber, and sunflowers. None of the used surrogates were nutritious. Systematic malnutrition and complete starvation attracted several diseases owing to exhaustion, reduced resistance, the creation of favourable conditions for infectious diseases, and increased mortality in the population.

From December 1921 to February 1922, 46,265 typhoid cases were registered in Kazakhstan. However, in Kazakhstan, the situation was significantly worse because of the mass famine of 1921–1922. The People's Commissariat of Health outlined a plan to organise several medical and food detachments that were supposed to provide sanitary and food assistance to hungry and sick people; however, lacking resources rendered it impossible to implement these plans.

At the beginning of June 1923, the third All-Kyrgyz Congress of Health Departments was convened to discuss key issues, such as the People's Commissar of Health report and the state of medical and sanitary affairs, among others. In addition, Congress discussed potential measures for combating the spread of infectious diseases in the republic's territory, including the plague in Bukeevskaya and Ural provinces. The People's Commissar of Health, M. S. Shamov, noted in his report the deplorable state of healthcare in Kazakhstan and the complexity of the tasks facing the People's Commissariat. In 1923, 122 people contracted the plague in Bukeevskaya and Ural provinces, and 119 of them died, including 13 families comprising 67 people. Several detachments consisting of nine doctors (including three bacteriologists), nine paramedics, and 22 orderlies worked in the foci of the epidemic, taking quarantine measures (People's Commissar of Health of the KASSR, 1923). However, the remoteness of the homes affected by the disease, late notification to medical institutions regarding the outbreak, lack of transport, and extremely slow movement of medical personnel detachments rendered it difficult to eliminate the foci of the epidemic.

In 1923, malaria was the most common disease in Kazakhstan, and the number of cases was 73.9% of all infected patients; 238 and 390 patients with malaria per 1,000 people were identified in the provincial cities of the republic and counties, respectively, with the average in the USSR being 51.9 (Solov'ev, 1924). On 12 May 1924, the Resolution of the Council of People's Commissars of the Russian Soviet Federated Socialist Republic (RSFSR) "On measures to combat malaria" was adopted. Local authorities were to "provide all possible assistance to the organisation of the fight against malaria on the ground, involving interested departments, professional organisations, and the wide public in this work; in particular: a) to carry out urgent and feasible measures to improve the soil and to drain swamps, ponds, and other reservoirs that contribute to the development of malaria ... " (Actions and Orders of the Government of the RSFSR, 1924). In subsequent years, the incidence of malaria rose in the population.

In terms of combating epidemics, an accurate bacteriological diagnosis of infectious diseases was imperative; nonetheless, owing to the lack of sanitary and bacteriological laboratories in Kazakhstan, the entire conflict against epidemics was limited to enforcing quarantine measures and eliminating disease foci. In addition, extremely few studies investigated the nature of infectious diseases or identified and determined the causes of foci spread. *Bacilli* carriers are known to play a role in spreading typhoid fever and diphtheria; therefore, sanitary and bacteriological laboratories had to conduct extensive survey work to detect them. In the event of the plague, malaria, and other epidemic diseases, animals, insects, water, and food potentially serve as sources of infection. Sanitary and bacteriological laboratories can develop a method for successfully combating the epidemic if they identify the source of infection. In 1922, the People's Commissariat of Health of the KazASSR created a Regional Chemical and Bacteriological Laboratory in Orenburg, which was supposed to deal with issues regarding sanitation and epidemiology in the republic. However, the limited staff and lack of certain necessary specialists made the laboratory work difficult. Based on this laboratory, the KAZTSIK Regional Sanitary and Bacteriological Institute was established in July. By the beginning of 1926, the Institute had established bacteriological, chemical, clinical diagnostic, serum, and serological departments, as well as malaria and Pasteur stations. Departments dealing with vaccination problems were also instituted. The Republican People's Commissariat of Health funded the Sanitary-Bacteriological Institute. It had the right to receive monetary grants from the Red Cross and other institutions.

In 1926–1928, preventive work continued: the staff of the entomological office examined the presence of insects causing malaria and other infectious diseases in 20 370 different reservoirs as well as 108 residential and non-residential premises of the city of Almaty and its environs (Kazakh Regional Sanitary and Bacteriological Institute, 1926). In 1929-1930, the People's Commissariat of Health of KazASSR organised seven expeditions to the construction areas of the Turksib railway and other parts of Kazakhstan. Or-Karatal, Balkhash, Resettlement, Alma-Ata aulno-rural, Balneological, and other expeditions conducted sanitary-hygienic and epidemiological studies of resettlement areas and areas reserved for state farms specialising in rice cultivation. They also examined the territories of Balkhash, Kopal-Arasan, and Almaty mineral springs. The destruction of pathogenic insects and pest control also contributed to the reduction of morbidity. The anti-plague expedition examined rodents in the areas bordering China in the Almaty and Semipalatinsk districts (Kazakh Regional Sanitary and Bacteriological Institute, 1929).

Bacteriological and Pasteur stations were engaged in the development of preventive vaccines and therapeutic serums: the republic was fully provided with smallpox detritus; in 1926, 20, 12, and 5 L of divicine, staphylococcal vaccine, and streptococcal vaccine were manufactured, respectively. In most cases, patients only underwent diagnostic verification without retesting in the post-treatment period because of the lack of doctors; however, the preventive work conducted and assistance provided in treating patients yielded certain positive results. Therefore, in 1926, 175 patients passed through the Pasteur station without fatalities (Shtiben, 1927). Mass vaccination commenced in 1931; however, comprehensive vaccination was only

administered to the urban population in 1933, while those in rural areas did not undergo vaccination (People's Commissar of Health of the KASSR, 1929).

Doctors also received alarming signals from workers on constructing the Turkestan-Siberian Railway (TURKSIB). In one section of the construction line alone, 115 typhoid cases were registered; 35 people received treatment at Ili Hospital and 53 in Ainabulak, while the rest of the patients remained in their barracks, tents, and yurts. In Iliysk, patients were in a shed in the yard of the outpatient clinic in clothes without bedding, food, and care; patients with different diagnoses were grouped. A common case was classified when a worker with malaria easily contracted typhoid fever in the hospital (Sheigal, 1929). After that, the authorities decided to open Pasteur vaccination centres in Taldykurgan and Sarqand to vaccinate all workers in the northern and southern parts of Turksib (Kazakh Regional Sanitary and Bacteriological Institute, 1929).

In December 1930, news emerged regarding the spread of typhus in the city of Almaty. An emergency meeting of the Emergency Commission for Combating Epidemics discussed this problem. It resolved to allocate rooms to isolate patients, promptly connect hospitals to the water supply network, open additional laundries in hospitals, accelerate bath construction in the city and oblige the leadership of Turksib to allocate rooms for passengers at train stations (Extraordinary Commission under the Council of People's Commissars of the Kazakh ASSR, 1930). The local authorities also adopted preventive measures: homeowners and tenants in charge of dormitories and public premises in cities were obliged to rid cesspools, garbage pits, and yards of garbage; clean streets near their estates; and improve the sanitary conditions of dormitories and inns (Extraordinary Commission under the Council of People's Commissars of the Kazakh ASSR, 1930). Rural-to-urban migration and increased industrialisation led to overpopulation in poor housing with no public water supply and waste disposal system. These conditions led to repeated outbreaks of cholera, dysentery, tuberculosis, typhoid, influenza, and malaria. During this period, the rapid increase in the incidence of infectious diseases in the Kazakhstani population did not only emanate from the weakness of preventive measures but also from the mass famine that swept the entire territory of the republic in 1932–1933.

The establishment of a permanent healthcare system in Kazakhstan, including state sanitary inspection, sanitaryepidemiological institutions, bacteriological laboratories, research institutes, and centres, along with the introduction of systematic monitoring of the sanitary condition of settlements, facilitated the elimination of dangerous infectious diseases such as cholera, plague, and smallpox.

CONCLUSION

The spread of infectious diseases and the struggle against them has driven many countries to develop elaborate global health systems comprising various networks of organisations. Owing to the lack of such a healthcare system in pre-revolutionary Kazakhstan, infectious disease control was episodic because the means to combat epidemic diseases were considerably limited, and well-trained and experienced doctors, paramedics, and nurses were insufficient.

The Soviet Union prioritised the prevention of epidemics despite the complexities associated with rebuilding the economy after the civil war. Central, republican, and local health authorities made some progress in implementing disease prevention activities, including examining infection sources and the organisation of patient treatment. Infectious diseases, such as typhus, typhoid fever, cholera, smallpox, dysentery, and other diseases that spread via the digestive tract were a matter of special concern. Their incidence rates were not only associated with the poor living conditions of the population but also with poor personal and environmental hygiene, as well as a lack of inaccessibility to clean drinking water. The government-funded vaccination programs and adopted sanitation measures to prevent the spread of these diseases, resulting in the exhaustive provision of smallpox detritus to the republic. Research institutes played significant roles in addressing epidemics by identifying the natural foci, sources, and mechanisms of transmission of infections. Vaccination of the population against dangerous infectious diseases was organised. Vaccines not only protect the health of an immunised person but also that of society.

An adequately high vaccination rate tends to halt the transmission of infectious diseases in the community, implying that even those not vaccinated receive protection. During the formation of the healthcare system in the Soviet era, several critical elements were set in motion, which included implementing a system of sanitary control, protection of maternal and child health, organised and systematic battle against acute infectious diseases, establishment of medical personnel training, the emergence of a network of pharmacies, and application of efforts to improve drinking water quality. The state played a pivotal role in effectively responding to infectious disease outbreaks. During this period, rural medical districts experienced significant growth. They were equipped with laboratories and medical equipment and staffed with doctors, nurses, and sanitation workers. In the 1920s-1930s, extensive sanitary and health measures were implemented, resulting in the elimination of cholera, plague, and smallpox, as well as a significant reduction in malaria and tuberculosis morbidity.

In the contemporary world, factors such as global warming, changes in natural and climatic conditions, and the intensification of migration have led to the resurgence of infectious diseases eradicated in the previous century. This situation is especially pertinent for post-Soviet countries, where the onceestablished state systems for safeguarding the population against infectious diseases are being scaled back. The experience gained from combating infectious diseases in Kazakhstan underscores the importance of public health system competencies and the efficient organisation of large-scale emergency responses to prevent epidemics and mitigate their adverse effects.

Significance of the Study for Theory and Practice

In theoretical terms, our research contributes to the application of a world-system approach to the study of the history of Kazakhstan. By examining the history of the spread of infectious diseases in Kazakhstan within the context of global historical processes, we demonstrate the potential of applying a world-system perspective to the study of local history. By comparing the history of the spread of infectious diseases in Kazakhstan with global trends in the emergence of epidemics worldwide and efforts to combat them, we identify interconnections and mutual influences in the development of world history.

The practical significance of our research lies in the possibilities of applying certain methods to combat the spread of infectious diseases in modern Kazakhstan. COVID-19 has shown that the people of the world are still at risk due to the spread of new infectious diseases. The methods of combating the spread of infectious diseases, as well as the preventive measures undertaken by government agencies in Soviet Kazakhstan, demonstrate the effectiveness of epidemic control at the state level. The history of combating epidemics in Kazakhstan underscores the necessity of establishing a state healthcare system.

ACKNOWLEDGEMENT

The authors thank Al-Farabi Kazakh National University, Central State Archive of The Republic of Kazakhstan and Kazakh National Women's Teacher Training University for the opportunity to develop this research.

REFERENCES

- Actions and Orders of the Government of the RSFSR. (1924). Vestnik zdravookhraneniia Kirgizii I Kazakhstana, 1-2 (4-5), 77-78.
- Baroian, O. V. (1968). Results of half a century of infection control in the USSR and some topical issues of modern epidemiology. Meditsina.
- Birtanov, A. B., & Birtanov, E. A. (1998). History of medicine of Almaty city. Sanat.
- Blokhina, N. N. (2012). History of the activity of Russia's antiplague service in the early 20th century. *Epidemiology and infectious diseases*, 17(1), 56-61. https://doi.org/10.17816/EID40676
- Chesnokov, S. A. (1946). *Health care in Kazakhstan*. Kazogiz.
- Davis, J. P. (2018). Russia in the time of cholera: Disease under Romanovs and Soviets. Bloomsbury Publishing. https://doi. org/10.5040/9781350987869
- Expeditionary Work of the Kazakh Regional Sanitary and Bacteriological Institute (1929). Central state archive of scientific and technical documentation of the Republic of Kazakhstan. Fund 85, List 1-6, File 26 a.
- Extraordinary Commission under the Council of People's Commissars of the Kazakh ASSR. (1930). Records of meetings of the Extraordinary Commission under the Council of People's Commissars of the Kazakh ASSR. Central State Archive of Scientific and Technical Documentation of the Republic of Kazakhstan. Fund 85, List 1-6, File 56.

- Hays, J. N. (2005). *Epidemics and pandemics: Their impacts on human history*. Bloomsbury Publishing.
- Junisbayev, A. (2019). From the history of the formation of the healthcare system in Soviet Turkestan (1917–1919). *Historical Bulletin, 2,* 321-349.
- Kalkın, G., Arun, K., & Erdurmazli, E. (2021) COVID-19 pandemic and xenophobia: Case studies based on social theories. *FWU Journal* of Social Sciences, 15(1), 26-40. https://doi. org/10.51709/19951272/spring2021/15-3
- Kamaliev, M. A., Bigalieva R. K., & Khabieva, T. H. (2004). *History of traditional medicine and public health of Kazakhstan*. Evero.
- Kazakh Regional Sanitary and Bacteriological Institute. (1926). *Reports of the Kazakh Regional Sanitary and Bacteriological Institute*. Central State Archive of Scientific and Technical Documentation of the Republic of Kazakhstan. Fund 85, List 1-6, File 22.
- Kazakh Regional Sanitary and Bacteriological Institute. (1929). Records of meetings of the Kazakh Regional Sanitary and Bacteriological Institute (1929-1930). Central State Archive of Scientific and Technical Documentation of the Republic of Kazakhstan. Fund 85, List 1-6, File 52.
- Koryakin, I. S. M. (1930). Reports at the regional congress of doctors. Central State Archive of Scientific and Technical Documentation of the Republic of Kazakhstan. Fund 85, List 1-6, File 60
- Koryakin, I. S. M. (1936). Papers at the regional scientific congress. Central State Archive of Scientific and Technical Documentation of the Republic of Kazakhstan. Fund 85, List 1-6, File 189
- Labour and Defence Council of the KASSR. (1922). Report of the Council of Labor and Defense of the KASSR. Tipografiia Gubsovnarkhoza.
- Loomis, J. S. (2018). *Epidemics: The impact of germs* and their power over humanity. Turner Publishing. https://doi.org/10.5040/9798400647079

- Lotova, E. I., & Idel'chik, Kh. I. (1967). Fighting infectious diseases in the USSR (1917-1967): Essays on history. Meditsina.
- Patterson, K. D. (1993). Typhus and its control in Russia, 1870-1940. Medical History, 37(4), 361-381. https://doi.org/10.1017/ S0025727300058725
- People's Commissar of Health of the KASSR. (1929). Reports of the People's Commissar of Health of the Kazakh Autonomous Soviet Socialist Republic Central State Archive of Scientific and technical documentation of the Republic of Kazakhstan. Fund 85, List 1-6, File 51.
- People's Commissariat of Health of KASSR. (1923). Proceedings of the 3rd All-Kyrgyz Congress of Public Health: Report of the People's Commissariat of Health. Sovetskaiia step.
- People's Commissariat of Health of the KASSR. (1921). Report of the people's commissariat of health of the KSSR to the 2nd All-Kyrgyz Congress of Soviets. Tipografiia Gubsovnarkhoza.
- Rosenberg, Ch. E. (1962). *The cholera years: The United States in 1832, 1849, and 1866.* The University of Chicago Press.
- Sagiev, Z. A. (2020). A chronological atlas reference book of plague diseases on the territory of the Central Asian desert natural plague outbreak within the Republic of Kazakhstan. Kazakh Universiteti.

- Samarin, R. I. (1958). Essays on the history of public health in Kazakhstan. Kazgosizdat.
- Sheigal, I. S. (1929). Medical care in South Turksib. Zdravookhranenie v Kazakhstane, 3, 4-7.
- Shildebay, S., Kokebayeva, G. & Junisbayev, A. (2021). From the history of the Kazakh Regional Sanitary and Bacteriological Institute. *Otan tarihy*, 1(93), 93-107. https://doi. org/10.51943/1814-6961_2021_1_93
- Shtiben, V. D. (1927). Report on activities of the Regional Sanitary-Bacteriological Institute of Kaznarkomzdrav named after KazTsIK. Vestnik zdravookhraneniia Kazakhstana, 1(16), 107-131.
- Snowden, F. M. (2019). Epidemics and Society: From the black death to the present. Yale University Press. https://doi.org/10.12987/9780300249149
- Solov'ev, A. V. (1924). Infectious morbidity in the Kyrgyz Republic for 1923 (A brief statistical report). Vestnik zdravookhraneniia Kirgizii i Kazakhstana, 1-2 (4-5), 58-67.
- Vasil'ev, K. G., & Segal, A. E. (1960). *History of epidemics in Russia*. Moskva: Gosudarstvennoe izdatel'stvo meditsinskoi literatury.



SOCIAL SCIENCES & HUMANITIES

Journal homepage: http://www.pertanika.upm.edu.my/

The Dialectics of Nigeria's Opaque Downstream Oil Sector and the Agency of Fuel Subsidy

Agaptus Nwozor^{1*}, Oladiran Afolabi¹, Chukwudi Godwin Chidume², Onjefu Okidu³ and Solomon Adebayo Adedire⁴

¹Political Science and International Relations Programme, Bowen University, Iwo, Osun State, Nigeria
 ²Department of History and Strategic Studies, Alex Ekwueme Federal University, Ndufu-Alike, Ikwo, Ebonyi State, Nigeria
 ³Mass Communication Programme, Bowen University, Iwo, Osun State, Nigeria
 ⁴Department of Political Science, Osun State University, Oshogbo, Osun State, Nigeria

ABSTRACT

This paper draws from qualitative data to examine the opacity of Nigeria's downstream oil sector within the ambit of its fuel subsidy policy. It specifically addresses whether the poor state of Nigeria's refineries is linked to the prebendal benefits associated with the administration of fuel subsidies as well as the correlation between the opacity of Nigeria's downstream oil sector and fuel subsidy. Furthermore, the paper interrogates how fuel importation could be considered a rational option to address domestic needs for refined petroleum products. The paper offers two major interrelated insights: First, it finds that fuel subsidy nurtures the propensity for sabotage, corruption, and money laundering; there tends to be a link between fuel subsidy and the non-functionality of Nigeria's state-owned refineries, and second, the pro-poor justifications for sustaining fuel subsidy is a proxy for continued elite enrichment through the manipulation of the subsidy regime. Overall, the paper highlights the imperative of rethinking the fuel subsidy architecture by rebuilding

ARTICLE INFO

Article history: Received: 23 April 2023 Accepted: 24 October 2023 Published: 14 June 2024

DOI: https://doi.org/10.47836/pjssh.32.2.18

E-mail addresses:

agaptus.nwozor@bowen.edu.ng (Agaptus Nwozor) oladiran.afolabi@bowen.edu.ng (Oladiran Afolabi) chudidume@yahoo.com (Chukwudi G. Chidume) okidu2002@yahoo.com (Onjefu Okidu) solomon.adedire@uniosun.edu.ng (Solomon Adebayo Adedire) *Corresponding author Nigeria's downstream oil sector, especially the domestic capacity for refining crude oil.

Keywords: Corruption, downstream oil sector, fuel subsidy, Nigeria, state capture, state-owned refineries

INTRODUCTION

Nigeria is a major player in the global oil industry: while it is the largest oil producer in sub-Saharan Africa, it is among the top ten countries with the largest proven oil reserves (Nwozor et al., 2019; Organization of the Petroleum Exporting Countries, 2023; Stebbins, 2019). According to the Organization of the Petroleum Exporting Countries (OPEC) data, Nigeria currently holds 36,967 billion barrels of proven crude oil reserves (Organisation of the Petroleum Exporting Countries, 2023). The Nigerian government has repeatedly expressed its aspiration to increase its proven reserves to 40 billion barrels beyond 2020 (Nwozor et al., 2019). This aspiration tends to be driven by the logic of national survival in the face of Nigeria's monocultural economy.

One of the major paradoxes of Nigeria's enormous oil reserves and earnings therefrom is their serial mismanagement and embezzlement by bureaucratic, military and political elites (Nwozor et al., 2020; Olujobi, 2023). No general agreement exists on the consolidated amount embezzled from Nigeria's treasury. However, various sources estimated that corruption has generally short-changed Nigeria billions of dollars (Olujobi, 2023). For instance, some sources estimated that between 1960 and 1999, the country lost between US\$380 and US\$400 billion to corrupt practices (Nwozor et al., 2020). Another estimate linked to Chatham House put the cumulative amount looted from Nigeria's treasury between 1960 and 2014 at US\$582 billion (Oghifo, 2019). It is also estimated that during the administration of Goodluck Jonathan (2010-2015), Nigeria lost over US\$32 billion to corrupt practices (Nwozor et al, 2020). The preceding estimates do not include losses suffered by Nigeria from oil

theft. According to the Nigerian Extractive Industry Transparency Initiative (NEITI), Nigeria lost about 619.7 million barrels of crude oil, valued at US\$46.16 billion or N16.25 trillion between 2009 and 2020 (Jeremiah, 2022).

Another manifestation of the paradox is Nigeria's incapacity to domestically refine its crude oil to cater for the national needs for refined petroleum products. Nigeria has four state-owned refineries with a combined refining capacity of 445,000 barrels per day (bpd). None of the four refineries has ever operated up to a quarter of their installed capacity in the past 25 years, thus resulting in massive importation and attendant price distortions mitigated with subsidies. The report of the National Refineries Special Task Force (NRSTF), set up by the Federal Government in 2012 to review the performance of the refineries between 2006 and 2009, described them as the worst among the 42 refineries in Africa, especially in average capacity utilisation (Ministry of Petroleum Resources, n.d.). For instance, the audited accounts of Nigerian National Petroleum Corporation (NNPC) between 2014 and 2018 indicated that the state-owned refineries recorded cumulative losses of 1.64 trillion Naira (US\$4.7 billion at the then N350/US\$1) (News Agency Nigeria, 2021: Udo, 2020). Since 2020, the four Nigerian refineries have been moreor-less comatose as they have not refined crude oil. Notwithstanding, they incurred operational expenses of N10.23 billion (US\$29.223 million at the N350/US\$1) in 2020 (Dairo, 2020).

The incapacity of the refineries created import dependence to meet domestic needs. Nigeria's dependence on imported refined petroleum products has produced several economic distortions, the foremost of which is its subsidisation. Fuel subsidy in Nigeria was a supposedly stop-gap measure that was made a permanent feature of the country's policy thrust and had serious economic implications. According to NEITI sources, Nigeria spent N13.7 trillion Naira (US\$39.14 billion at the then exchange rate of N350/US\$1) on fuel subsidies between 2005 and 2021 (Anyaogu, 2023). In 2022, the federal government requested and got approval from the National Assembly to spend 4 trillion Naira (about US\$ 9.64 billion at N415.13/US\$1) on fuel subsidies for the fiscal year (Abuh & Akubo, 2022). The projection of the World Bank, based on significant upward trends in international oil prices, was that Nigeria could end up spending close to 5 trillion Naira (US\$12 billion) on fuel subsidies for 2022 (Azeez, 2022). Nigeria spent N4.39 trillion (about US\$9.7 billion at N453.09/US\$1) on fuel subsidies for 2022 (Eboh, 2023). The huge budgetary allocation to fuel subsidy in the face of crippling developmental challenges made it a major campaign issue in the buildup to Nigeria's presidential election in early 2023.

This paper examines Nigeria's fuel subsidy architecture, especially the various cross-cutting arguments connected to its retention or removal and the accompanying justifications. The idea of fuel subsidies is anchored on fixing the price of refined

petroleum products below the international price and using government funds to pay for the difference (Ezeani, 2014; McCulloch et al., 2021). The fuel subsidy issue has been quite contentious in Nigeria since the 1970s due to its wide-ranging political and socio-economic implications (Akor, 2017; Houeland, 2020; Ibietan et al., 2018; Soile & Mu, 2015). This paper focuses on the broad issues that interconnect Nigeria's weak domestic refining capacity, the opaqueness of its downstream oil sector and the agency of fuel subsidy. In this context, the paper addresses three interrelated questions: (1) is the poor state of Nigeria's refineries linked to the inherent prebendal benefits in the administration of fuel subsidy? (2) is there any correlation between the opacity of Nigeria's downstream oil sector and fuel subsidy? and (3) to what extent does fuel importation anchored on fuel subsidy represent a rational option to address domestic consumption of refined petroleum products?

Studies have attempted to address Nigeria's downstream oil sector as it relates to fuel subsidies from diverse perspectives. While some studies generally focused on the deregulation of the downstream petroleum sector as a means of addressing fuel subsidy, including whether the subsidy is a fact or myth (Ibietan et al., 2018; Nwachukwu & Chike, 2011; Olujobi, 2021), other studies evaluated the impact of fuel subsidy on various aspects of the Nigerian state, ranging from the economy, environment, and the energy and agricultural sectors (Adekunle & Oseni, 2021; Ani et al., 2021; Bazilian & Onyeji, 2012; Lin & Atsagli, 2017; Osunmuyiwa & Kalfagianni, 2017), the welfare effects of fuel subsidy and its removal (Ezeani, 2014; Mmadu & Akan, 2013; Rentschler, 2016) and the general impact of fuel subsidy, especially whether it benefits the poor or the rich (McCulloch et al., 2021; Siddig et al., 2014; Soile & Mu, 2015). A strand of the literature examined popular protests against government attempts to remove fuel subsidies (Akanle et al., 2014; Akor, 2017; Houeland, 2017, 2020, 2022; Uwalaka & Watkins, 2018).

A major shortcoming of extant studies on fuel subsidy is the lack of holistic insights into the complex interplay of the forces that undermine domestic refining capacity while bolstering the importation of refined petroleum products. Similarly, there is a gap in the literature in the context of how the opacity of Nigeria's downstream oil sector motorises fuel subsidy in the face of economic rationality. This paper's value is evident in offering a refreshingly current evaluation of Nigeria's fuel subsidy architecture by interconnecting its overall inefficiency with prebendalist practices orchestrated by coalitions of elites that have captured the state. Another value of the paper is the attention it draws to the imperative of rebuilding national refining infrastructures as a critical step to permanently address the fuel subsidy debacle.

LITERATURE REVIEW

Theoretical Linkage

This paper combines rent-seeking perspective and state capture theory to

illuminate the forces that shape, sustain and motorise fuel subsidy in Nigeria and how they induce the tendencies that undermine the country's domestic refining capacity through the instrumentality of corruption. The rent-seeking behaviours in the downstream sector of Nigeria's oil industry are incongruent with the demands of due process and transparency as they revolve around deliberately manipulating public policy or economic conditions to increase profits. Although rent-seeking is used in a variety of scenarios, it is normally applied to cases where governmental intervention in the economy leads to the creation of artificial or contrived rents (Tollison, 2012). In this context, rent-seeking equates to transferring wealth to oneself outside the logic of voluntary trade driven by utility and profit maximisation. It is the quest for the usurpation of privileged benefits from the government (Aidt, 2016; Nwozor, 2009; Nwozor et al., 2020). Fuel subsidy in Nigeria provides opportunities for the coalition of business and political elites to corner the allocations for fuel importation. While the policy of due process and transparency demands that governmental activities and businesses be carried out openly, economically and transparently (Atagboro, 2015), those that have captured the state apparatuses of power circumvent these provisions in allocating importation quotas to designated clients.

State capture denotes the surreptitious seizure of state apparatuses of power by a clique of elites to advance their interests (Myburgh, 2017). The usurpation facilitates systemic political corruption as the private interests of the clique significantly influence decision-making processes to their advantage (Fazekas & Tóth, 2016; Lugon-Moulin, 2010). The point is that for any clique of elites to capture the state, they must directly or indirectly be in control of state power. There is a reinforcing relationship between rent-seeking and state capture, as the former catalyses the latter's collective effort to take advantage of the state (Nwozor et al., 2021).

Nigeria is not deficient in legal, administrative and regulatory codes necessary to tackle the menace of corruption. However, the seizure of the apparatuses of power undermines the efficiency of the various anti-corruption institutions. Corruption in Nigeria is an inclusive elite phenomenon. It encompasses broad-based coalitions of elites focusing on undermining state policies for their collective benefit (Nwozor, 2014; Nwozor & Afolabi, 2023). In other words, the Nigerian elites have elevated and transformed corruption into a legitimate mechanism for accumulation by compromising the state system. The persistence of corruption in any polity depends on whether relevant anti-corruption structures exist and the dedication of these institutions to invoking appropriate sanctions against perpetrators of corrupt practices. The rent-seeking behaviours of the elite in the face of state capture make political manipulations possible. As the World Bank (1997) acknowledges, "corruption tends to flourish when institutions are weak, and government policies generate economic rents" (p.12).

The capture of the state nurtures and sustains the rent-seeking behaviours of the elites. In other words, state capture makes it possible for "privileged benefits from the government to percolate to designated beneficiaries with links to dominant political elites" (Nwozor et al., 2021, p.57). Corruption is promoted in polities by a combination of factors. World Bank (1997, p.12) observes that "the causes of corruption are always contextual, rooted in a country's policies, bureaucratic traditions, political development, and social history". Nigerian elites make corruption difficult to control because of their vested interest, especially in relying on rents for maintenance. The due process principle is generally an antidote to the arbitrariness that spawns and sustains corruption. While corruption circumvents laid down processes, the due process principle enthrones orderliness and adherence to laid down procedures (Duru, 2005; World Bank, 1997). Due process does not operate in isolation. Its application and enforcement are dependent on the willingness of the elites. Paradoxically, the bureaucratic elites supposed to apply the principle of due process are beneficiaries of rents as they form cross-cutting elite coalitions. Fuel subsidy policy has been converted into a tool for generating economic rents for the bureaucratic and political elites coalition.

Brief Overview of Relevant Literature

In addition to providing a brief overview of the subsidy concept, two strands of literature are evaluated to contextualise the discussion and thus establish relevant gaps. The first are studies on the economics of fuel subsidy, including the forces that underpin and sustain it, and the second are contributions documenting debates on the benefits of fuel subsidy, or lack of it, to the economy generally. The concept of subsidy is used differently in diverse contexts. The multiplicity of contexts in which it is used presents a definitional dilemma characterised by a lack of unanimity. Subsidies are justified in theory because of their potential to promote an overall increase in social welfare. However, some scholars contend that subsidies have a net negative effect (Ezeani, 2013; Mmadu & Akan, 2013; Rentschler, 2016). Subsidies can be deployed in diverse sectors to achieve a variety of purposes, especially welfarist objectives that benefit the poor and commercial objectives that directly boost commercial activity in a specific market (Ezeani, 2014). Subsidies have explicit, implicit, direct, and indirect impacts on prices or costs of goods and services. Subsidies can directly impact prices and costs through grants, tax reduction exemptions or price controls or indirectly through regulations that skew the market in favour of particular price regimes (Centre for Public Policy Alternatives, 2012). Governments introduce subsidies through a number of mechanisms. Coady et al. (2006) and Mmadu and Akan (2013) identify three basic mechanisms through which governments introduce subsidies in their economies: one, by directly controlling import levels, domestic distribution and domestic price regimes; two, by setting

domestic price ceilings and compensating the private sector distributors licensed to freely import and distribute goods and services for the ensuing losses; and lastly, by setting prices by a formula that anchors domestic prices on import prices, with adjustments for distribution margin and domestic taxes.

Generally, fuel subsidy policy is a stop-gap measure countries adopt to ameliorate the impacts of oil price shocks. The political economy of fuel subsidy is anchored on the government's involvement in and determination of the price of refined petroleum products. The government bears the responsibility for the cost differentials. Soile and Mu (2015) contend that subsidies are expensive, have serious fiscal implications, and create distortions that manifest in inefficient consumption patterns with possible price distortions. The distortionary effects of fuel subsidies have led to increasing calls for its reform. The mainstream concern among policymakers is fuel subsidies' efficacy in addressing the welfare and macroeconomic impacts of oil price shocks, as well as their implications for fiscal sustainability (Lin & Atsagli, 2017; Omotosho, 2019).

Fuel subsidy has been a very hot topic in Nigeria since the 1970s, following the institutionalisation of price control through the instrumentality of Decree Number 1 of 1977 (Federal Government of Nigeria, 1977). The Decree criminalised selling some designated products, including petroleum products, above the approved or regulated price. When the Decree was enacted, Nigeria could afford to impose price control or subsidy because of the enormous foreign exchange accruals from the good run of oil prices in the international arena. Thus, not only was Nigeria willing to import to cover shortfalls and create a balance in the supply and demand of petroleum products domestically, but it was also unwilling to pass over the excess costs to the people. The motive was to cushion the negative impacts of the inflationary pressures emanating from the global energy price increase (Ibietan et al., 2018; Onyeiwu, 2021). As Lockwood (2014) observed, "Energy subsidies are only one of many possible forms of redistribution for purposes of political patronage available to a government' (p.481).

As the good run of oil prices in the international oil market persisted, fuel subsidy posed no problem as Nigeria earned more than enough to implement it effortlessly. However, the policy became unsustainable when the price of oil nosedived and steeply dropped in the 1980s. The shortages in Nigeria's foreign exchange earnings created an economic crisis and spawned the argument that "large subsidies redirect public expenditures away from more productive spending or contribute to unsustainable budget deficits" (Coady et al., 2006, p.4). The thrust of the Structural Adjustment Programme (SAP) and the National Economic Empowerment and Development Strategy (NEEDS), which were reform programmes initiated and supported by the IMF and World Bank to pull Nigeria out of its economic crisis, centred on appropriate pricing of refined petroleum products (Ezeani, 2014; Onyeiwu, 2021). What appropriate pricing meant to these Bretton Woods institutions was that petroleum products imported into the country should be sold and bought in accordance with prevailing international prices without government interference in their pricing (McCulloch et al., 2021; Omotosho, 2019).

The basis for the policy preference for reform inhered from the mounting fiscal pressures of fuel subsidy on the Nigerian economy and the overall inefficiencies of the subsidy scheme (Rentschler, 2016). However, the government's predisposition to remove fuel subsidies failed to garner public support. The masses and civil society resisted all attempts by successive governments since 1999 to remove fuel subsidies (McCulloch et al., 2021; Mmadu & Akan, 2013; Rentschler, 2016; Soile & Mu, 2015). Lockwood (2014) contended that mass resistance to subsidy reform in energy resource-producing countries is embedded in the ideational rationalisation that "the people have an entitlement to a share of what is seen as a national resource, or national patrimony" (p. 481). In the same vein, Siddig et al. (2014) posited that from a political economy perspective, fuel subsidy removal tended to be difficult because "it impacts a broad spectrum of Nigerian households" (p.167).

Fuel subsidy in Nigeria appears to have been converted into a tool for personal and group enrichment by the coalition of business and political elites, prompting contentious debates about whether it is factual or otherwise. The study by Nwachukwu and Chike (2011) to empirically examine the claims and counterclaims surrounding the factuality or otherwise of fuel subsidy demonstrated that fuel subsidy is a fact and not a fallacy. The factuality of the fuel subsidy regime indicated the economic thinking of its positive effect on the welfare of households. Several studies noted the combined effects of fuel subsidy and its removal. On one hand, studies have shown that fuel subsidies positively impact the welfare of Nigerian households. At the same time, its removal has tended to trigger significant distributional impacts and income shocks, which are detrimental to household income, particularly those of poor households. On the other side, its reduction or removal generally increases Nigeria's GDP (Dennis, 2016; Evans et al., 2023; Mmadu & Akan, 2013; Rentschler, 2016; Siddig et al., 2014).

The question of subsidy removal has been contentious in Nigeria because of its multiplier effect on the masses. For this reason, successive governments' attempts to remove fuel subsidies always ended up with opposition, resistance, and mass action (Omotosho, 2019; Onyeiwu, 2021). Each time successive Nigerian governments removed fuel subsidies, there was always a groundswell of broad-spectrum opposition against such policy thrusts, resulting in reversals through the reintroduction of new thresholds of subsidy (Bazilian & Onyeji, 2012; Centre for Public Policy Alternatives, 2012; McCulloch et al., 2021; Siddig et al., 2014). Public opposition to fuel subsidy removal has always been motorised by several factors, namely, the notion that it is anti-poor; doubts about whether savings from subsidy removal could be judiciously managed, given general credibility and transparency deficit in government; and inadequacy of social protection plans and grim prospects of deepening the vulnerability of households (Akanle et al., 2014; Ezeani, 2014; Houeland, 2022; McCulloch et al., 2021; Rentschler, 2016; Soile & Mu, 2015).

The literature review presented above has shown various aspects of studies on fuel subsidies in Nigeria. However, very little research has been conducted on the complex interplay of the forces that undermine domestic refining capacity while bolstering the importation of refined petroleum products. Corollary to the foregoing, there is a lack of scholarly inquiry on the interconnections between the opaqueness of Nigeria's downstream oil sector and fuel subsidy regime within the context of economic rationality. The present paper would, therefore, add to the literature by filling this gap.

METHODOLOGY

This study relied on primary and secondary data to examine the agency of Nigeria's fuel subsidy policy in the context of the interconnection between the weak domestic refining capacity of the country's refineries and the opaqueness of the downstream sector of the oil industry. The primary data were generated from key informant interviews (KIIs). The key informants were chosen

through a purposive sampling technique. A total of 20 key informants were chosen and interviewed based on their overall knowledge of Nigeria's oil sector. The bases for determining their knowledgeability included their affiliations with relevant governmental and/or non-governmental agencies, scholarly interest in the Nigerian economy and oil sector and previous public commentaries on fuel subsidy. The justification for choosing 20 key informants for this paper was the discovery that additional interviews would unlikely yield new information. In other words, the number tended to satisfy the criteria of adequacy and saturation. Saturation is attained when there is information redundancy; that is, further responses by informants provide negligible insights (Hennink & Kaiser, 2022).

The key informants agreed to be interviewed voluntarily and gave verbal consent, following the explanations of the purpose of the study. The key informants were acquainted with their right to discontinue the interview at any point without offering any reason for the decision. Appendix A provides basic information about the key informants. The study employed a semistructured interview instrument to obtain responses from the key informants. The choice of semi-structured question format was to provide a latitude for elaboration, where necessary.

This study also utilised secondary data to complement the data from the key informants. The secondary data were sourced from databases and archival materials, including gazetted government documents, statistical reports, publications by non-governmental organisations, books and journals. All the data were thematically organised and content-analysed in the tradition of critical discourse technique and logical inductive method.

FINDINGS AND DISCUSSION

The paper used a semi-structured interview protocol to elicit responses from the key informants. It combined data from key informants with those from various archival materials to address the three research questions that form the paper's thrust. The questions that constituted the semistructured questionnaire are captured in Appendix B. Our empirical analysis identified and validated two major themes upon which the various issues in the matrix of Nigeria's weak domestic refining capacity, the opaqueness of its downstream oil sector and the agency of fuel subsidy were discussed. These themes revolve around comatose refineries as an excuse for fuel subsidy and corruption as the sustaining impetus of fuel subsidy.

Comatose Refineries as a Proxy for Fuel Subsidy

Nigeria has a long tradition of subsidising refined petroleum products and controlling their prices. Notwithstanding the efforts made by successive Nigerian governments to remove fuel subsidies at various times, it has remained a fixed policy with a serious detrimental impact on the country's economy. Nigeria is among the top 20 countries that massively subsidise domestic fuel consumption (Soile & Mu, 2015). KI-7 contended that "though fuel subsidy is believed to cushion the hardship associated with paying more for fuel, it has adverse effects on the economy. It tends to distort the economy and entrench dependency". In the same vein, KI-1 notes that "fuel subsidy provides an avenue for capital flight". These views resonate with the position of the World Bank on fuel subsidies. It opposes fuel subsidies on the grounds that a substantial portion of national resources that ought to be channelled into other sectors of the economy to boost national productivity are expended to sustain fuel subsidies (World Bank, 2022). Nigeria's former Minister of Finance, Zainab Ahmed, echoed the foregoing view when she noted that the

fuel subsidy burden had made servicing the country's debt obligations and investing in other economic sectors quite challenging (Azeez, 2022).

The paradox of Nigeria's enormous hydrocarbon endowments was underlined by KI-20 when she noted, "It is incomprehensible that Nigeria has four refineries and cannot refine crude oil to meet domestic demands". Nigeria's installed national refining capacity is 445,000 barrels per day (bpd), and there is additional capacity for private refineries to process 41,000 bpd (Organisation of the Petroleum Exporting Countries, 2023). Table 1 shows the breakdown of nameplate refining capacities of refineries in Nigeria.

Table 1

Refineries and refining capacity in Nigeria (barrels per day)

Name of Refinery	Nameplate Capacity		
State-owned Refineries			
Old Port Harcourt Refinery	60,000		
New Port Harcourt Refinery	150,000		
Warri Refinery	125,000		
Kaduna Refinery	110,000		
Total state-owned refineries	445, 000		
Independent Refineries			
Niger Delta Petroleum Resources (NDPR), Ogbele	11,000		
Waltersmith Petroman Oil Ltd, Ibigwe	5,000		
Edo Refinery and Petrochemicials, Benin	6,000		
Omsa, Pillar, Astek (Opac), Kwale	7,000		
Azikel Refinery, Obunagha–Gbarain, Bayelsa State	12,000		
Total independent refineries	41,000		
Grand Total	486,000		

Source: Organisation of the Petroleum Exporting Countries (2023)

The capacity utilisation in the stateowned refineries has been on a downward trend for years despite enormous amounts spent by the government to service, upgrade and maintain them. For instance, between 1998 and 2008, the Nigerian government, through the Nigerian National Petroleum Company (NNPC), spent US\$396.33 million on turn-around maintenance (TAM) of the four refineries ("NNPC Spends \$396.33m", 2018). These refineries have never produced up to half of their installed capacity. At best, they operated at an average capacity of between 18 and 28 per cent (Awojulugbe, 2021). There is a convergence of views among the key informants on the underperformance of the refineries: their views tended to lean towards the position that the underperformance of the refineries is a deliberate elite strategy to create loopholes for diverting national wealth. KI-4 elaborated, "The issue of suboptimal performance of the refineries is beyond a single explanation. Its cause is hydraheaded, spanning bureaucratic and political terrains. The TAM payouts are another source of elite enrichment. As long as the refineries are not working, there will always be a justification to demand more money to repair them."

KI-11 also noted: "What we have with respect to our refineries is a vicious cycle of national rip off. Isn't the rational thing to do when you have an equipment that is not working to sell it off and replace with a more functional one? The Nigerian elites have retained the refineries as pipeline to their individual and collective pockets. Why no government has taken the bold step to deal with refineries is quite baffling."

KI-5 provided insight from a different perspective by arguing that: "The refineries are underperforming because of the red tape that undermines and discountenances professional advice about how to get them properly serviced and maintained. There is often a series of unnecessary interference. And as you know, the supervising engineers obey orders and could be easily sidelined if they hold contradictory opinions."

In spite of the claims of previous repairs and rehabilitation of the refineries, the 2020 NNPC audit report indicated that three of the country's four refineries recorded cumulative losses of N1.64 trillion (US\$4.7 billion at N350/US\$1) between 2014 and 2018 (NAN, 2021). The non-performance of the refineries and the additional request for US\$1.5 billion to rehabilitate the Port Harcourt Refinery triggered agitations for a comprehensive audit of the US\$25 billion spent on the rehabilitation, repairs and maintenance of Nigeria's refineries since 1998 (NAN, 2021).

The key informants also agreed that there is a relationship between the poor performance of the refineries and the retention of the fuel subsidy regime.

KI-12 argued, "For me there is a link between the underperformance of the refineries and fuel subsidy. I see the underperformance of the refineries as an excuse, if you like, a kind of blackmail, to ensure that the stranglehold of the conniving elites is maintained. It's like head, they win, tail, they win." KI-17 avers that "the underperformance of the refineries has persisted because no one has ever been sanctioned. It would appear to me that this is so because there is a common incentive spread across NNPC officials, bureaucrats and politicians". A similar view was expressed by KI-10; thus, "the incapacity of the refineries to meet domestic demands has sustained fuel subsidy. Thus, Nigeria is entrapped in the perennial web of importing refined petroleum products for domestic use". The foregoing views

tended to align with the position of the Nigeria Labour Congress (NLC). The NLC president, Ayuba Wabba, was quoted to have said in a television interview that "those refineries are not old. Deliberately, they are made not to work just because there are a lot of incentives" for the elites in terms of supplies as well as fixing the prices of the products (Adenekan, 2022). Table 2 shows the trend of capacity utilisation in the refineries between 2016 and 2020.

Domestic regiming capacity antisation of t	nger ia s state on	neu reginerie	5 (70)		
Refineries	2016	2017	2018	2019	2020
Kaduna Refinery	9.24	14.98	0.40	0.73	0.00
Port Harcourt Refinery 1 & 2	17.28	24.50	8.47	0.29	0.00
Warri Refinery	12.03	10.30	15.05	6.58	0.00

Table 2

Domestic refining capacity utilisation of Nigeria's state-owned refineries (%)

Source: Nigerian National Petroleum Corporation (2020)

The contemporary scenario in Nigeria is that an enormous amount of money is paid daily to sustain fuel subsidies. Table 3 below shows Nigeria's average daily distribution/consumption of refined petroleum products between 2016 and 2020. At the estimated average daily consumption (ADC) of 60 million litres of fuel, the government currently spends 10.09 billion Naira (US\$24.22 million) as fuel subsidy daily (Odunewu, 2022). This daily national expenditure has thrown up the argument about removing fuel subsidies. The national consensus on the imperative of discontinuing fuel subsidies emboldened the federal government, led by President Bola Tinubu, to announce its

removal in his inaugural speech on May 29, 2023 (Adigun, 2023). The removal of fuel subsidies led to an upward spiral in the price of fuel, jumping from 185 Naira per litre to between 580 and 620 Naira per litre. Interestingly, the removal of fuel subsidies did not factor in the repair of state-owned refineries. Thus, the domestic supply of refined petroleum products is still dependent on importation, with associated vagaries in pricing. The implication is that the recent upward trend in the price of crude oil in the international oil market would erode the momentary gains from the removal of subsidies. With the price of oil at US\$92.79 in September 2023, up from US\$73.54 as of May 30, 2023, the domestic price of fuel

that the Nigerian government announced in June 2023 would be unsustainable (Akpan, 2023; Statista Research Department, 2023). The prospect of run-away fuel prices based on market forces led to speculations that the government was considering the reintroduction of temporary subsidisation to cushion attendant massive inflationary pressures and prevent an existential crisis in the country (Okon, 2023). The uncertainty characterising fuel pricing is indicative that fuel subsidy removal has not resolved the problem. Considering the view of KI-10 that the refineries are incapable of sustaining fuel subsidies to meet domestic demands, the first principle in dealing with the fuel subsidy debacle would be to develop internal refining capacity.

Table 3

Average daily petroleum	n products dis	tribution/com	onsumption (m	illion litres)
-------------------------	----------------	---------------	---------------	----------------

Product	2016	2017	2018	2019	2020
Premium Motor Spirit (Fuel)	47.56	47.64	50.16	56.39	60.00
Household Kerosene	2.51	3.94	2.55	14.13	14.13
Automotive Gas Oil (Diesel)	10.66	10.68	13.01	0.74	0.74

Source: Nigerian National Petroleum Corporation (2020)

The dominant argument for fuel subsidy removal is that it would free vital resources for development projects. With regard to the merit or otherwise of removing fuel subsidy, KI-8 contended: "Beyond the imperative of freeing resources to fund other vital sectors, subsidy removal could address the diverse forms of rent-seeking in the country. It could address the festering corruption in the downstream oil sector, especially the unwholesome financial dealings associated with fuel subsidy payments. It could also stop the perennial emergence of new fringe rent-seekers, including smuggling rings."

There is an uncharacteristic opaqueness in administrating the downstream oil sector, making fuel subsidy a source of easy wealth. For instance, active smuggling rings exploit price differentials in refined petroleum products between Nigeria and

other West African countries (Nwafor et al., 2006; Nwozor & Oshewolo, 2020). KI-17 submitted that "the smuggling activities contribute to the contentious figures projected as the ADCs of petroleum products in the country". The ADC estimates of refined petroleum products, as captured in Table 3, are considered doubtful as they are not built on objective and verifiable parameters. The data presented by relevant government agencies, namely the Petroleum Products Pricing Regulatory Agency (PPPRA), NNPC, and the National Bureau of Statistics (NBS), are often diametrically opposed, signposting the non-existence of reliable fuel consumption data (Udo, 2018).

The ADC estimates would not have been a problem, but for their cost implications on the Nigerian economy. For instance, Nigeria spent 6.85 trillion Naira (US\$22.31 billion at the then N307/US\$1) between 2006 and 2018 (Amos, 2022) and 1.5 trillion Naira (US\$4.89 billion at N307/US\$1) in 2019 on fuel subsidy (Eboh, 2020). In 2022, the federal government requested for an additional N3.56 trillion Naira to the N442.72 billion Naira earlier approved for the subsidisation of petroleum products, thus bringing the total subsidy to 4 trillion Naira (about US\$ 9.64 billion at N415.13/US\$1) (Abuh & Akubo, 2022). The implication is that the amount allocated to fuel subsidies in 2022 is higher than the combined budget allocations for education, health, and social protection (World Bank, 2022).

Corruption Redux: The Sustaining Impetus of Nigeria's Fuel Subsidy Policy

The fuel subsidy in Nigeria has been transformed into a major source of patronage. The NNPC and PPPRA statutorily manage importing petroleum products into the country. Once prospective importers are registered, they receive approval to import. The petroleum products imported into the country are often confirmed by the combined staff of PPPRA, the Department of Petroleum Resources (DPR) and the Nigerian Navy at the jetties before discharge (Soile & Mu, 2015). Thereafter, the payment is processed to the trio of the Ministry of Finance. Office of the Accountant General of the Federation (OAGF) and Central Bank of Nigeria (CBN). Notwithstanding these processes, corrupt practices still pervade fuel subsidy administration.

There are many corrupt dimensions of fuel subsidy administration. One such dimension was the introduction of diverse parameters to calculate subsidy payments to importers. This policy expanded and entrenched corrupt practices. Prior to this policy, the average daily fuel consumption was 13.7 million litres. By 2013, the figure had jumped astronomically to 43.5 million litres (NNPC, 2020). The upward trend continued without any justification. Currently, the ADC of fuel is 60 million litres.

Another dimension sustaining corrupt practices was including various items in the pricing template. KI-6 noted that "the pricing regime's components conduce to the elites' rent-seeking behaviour as there is a profit margin across the various subheads". KI-1 acknowledged that "import transactions associated with fuel subsidy yield very high levels of fungible returns, which constitute incentives to sustain corrupt practices". Figure 1 below provides a concise picture of the components of the pricing template. The tax component of the pricing template is not incorporated in the final determination of the pump price of petroleum products.

KI-13 averred that "the seeming justification for the high ADC estimates is to provide legitimacy for more imports because the more the importation, the more the returns that the elites would skim off". The foregoing view appeared to illuminate the lone voice of the former Minister of State for Petroleum Resources, Ibe Kachikwu. In 2017, Kachikwu reportedly told a House of

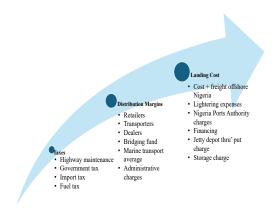


Figure 1. The pricing template of fuel subsidy by the PPPRA

Sources: Oladipo (2021); Petroleum products pricing (2012)

Representatives committee that Nigeria's ADC for fuel was in the region of 28 million litres (Udo, 2018). This figure was never reflected in any estimates of the NNPC. The ADC figure for fuel in 2017 was 47.56 million litres (Table 3).

The responses to the question about the real beneficiaries of fuel subsidy did not throw up straight-forward views due to the seeming diffusion of the benefits of fuel subsidy. However, there was a convergence of opinions that the elites tended to be major beneficiaries. KI-13 observed that "the anti-subsidy removal arguments in Nigeria locate the poor and the vulnerable groups as the ultimate beneficiaries based on the contention that the subsidy has cushioning effects on price volatility". The civil society led by the NLC has serially opposed the removal of fuel subsidy. KI-19 offered an insight thus, "I think the opposition of the NLC to the removal of fuel subsidy is driven by the desire of the civil society to spread the benefits of the country's oil economy in the face of the corrupt tendencies that characterise the Nigerian system. The NLC believes that if the subsidy is removed, people would suffer needlessly, especially as there is hardly any concrete plan to invest the savings for the benefit of the economy. In other words, the savings could end up in the pockets of the elites. Therefore, NLC prefers the retention of fuel subsidy for the common good."

Fuel subsidy in Nigeria has tended to institutionalise quasi-monopolistic pricing regimes that serve the purposes of rent-seekers, embolden smuggling rings, disincentivise domestic refining, and create uncompetitive domestic industries that hinder rather than drive the industrialisation and competitiveness of the economy (Centre for Public Policy Alternatives, 2012; Coady et al., 2006; McCulloch et al., 2021). The experience of Nigeria with fuel subsidies is quite complex. KI-3 acknowledged that "coalitions of elites have consistently exploited fuel subsidy through high-level racketeering and diverse scam tactics". The consolidated views of KI-9 and KI-13 suggested that scams associated with fuel subsidy have nothing to do with the latter's merit or otherwise as a policy but everything to do with Nigeria's rentier system and the culpability of the elite in compromising due processes.

Every audit report on fuel subsidies raised concerns about transparency and accountability in its administration. The efflorescence of corruption in the administration of fuel subsidies is attributed to poor institutional linkages, infrastructural weakness, governance and process lapses and the culture of impunity (Ibietan et al., 2018; Sayne et al., 2015). Consistent with a rentier mentality, the fuel subsidy administration erodes the tenets of openness, transparency and good business ethics, thus paving the way for unwholesome practices. Gillies (2009, np) explains a racketeering tactic used to launder illegitimate profits thus:

"...distributors collect the subsidy reimbursement on imported products or buy them from Nigerian refineries at the subsidised price. They then re-import the same products so as to receive the subsidy refund again or sell them for much higher prices on the black market or abroad."

KI-20 noted that "clear evidence of the lucrativeness of fuel subsidy is the constant expansion in its budgetary provisions since 2009". In addition to the geometric leap in budgetary allocations to fuel subsidies, there was an exponential increase in importers. The number of importers rose from 5 in 2006 to 140 in 2011 ("Factbox: Nigeria's \$6.8 Billion", 2012). In keeping with a rentier mentality, many companies fronted as importers only existed on paper but received subsidy payments for fuel they never supplied ("Factbox: Nigeria's \$6.8 Billion", 2012; Sayne et al., 2015). A synthesis of the views of KI-2, KI-6, and KI-15 on the major reasons for the crowded oil importation scene identified responsible factors to include the relaxation of the guidelines for importation by the PPPRA, the quest to benefit from the seeming "windfall" from fuel subsidy and suboptimal functionality of national refineries.

The probe of subsidy payments made between 2009 and 2011 by Nigeria's House of Representatives in 2012 revealed entrenched inefficiency, corruption and money laundering practices that cost the country about №1 trillion (US\$6.4 billion) ("Factbox: Nigeria's \$6.8 Billion", 2012). The various strategies adopted by the NNPC in conjunction with the importers to fleece the country showed administrative complicity, manipulation and derailment of the due process policy put in place to ensure transparency; the use of wrong parameters to calculate subsidy payment entitlements to importers; and the adoption of exchange rates lower than what was obtainable at the Central Bank of Nigeria in transactions (Adeoti et al., 2016; Sayne et al., 2015). Instructively, the probe revealed massive discrepancies in the computations by PPPRA and NEITI on what quantities of petroleum products were imported and what should be paid as a subsidy (Adeoti et al., 2016). The differences contributed to what the country lost per litre of fuel imported in those years. There were also discrepancies in subsidy calculations by the PPPRA and payments made by the Office of the Accountant-General of the Federation (OAGF) for the same period. PPPRA explained that the discrepancies could be attributed to processing and timing cycle differences.

KI-14 observed that "the fuel subsidy probe exposed the sprockets in the wheel of subterfuges that characterise and drive corruption in Nigeria's oil sector. Worrisomely, successive administrations have shied away from doing the needful to sanitise the downstream oil sector". The foregoing view is corroborated by successive governments' inaction on various recommendations to reposition the downstream oil sector. For instance, the National Refineries Special Task Force (NRSTF) set up by the Federal Government in 2012 to evaluate the operations of the four state-owned refineries described them as the worst-managed refineries among the 42 existing refineries in Africa (Ministry of Petroleum Resources, n.d.). The task force recommended their privatisation within 18 months based on bureaucratic mismanagement and incongruence with national aspirations. Despite this recommendation, the refineries are still state-owned and constitute sources of grandiose waste through a series of turnaround maintenance bills running into billions of dollars. The current state of the refineries is in comatose shape as their average capacity utilisation plummeted from a dismal 1.9 per cent in 2019 to zero per cent in 2020 (Nigerian National Petroleum Corporation, 2020).

KI-17 opined that "the incontestable profitability of importing petroleum products has undoubtedly sabotaged the functionality of the four state-owned refineries and served as a disincentive to the take-off of private refineries licensed since 2004". The coalitions of elites made fuel subsidies profitable through over-invoicing, roundtripping, and alteration of the date of fuel import to benefit from higher oil prices (Beattie, 2013). The entrenched corruption in fuel subsidy administration tends to underpin the conflicting reactions to its removal by the masses and the elite. The moral burden on the federal government is to enthrone transparency in the oil sector as a prelude to cleaning the Augean stable of the corruption-ridden fuel subsidy sector.

CONCLUSION

In this study, an attempt was made to investigate the broad issues that interconnect Nigeria's weak domestic refining capacity, the opaqueness of its downstream oil sector and the agency of fuel subsidy. In this context, the paper addressed questions bordering on the link between the poor state of Nigeria's refineries and the inherent prebendal benefits in the administration of fuel subsidy, as well as the correlation between the opacity of Nigeria's downstream oil sector and fuel subsidy, and the extent to which fuel importation to address domestic requirements represented a rational option.

The fuel subsidy issue has been contentious in Nigeria since the 1980s (Ibietan et al., 2018). The paper found that successive administrations failed to address the underlying factors that necessitated the introduction of fuel subsidies. Thus, every administration since 1999 grappled with subsidy removal: each round of such attempts only yielded a compromise that retained the subsidy. The paper also found that various palliative measures introduced to cushion the effects of the removal had minimal impacts in alleviating the shocks induced by the removal. Elite corruption and the ineffectiveness of social protection measures reinforced public doubts and galvanised mass protests against subsidy removal. The paper also found that fuel subsidy constituted an albatross and has been a major factor in the subsisting culture of incompetence in managing stateowned refineries. It also found that fuel subsidies created a corruption complex linking political, bureaucratic and business elites in an "unholy" alliance. The corrupt system characterising the fuel subsidy administration in Nigeria tends to favour the elites. This paper, therefore, contends that the retention of fuel subsidies has a contradictory effect: it enriches the elite through the instrumentality of corruption and pauperises the masses as they lose out due to non-investment in other sectors.

Nigeria must shed its rentier state status to be able to put the issue of fuel subsidy to rest and move its economy in the direction of sustainable development. In this regard, the paper recommends that the government should:

1) Dismantle fuel subsidy and its corrupt administrative edifice and enthrone transparency and accountability in government processes to reassure the masses. It will require a combination of actions, namely,

 the gradual removal of fuel subsidies over a specific timeline. It will enable all stakeholders to buy into it and adjust accordingly. It will minimise the immediate impact on the masses.

- While the gradual removal of fuel subsidies is in place, the relevant government agency should implement a comprehensive system for tracking and reporting fuel subsidy expenditures.
- 3. Establishing an independent body or agency and saddling it with auditing and overseeing fuel subsidy-related transactions to ensure transparency and prevent corruption and mismanagement.

The practical roadmap for implementing the foregoing will consist of:

- 1. Developing a phase-out plan for fuel subsidies over a defined period, ensuring minimal disruption to the welfare of the masses and the economy.
- 2. Creating an online portal that is transparent and allows citizens to access real-time information on fuel subsidy allocations and expenditures.
- 3. Robustly implementing relevant anti-graft laws ranging from mandatory publication of subsidyrelated data to effecting penalties for corruption and embezzlement.
- 4. Engaging with relevant stakeholders to build consensus and collate input on subsidy removal plans.

2) Privatise the four state-owned refineries as forthrightly advised by the NRSTF. It will require the government to:

- 1. Conduct a thorough valuation and assessment of the state-owned refineries to determine their market value.
- 2. Enact a clear legal and regulatory framework for the privatisation process.
- 3. Set up and implement an open and competitive bidding process for the sale of the refineries to ensure transparency.

The practical roadmap for actualising the foregoing will include:

- 1. Commissioning a team of experts to assess the condition and value of the refineries.
- 2. Enacting relevant legislation to govern the privatisation process, outlining the terms and conditions for potential buyers.
- 3. Inviting expressions of interest from qualified bidders, both domestic and international, and providing detailed information about the refineries, including allowing potential buyers to conduct due diligence on the refineries before finalising the sale.
- 4. Conducting a transparent bidding process, considering both financial offers and the buyer's capacity to upgrade and operate the refineries efficiently to actualise the basic intention for privatisation.

3) Create an enabling environment for private investors to operate their refineries. In this area, the government should revisit licensing modular refineries and legitimising artisanal refineries as an indigenous route to national self-sufficiency in domestic refining. Specifically, what is required to actualise this recommendation will include:

- 1. Expedite the licensing process for modular refineries, making clear provisions on the expected commencement date of refining operations.
- 2. Develop a regulatory framework that legitimises and regulates artisanal refineries to meet environmental and safety standards.
- 3. Provide incentives ranging from tax breaks to outright financial support to encourage private investors to establish and operate their refineries.

In the light of the foregoing, the government will need to:

- 1. Revise existing regulations to simplify and fast-track the licensing process for modular refineries.
- 2. Develop appropriate guidelines for establishing artisanal refineries, including environmental, safety, and operational standards.
- 3. Launch or resuscitate investment portfolios for the promotion and attraction of private investment in the refining sector and provide

financial incentives, such as grants or low-interest loans, to support private investors in building and operating refineries.

In addition, the various audit reports by NEITI should be studied to plug the loopholes in the downstream oil sector and enthrone the tenets of transparency and accountability. Specifically, the Nigerian government should develop and implement strategies to plug loopholes identified in NEITI reports, focusing on revenue collection and transparency. It should also revise policies and regulations in the downstream sector to address the specific lacunae identified in the audit reports.

ACKNOWLEDGEMENT

The authors express their gratitude to the Management of Bowen University, Iwo, Nigeria, for providing financial support for the publication of this article.

REFERENCES

- Abuh, A., & Akubo, J. (2022, April 15). National assembly okays N4tr fuel subsidy payment for 2022. *The Guardian*. https://guardian.ng/news/ national-assembly-okays-n4tr-fuel-subsidypayment-for-2022/
- Adekunle, I. A., & Oseni, I. O. (2021). Fuel subsidies and carbon emission: Evidence from asymmetric modelling. *Environmental Science and Pollution Research*, 28(18), 22729–22741. https://doi. org/10.1007/s11356-021-12384-0
- Adenekan, S. (2022, January 21). Fuel subsidy: Why our refineries are not working. *Premium Times*. https:// www.premiumtimesng.com/news/top-news/507015fuel-subsidy-why-our-refineries-are-not-working-nlcpresident.html

- Adeoti, J., Chete, L., Beaton, C., & Clarke, K. (2016). Compensation mechanisms for fuel subsidy removal in Nigeria. International Institute for Sustainable Development. https://www.iisd. org/system/files/publications/compensationmechanisms-fuel-subsidy-removal-nigeria.pdf
- Adigun, A. (2023, May 29). Inauguration: 10 key points in Tinubu's inaugural speech. *Nigerian Tribune*. https://tribuneonlineng. com/inauguration-10-key-points-in-tinubusinaugural-speech/
- Aidt, T. S. (2016). Rent seeking and the economics of corruption. *Constitutional Political Economy*, 27(2), 142–157. https://doi.org/10.1007/s10602-016-9215-9
- Akanle, O., Adebayo, K., & Adetayo, O. (2014). Fuel subsidy in Nigeria: Contexts of governance and social protest. *International Journal of Sociology* and Social Policy, 34(1/2), 88–106. https://doi. org/10.1108/ijssp-01-2013-0002
- Akintayo, O. (2022, July 18). Marketers finally hike petrol price to N170-N190/litre. *Punch*. https:// punchng.com/marketers-finally-hike-petrolprice-to-n170-n190-litre/
- Akor, C. (2017). From subalterns to independent actors? Youth, social media and the fuel subsidy protests of January 2012 in Nigeria. *Africa Development*, XLII(2), 107-127.
- Akpan, U. (2023, September 11). Oil price rises to \$92.79 on output cut, may hit \$107. Vanguard. https://www.vanguardngr.com/2023/09/oilprice-rises-to-92-79-on-output-cut-may-hit-107/
- Amos, I. (2022, April 29). NEITI report rubbishes FG's N4trn fuel subsidy proposal for 2022. Sweet Crude Reports. https://sweetcrudereports.com/ neiti-report-rubbishes-fgs-n4trn-fuel-subsidyproposal-for-2022/
- Ani, D. P., Onoja, E. A., & Humbe, I. T. (2021). Partial fuel subsidy removal in Nigeria: Its effects on the economy and agricultural sector. *International Journal of Social Ecology and Sustainable Development*, 12(1), 98-114. http://doi. org/10.4018/IJSESD.2021010108

- Anyaogu, I. (2023, August 16). Nigeria lost N16.25trn to oil theft from 2009 to 2020 – NEITI. Business day. https://businessday.ng/ energy/article/nigeria-lost-n16-25trn-to-oiltheft-from-2009-to-2020-neiti/#:~:text=The%20 Nigeria%20Extractive%20Industries%20 Transparency,crude%20oil%20within%-20this%20period
- Atagboro, E. (2015). Due process mechanism and fraudulent practices in Nigerian public sector. Acta Universitatis Danubius. Administratio, 7(1), 22-29.
- Awojulugbe, O. (2021, April 14). Factsheet: What you need to know about Nigeria's ailing refineries and their perennial repairs. *Africa Check*. https:// africacheck.org/fact-checks/factsheets/factsheetwhat-you-need-know-about-nigerias-ailingrefineries-and-their
- Azeez, W. (2022, June 15). Petrol subsidy: FG struggling to meet debt service obligations, says Zainab Ahmed. *The Cable*. https://www.thecable. ng/petrol-subsidy-fg-struggling-to-meet-debtservice-obligations-says-zainab-ahmed
- Bazilian, M., & Onyeji, I. (2012). Fossil fuel subsidy removal and inadequate public power supply: Implications for businesses. *Energy Policy*, 45, 1–5. https://doi.org/10.1016/j.enpol.2012.02.057
- Beattie, J. (2013, February 8). The shocking truth about fuel subsidy fraud. *African Business*. https:// african.business/2013/02/energy-resources/theshocking-truth-about-fuel-subsidy-fraud/
- Centre for Public Policy Alternatives. (2012). Nigeria: Fuel subsidy. http://toluogunlesi.files.wordpress. com/2012/01/fuel-subsidy-desktop-study-reportcopy1.pdf
- Coady, D., El-Said, M., Gillingham, R., Kpodar, K., Medas, P., & Newhouse, D. (2006). The magnitude and distribution of fuel subsidies: Evidence from Bolivia, Ghana, Jordan, Mali and Sri Lanka. International Monetary Fund. https://www.imf.org/external/pubs/ft/wp/2006/ wp06247.pdf

- Dairo, F. (2020, August 30). Nigeria's three refineries processed zero crude but cost nation N10 billion in June. *Premium Times*. https://www.premiumtimesng. com/news/headlines/411594-nigerias-three-refineriesprocessed-zero-crude-but-cost-nation-n10-billion-injune.html
- Dennis, A. (2016). Household welfare implications of fossil fuel subsidy reforms in developing countries. *Energy Policy*, 96, 597–606. https:// doi.org/10.1016/j.enpol.2016.06.039
- Duru, E. J. C. (2005). Due process principle and dividends of democracy in Nigeria. American Journal of International Politics and Development Studies, 1(1), 167-176.
- Eboh, M. (2020, April 8). N1.5trn spent on fuel subsidy in 2019—FG. Vanguard. https://www. vanguardngr.com/2020/04/n1-5trn-spent-onfuel-subsidy-in-2019-fg/
- Eboh, C. (2023, January 20). Nigeria's NNPC spent \$10 billion on fuel subsidy in 2022. *Reuters*. https://www.reuters.com/business/ energy/nigerias-nnpc-spent-10-billion-fuelsubsidy-2022-2023-01-20/
- Ezeani, E. C. (2014). Removing oil subsidies in Nigeria: Between necessity and false economy. *The Journal of World Energy Law & Business*, 7(4), 364–389. https://doi.org/10.1093/jwelb/ jwu018
- Evans, O., Nwaogwugwu, I., Vincent, O., Wale-Awe, O., Mesagan, E., & Ojapinwa, T. (2023). The socio-economics of the 2023 fuel subsidy removal in Nigeria. *BizEcons Quarterly*, 17, 12-32.
- Factbox: Nigeria's \$6.8 billion fuel subsidy scam. (2012, May 13). *Reuters*. https://www. reuters.com/article/us-nigeria-subsidy-graftidUSBRE84C08N20120513
- Fazekas, M., & Tóth, I. J. (2016). From corruption to state capture: A new analytical framework with empirical applications from Hungary. *Political Research Quarterly*, 69(2), 320- 334. https://doi. org/10.1177/1065912916639137

- Federal Government of Nigeria. (1977). Price control decree 1977. https://gazettes.africa/archive/ ng/1977/ng-government-gazette-supplementdated-1977-01-13-no-2-part-a.pdf
- Gillies, A. (2009). Reforming corruption out of Nigerian oil? http://www.cmi.no/publications/ file/3295-reforming-corruption-out-of-nigerianoil-part-one.pdf
- Hennink, M., & Kaiser, B. N. (2022). Sample sizes for saturation in qualitative research: A systematic review of empirical tests. *Social Science & Medicine*, 292, Article 114523. https://doi. org/10.1016/j.socscimed.2021.114523.
- Houeland, C. (2017). Between the street and Aso Rock*: The role of Nigerian trade unions in popular protests. *Journal of Contemporary African Studies*, 36(1), 103–120. https://doi.org /10.1080/02589001.2017.1396297
- Houeland, C. (2020). Contentious and institutional politics in a petro-state: Nigeria's 2012 fuel subsidy protests. *The Extractive Industries* and Society, 7(4), 1230–1237. https://doi. org/10.1016/j.exis.2020.05.010
- Houeland, C. (2022). The social contract and industrial citizenship: Nigerian trade unions' role in the recurring fuel subsidy protests. *Africa*, 92(5), 860-879. https://doi. org/10.1017/S0001972022000523
- Ibietan, J., Abasilim, U. D., & Olobio, T. (2018). An evaluation of deregulation policy of the downstream petroleum sector and Nigeria's economy. *Pertanika Journal Social Sciences & Humanities*, 26(3), 1843-1864.
- Lin, B., & Atsagli, P. (2017). Energy consumption, inter-fuel substitution and economic growth in Nigeria. *Energy*, 120, 675–685. https://doi. org/10.1016/j.energy.2016.11.115
- Lockwood, M. (2014). Fossil fuel subsidy reform, rent management and political fragmentation in developing countries. *New Political Economy*, 20(4), 475–494. https://doi.org/10.1080/13563 467.2014.923826

- Jeremiah, K. (2022, December 15). Nigeria's elite stole N16.25 trillion crude oil in 12 years, says NEITI. *The Guardian*. https://guardian.ng/news/ nigerias-elite-stole-n16-25-trillion-crude-oil-in-12-years-says-neiti/
- Lugon-Moulin, A. (2010, March). Understanding state capture. *Freedom from Fear Magazine*, 38-39. https://f3magazine.unicri.it/wp-content/ uploads/F3 06.pdf
- Mmadu, B. A., & Akan, D. C. (2013). Inefficient subsidy in Nigerian oil sector; Implications for revenue generation and household welfare in Nigeria. *International Journal of Revenue Management*, 7(1), 75. https://doi.org/10.1504/ ijrm.2013.053360
- McCulloch, N., Moerenhout, T., & Yang, J. (2021). Fuel subsidy reform and the social contract in Nigeria: A micro-economic analysis. *Energy Policy*, 156, Article 112336. https://doi. org/10.1016/j.enpol.2021.112336
- Ministry of Petroleum Resources. (n.d). Report of the national refineries special task force. https://africaoilgasreport.com/wp-content/ uploads/2015/05/National-Refineries-Special-Task-Force.pdf
- News Agency of Nigeria. (2021, March 24). Reps to audit funds spent on rehabilitation, repairs of refineries. *The Guardian*. https:// guardian.ng/news/reps-to-audit-funds-spent-onrehabilitation-repairs-of-refineries/
- Nigerian National Petroleum Corporation. (2020). 2020 annual statistical bulletin. https://search. worldcat.org/title/14163531
- NNPC spends \$396.33m on four refineries in 10 years. (2018, May 8). *The Nation*. https:// thenationonlineng.net/nnpc-spends-396-33mon-four-refineries-in-10-years/
- Nwachukwu, M. U., & Chike, H. (2011). Fuel subsidy in Nigeria: Fact or fallacy. *Energy*, 36(5), 2796–2801. https://doi.org/10.1016/j. energy.2011.02.020

- Nwafor, M., Ogujiuba, K., & Asogwa, R. (2006). Does subsidy removal hurt the poor? Evidence from computable general equilibrium analysis. African Institute for Applied Economics. https:// pdf.usaid.gov/pdf_docs/Pnadh630.pdf
- Nwozor, A. (2009). Echoes of divergence within: The politics and politicisation of Nigeria's debt relief. *Review of African Political Economy 36*(119), 23-35. https://doi.org/10.1080/03056240902888444
- Nwozor, A. (2014). Analysis of the policy of due process and fuel subsidy scam in Nigeria, 2002-2014. ANSU Journal of Peace and Development Studies, 2(1), 1-23.
- Nwozor, A., & Afolabi, O. (2023). Keeping up appearance? Nigeria's anti-corruption crusade and image dilemma in the global arena. *Journal* of Financial Crime, 30(3), 813-827. https://doi. org/10.1108/JFC-02-2022-0039
- Nwozor, A., Olanrewaju, J. S., Ake, M. B., Aleyomi, M. B., & Lawal, E. E. (2021). State capture and elective dictatorship in Nigeria's democratic space: A critical analysis. *African Renaissance*, 18(1), 53–72. https://doi.org/10.31920/2516-5305/2021/18n1a3
- Nwozor, A., Olanrewaju, J., Oshewolo, S., & Ake, M. (2020). Is Nigeria really fighting to win the anti-corruption war? Presidential body language, "string-puppetting" and selective prosecutions. *Journal of Financial Crime*, 27(2), 601-617. https://doi.org/10.1108/JFC-08-2019-0109
- Nwozor, A., & Oshewolo, S. (2020). Nigeria's border closure drama: The critical questions. *The Round Table: The Commonwealth Journal of International Affairs*, 109(1), 90-91. https://doi. org/10.1080/00358533.2020.1715106
- Nwozor, A., Oshewolo, S., & Ogundele, O. (2019). Energy poverty and environmental sustainability in Nigeria: An exploratory assessment, *IOP Conference Series: Earth and Environmental Science*, 331, Article 012033. https://doi. org/10.1088/1755-1315/331/1/012033

- Oghifo, B. (2019, October 12). About \$582bn stolen from Nigeria since 1960, says Chatham House. *This Day.* https://www.thisdaylive.com/index. php/2019/10/12/about-582bn-stolen-fromnigeria-since-1960-says-chatham-house/
- Okon, D. (2023, August 15). Tinubu considering "temporary subsidy" on petrol as landing cost rises. *The Cable*. https://www.thecable. ng/exclusive-tinubu-considering-temporarysubsidy-on-petrol-as-landing-cost-rises
- Oladipo, O. (2021, January 15). Explainer: What makes up the petroleum pricing template? *Business Day.* https://businessday.ng/energy/ oilandgas/article/explainer-what-makes-up-thepetroleum-pricing-template/
- Olujobi, O. J. (2021). Deregulation of the downstream petroleum industry: An overview of the legal quandaries and proposal for improvement in Nigeria. *Heliyon*, 7, e06848. https://doi. org/10.1016/j.heliyon.2021.e06848
- Olujobi, O. J. (2023). Nigeria's upstream petroleum industry anti-corruption legal framework: The necessity for overhauling and enrichment, *Journal of Money Laundering Control*, 26(7), 1-27. https://doi.org/10.1108/JMLC-10-2020-0119.
- Omotosho, B. S. (2019). Oil price shocks, fuel subsidies and macroeconomic (in)stability in Nigeria. *CBN Journal of Applied Statistics*, 10(2), 1-38.
- Onyeiwu, S. (2021, November 4). Fuel subsidies in Nigeria: They're bad for the economy, but the lifeblood of politicians. *The Conversation*. https://theconversation.com/fuel-subsidies-innigeria-theyre-bad-for-the-economy-but-thelifeblood-of-politicians-170966
- Organization of the Petroleum Exporting Countries. (2023). OPEC annual statistical bulletin. Vienna: Organization of the petroleum exporting countries. https://factual.afp.com/sites/default/ files/medias/factchecking/asb 2023.pdf

- Osunmuyiwa, O., & Kalfagianni, A. (2017). The oil climax: Can Nigeria's fuel subsidy reforms propel energy transitions? *Energy Research* & Social Science, 27, 96–105. https://doi. org/10.1016/j.erss.2017.03.003
- Petroleum products pricing template-Explanatory note. (2012). Proshare. https://www.proshare. co/articles/petroleum-products-pricing-templateexplanatory-note?menu=Economy&classificatio n=Read&category=Oil%20%26%20Gas
- Rentschler, J. (2016). Incidence and impact: The regional variation of poverty effects due to fossil fuel subsidy reform. *Energy Policy*, 96, 491– 503. https://doi.org/10.1016/j.enpol.2016.06.025
- Sayne, A., Gillies, A., & Katsouris, C. (2015). Inside NNPC oil sales: A case for reform in Nigeria. https://resourcegovernance.org/sites/ default/files/NRGI_InsideNNPCOilSales_ CompleteReport.pdf
- Siddig, K., Aguiar, A., Grethe, H., Minor, P., & Walmsley, T. (2014). Impacts of removing fuel import subsidies in Nigeria on poverty. *Energy Policy*, 69, 165–178. https://doi.org/10.1016/j. enpol.2014.02.006
- Soile, I., & Mu, X. (2015). Who benefit most from fuel subsidies? Evidence from Nigeria. *Energy Policy*, 87, 314–324. https://doi.org/10.1016/j. enpol.2015.09.018
- Statista Research Department. (2023, August 2023). Weekly oil prices in Brent, OPEC basket, and WTI futures 2020-2023. Statista. https://www. statista.com/statistics/326017/weekly-crudeoil-prices/

- Stebbins, S. (2019, May 22). These 15 countries, as home to largest reserves, control the world's oil. USA Today. https://www.usatoday.com/ story/money/2019/05/22/largest-oil-reservesin-world-15-countries-that-control-the-worldsoil/39497945/
- Tollison, R. D. (2012). The economic theory of rent seeking, *Public Choice*, *152*(1/2), 73-82. https:// doi.org/10.1007/s11127-011-9852-5
- Udo, B. (2018, April 17). It's official: Nigeria has no authentic data on petrol consumption. *Premium Times*. https://www.premiumtimesng.com/news/ headlines/265266-its-official-nigeria-has-noauthentic-data-on-petrol-consumption.html
- Udo, B. (2020, June 17). Three refineries lost N1.6 trillion in 5 years, says NNPC audit report. *Premium Times*. https://www.premiumtimesng. com/business/business-news/398151-threerefineries-lost-n1-6trillion-in-5-years-says-nnpcaudit-report.html?tztc=1
- Uwalaka, T., & Watkins, J. (2018). Social media as the fifth estate in Nigeria: An analysis of the 2012 occupy Nigeria protest. *African Journalism Studies*, 39(4), 22-41. https://doi.org/10.1080/23 743670.2018.1473274
- World Bank. (1997). Helping countries combat corruption: The role of the World Bank. http:// www1.worldbank.org/publicsector/anticorrupt/ corruptn/corrptn.pdf
- World Bank. (2022). The continuing urgency of business unusual: Nigeria development update. https://documents1.worldbank.org/curated/ en/099740006132214750/pdf/P177820058223 60a00a0850f63928a34418.pdf

Key Informant ID	Gender	Age Range	Occupational/professional affiliation			
KI-1	М	42				
KI-2	М	51				
KI-3	М	38				
KI-4	F	41	NNPC Officials			
KI-5	М	47				
KI-6	F	45				
KI-7	М	36				
KI-8	F	44	Academics/Researchers with core research interest in			
KI-9	М	55	the oil sector from Nigerian universities			
KI-10	М	48				
KI-11	F	47				
KI-12	F	46	Non-governmental organizations (with a focus on transparency issues)			
KI-13	М	54	(with a focus on transparency issues)			
KI-14	М	52				
KI-15	М	47				
KI-16	М	45	Officials in Nigeria's federal bureaucratic institutions			
KI-17	F	33				
KI-18	М	35	Public affairs analysts (regular citizens with an			
KI-19	М	44	interest in and knowledge of fuel subsidy and			
KI-20	F	38	corruption issues)			

APPENDIX A

Composition of key informants

Agaptus Nwozor, Oladiran Afolabi, Chukwudi Godwin Chidume, Onjefu Okidu and Solomon Adebayo Adedire

APPENDIX B

Lead Interview Questions

S/N	Lead Questions
1	In your view, is it justifiable for Nigeria, as a major crude oil producer, to depend on imported refined petroleum products for its domestic needs?
2	What do you make of the underperformance of Nigeria's four refineries?
3	Would you consider Nigeria's downstream oil sector's opaqueness as the fuel subsidy rationale?
4	Who do you think are the real beneficiaries of fuel subsidies?
5	What is your view on subsidy removal?
6	Is there any correlation between fuel importation and Nigeria's refining capacity underdevelopment?
7	In your opinion, does fuel importation facilitate corrupt practices?
8	If the answer to the foregoing is positive, what specific ways has the administration of fuel subsidy enabled corrupt practices?
9	Does the continued retention of fuel subsidies solve or deepen Nigeria's economic challenges?



SOCIAL SCIENCES & HUMANITIES

Journal homepage: http://www.pertanika.upm.edu.my/

Needs Analysis for The Development of Financial Literacy Model in Mathematics Education for B40 Malaysia Secondary School Students

Husaina Banu Kenayathulla^{1*}, Nor Huda Ahmad Puad¹ and Muhammad Faizal A. Ghani²

¹Department of Educational Management, Planning and Policy, Faculty of Education, Universiti Malaya, 50603, Kuala Lumpur, Malaysia

¹Faculty of Education, Universiti Malaya, 50603, Kuala Lumpur, Malaysia ²Department of Educational Management, Planning and Policy, Faculty of Education, Universiti Malaya, 50603, Kuala Lumpur, Malaysia

ABSTRACT

Financial literacy is a form of basic skills and understanding related to financial concepts. Individuals need to have a good foundation of financial literacy to face the increasingly complex and challenging global economic environment. Studies on the level of financial literacy of secondary school students, especially the B40 group, were not explored much. As a result, this research identified the need to develop a financial literacy model for Malaysian B40 secondary school students. The data were analyzed through descriptive statistics based on percentages, mean values, and standard deviations. The findings indicated that school leaders perceived that the financial literacy model is needed and important for B40 Malaysian secondary school students. A strong foundation of financial literacy will provide the students with the knowledge and skills to confidently make financial products and manage personal finances efficiently and wisely in choosing the best financial products and services.

Keywords: Financial literacy, B40, students, Malaysia, Mathematical education

ARTICLE INFO

Article history: Received: 08 December 2022 Accepted: 28 February 2024 Published: 14 June 2024

DOI: https://doi.org/10.47836/pjssh.32.2.19

E-mail addresses: husaina@um.edu.my (Husaina Banu Kenayathulla) hudapuad@gmail.com (Nor Huda Ahmad Puad) mdfaizal@um.edu.my (Muhammad Faizal A. Ghani) *Corresponding author

INTRODUCTION

The state of the economic environment today is increasingly challenging, especially when the latest health crisis, namely the pandemic caused by the Coronavirus Disease (COVID-19), hit the world. There is uncertainty about when this pandemic will end despite the availability of vaccines developed to curb its spread (Jordà et al., 2020). Many individuals were affected by this epidemic when the country had to implement the Movement Control Order (MCO), which greatly impacted the national economy and the people in particular. This pandemic is also seen to impact the worldwide economy more alarmingly (Usman et al., 2020).

Loss of employment and lack of financial resources to continue living are among the negative effects of implementing the MCO on many Malaysians, especially those with low household incomes. In Malaysia, household income is classified into three categories: top twenty percent (T20), middle forty percent (M40), and bottom forty percent (B40). The T20 group has a household income of about RM11,820 and above, while the M40 group has an income between RM5,250 and RM11,819. Meanwhile, households earning RM5,250 and below are those in the category of B40 group (Household Income and Expenditure Survey Report, 2022). Based on those numbers, there is a significant household income gap between T20, M40 and B40.

Many studies have proven a positive relationship between family income and individuals' financial literacy levels (Mokhtar et al., 2018; Radianto, 2019 & Yoshino et al., 2017). Low family income is more likely to indicate a low level of financial literacy (Atkinson & Messy, 2012; Lusardi & Mitchell, 2011). According to Friedline (2012), earlier research findings consistently show that children from lowincome families are less exposed to various resources and financial opportunities than children from high-income families. Thus, this difference in financial participation will create a gap in resources and financial management ability when these children grow up (Friedline, 2012).

The study's results by Nor'ain et al. (2019) also found that most students with financial problems come from low-income or B40 families. Individuals with a high level of financial literacy are able to manage their finances well (Susanti et al., 2019). However, failure to manage personal finances has resulted in bankruptcy at a young age (Aladdin & Ahmad, 2017; Othman et al., 2015). Based on statistics released by the National Insolvency Department, 299,186 individuals were declared bankrupt from 2015 to 2019 (National Insolvency Department, 2019). In terms of age range, those aged 35-44 recorded the highest bankruptcy percentage of 35.23%, followed by the age range of 25-34 years and under the age of 25, accounting for 25.18% and 0.57%, respectively.

Therefore, the high number of bankruptcies among young people should not be taken lightly by all parties. The debt problem among these young people also affects their ability to repay study loans from the National Higher Education Fund Corporation or Perbadanan Tabung Pendidikan Tinggi Nasional (PTPTN). The failure to repay the loans indicates that these young people have failed to plan and manage their finances well and further proves that their level of financial literacy is still low (Ghazali et al., 2017). A financially literate person means the individual is capable of managing his finances well (Susanti et al., 2019). Nevertheless, according to the study of The Standard & Poor's Ratings Services Global Financial Literacy Survey (Klapper et al., 2014). only 33% of adults globally are financially literate, and the remaining 3.5 billion do not understand basic financial concepts. Malaysian studies focusing on high school students also show that these kids have a moderate level of financial knowledge (Ghazali et al., 2017; Ramasamy et al., 2018).

Exposure to basic financial knowledge and concepts at a younger age is important because an individual's habits and behaviors are shaped through learning and observation from parents and others around them during their childhood years (Whitebread & Bingham, 2013). Therefore, these youth should be equipped with adequate financial literacy starting at the school level so that they are more financially literate when continuing their studies at a higher level as well as in preparation for a career when they reach adulthood (Gomulia et al., 2020; Hussin & Rosli, 2019).

Thus, this article aims to explore the views of school leaders on the need and importance of having a financial literacy model in the context of B40 secondary school students in Malaysia. Specifically, this study was conducted to answer the following questions:

1) What are the perceptions of secondary school leaders in Malaysia on the need for the development of

a financial literacy model for B40 Malaysian secondary school students?

2) What are the perceptions of secondary school leaders in Malaysia on the importance of developing a financial literacy model for Malaysian B40 secondary school students?

LITERATURE REVIEW

Financial Literacy

Studies related to financial literacy are increasingly gaining the attention of researchers worldwide. According to the Organization for Economic Cooperation and Development (OECD), financial literacy is a form of knowledge, skills, motivation, and the confidence to use one's knowledge and understanding of financial concepts and risks in making wise financial decisions that will improve one's and society's financial well-being (Lusardi & Mitchell, 2014). Financial literacy is generally divided into three main domains: financial knowledge, attitude toward money, and behavior toward money (Hung et al., 2009).

Financial knowledge refers to a basic understanding of financial concepts and procedures (Chowa et al., 2012; Huston, 2010). Based on previous studies, many researchers have found that college students show a low level of financial knowledge, which in turn directly affects their level of financial literacy and understanding of financial concepts and procedures (Danes & Hira, 1987; Hrbert & Beutler, 2001; Jorgensen, 2007). There is a consistent finding in Malaysia where a study involving secondary school students in Raub, Pahang, found that their financial literacy is low because they do not have enough exposure to financial knowledge (Ghazali et al., 2017).

The second domain, which is the attitude towards money, can be defined as the ability of a person to foresee his finances in advance and feel positive about them (Albeerdy & Gharleghi, 2015; Atkinson & Messy, 2012; Lusardi & Mitchell, 2008 & Rai et al., 2019). Although an individual has enough financial knowledge to make financial-related decisions, the individual's attitude will influence financial decisions (OECD, 2016; 2020). Previous studies have shown a relationship between attitudes toward money and an individual's financial literacy (Chaulagain, 2015; Firli, 2017; Sohn et al., 2012; Thomas & Subhashree, 2020). Attitude toward money is seen to be able to shape and determine the level of financial literacy of students (Isomidinova et al., 2017; Sabri, 2015).

The third domain of financial behavior refers to behavior related to financial applications or, in other words, how a person acts on financial-related matters (Susilowati et al., 2020) that can affect the financial wellbeing of individuals (Dewi et al., 2020). These three domains are interconnected with each other. The degree to which an individual is financially literate can be predicted when an individual uses financial knowledge, has extensive financial experience, and shows a positive attitude and behavior toward money. Then, financial management will be more efficient and systematic (Moore, 2003). Although studies are conducted to measure an individual's level of financial literacy, not all components of financial literacy are considered in studies conducted in Malaysia. On the other hand, studies carried out abroad by Atkinson and Messy (2012), Firli (2017), and Santini et al. (2019) have considered all three components of financial literacy in their studies.

Meanwhile, Malaysia, through the National Literacy Strategy 2019–2023, has outlined five main strategies, one of which is to instill moral values early on. Young people need to be equipped with financial education that includes financial knowledge, skills, and values learned when making financial-related decisions (Financial Education Network, 2019). Based on this, a new topic, consumer mathematics, has been added to the Mathematics in the Kurikulum Standard Sekolah Menengah (KSSM) for Form 3, 4 and 5 students. Among the topics in consumer mathematics are those related to savings, investment, credit, debt, financial management, insurance and taxation (Said et al., 2022).

All these topics can help students manage their finances well when they become adults. For example, topics related to savings can increase students' awareness of the importance of saving money for their future. In addition, students are also given exposure to various forms of investment, such as stock investment, unit trust, and real estate, through investment topics. Meanwhile, knowledge of using credit cards and personal loans can prepare students for financial risk management starting at a young age. Indirectly, this curriculum can increase students' knowledge and understanding of managing finances wisely (Ministry of Education Malaysia, 2018).

However, the topics added to the mathematics curriculum only touch on one domain within the scope of the definition of financial literacy, which is the domain of financial knowledge. Though KSSM Mathematics covered consumer mathematics, this is not sufficient. Additionally, the aim is not only for mathematical calculations. Instead, attitudes towards money and financial behavior should also be considered when assessing secondary school students' financial literacy level. Thus, there is a need to develop a financial literacy model that covers all three domains, namely financial knowledge, attitudes toward finance and financial behavior, considering these three domains are interrelated.

Needs Analysis

Hannafin and Peck (1988) stated that a researcher uses needs analysis to identify the design needs produced based on the program's users, the environment, and the existing constraints. The gap between the current situation and the target's progress is also identified using this needs analysis (Witkin, 1997). Thus, the meaning of needs analysis in this study refers to an effort to identify existing issues, gaps and problems and the need and importance of developing a financial literacy model for secondary school students. This model is seen to have the potential to be developed to help improve the level of financial literacy of secondary school students in Malaysia in particular.

The Needs of B40 Secondary School Students Towards a Financial Literacy Model

The National Financial Literacy Strategy 2019-2023, which was launched on 23 July 2019, has outlined five key strategies (Financial Education Network, 2019). Among the values is to instill good values from a young age. Secondary school students need to be provided with the basics, concepts, knowledge, skills, values, and risks related to finance in school to make wise financial decisions and subsequently achieve a good level of financial literacy (Hussin & Rosli, 2019; OECD, 2017). Nevertheless, previous studies in several countries have proven that students still have low financial literacy (Cameron et al., 2013; Lusardi, 2015).

Next, although many studies are related to financial literacy in Malaysia and abroad, research topics directly referring to high school students are still less discussed. Furthermore, although numerous studies have been conducted on financial literacy in Malaysia and abroad, research that refers directly to secondary school students is still limited. Most studies use college and university students as research subjects because they believe they are mature and capable of making certain financial decisions (Ahmad et al., 2016; Hussin & Rosli, 2019). Therefore, this article aims to get the views of secondary school leaders on the needs and importance of developing a financial literacy model for B40 Malaysian secondary school students.

METHODOLOGY

Research Design

This study, which focuses on the B40 group in Malaysia, is a descriptive study that aims to discover the views of national secondary school leaders on the need and importance of developing a financial literacy model for secondary school students. Therefore, a quantitative method using a survey study and a qualitative method through interviews were used to obtain relevant data to answer the research questions presented in this study. The use of survey research is appropriate for this study because it can reach a large number of respondents in a short time (Rowley, 2014).

Study Sample

This study involved 438 study respondents randomly selected using the cluster random sampling method. The cluster random sampling method is the most practical method for this study since the total area of this research involves a large national survey (Acharya et al., 2013; Etikan & Bala, 2017). The number of national secondary schools throughout Malaysia is 2,250. Four school leaders were selected as the sample for this study. Principals, Senior Assistant Teachers of Administration, Senior Assistant Teachers of Student Affairs, Senior Assistant Teachers of Curriculum and Heads of Departments. The total number is 9000 respondents. Therefore, the total number of respondents

for this needs analysis phase was made based on the sample size determination table by Krecjie and Morgan (1970), which the sample size used for this study was a total of 438 people.

The secondary school population is divided into five groups based on five main zones. The Central Zone consists of Perak, Selangor, the Federal Territory of Kuala Lumpur and the Federal Territory of Putrajaya. Perlis, Kedah and Penang represent the North Zone, while Johor, Melaka and Negeri Sembilan represent the South Zone. Next, the East Zone consists of Kelantan, Terengganu and Pahang, and finally, the East Malaysia Zone consists of Sabah, Sarawak and the Federal Territory of Labuan. Next, a state is randomly selected to represent each zone. Then, the subsample or sample size for each zone is determined using the proportional ratio method called probability proportional to size (PPS), where the sample size is determined based on the population of a sub-cluster (Neuman, 2011). According to Chua Yan Piaw (2013), the subsample size calculation is as follows:

Subsample size = $\frac{\text{Number of subpopulations}}{\text{Number of population}}$ X sample size

An interview method was also carried out to strengthen the findings of this need analysis phase. Creswell (2005) stated that the number of participants between four and ten is appropriate to be used as participants for a qualitative study. Therefore, this study involves six experts from the Department of Education Policy Planning and Research, the Ministry of Education Malaysia, the Teachers Training Centre, public universities and excellent schools (secondary) that were chosen through purposive sampling. This sampling method is also known as judgment sampling because it involves individual judgment to select a study sample based on the researcher's knowledge and experience as well as the needs of the study (Ramlan, 2017; Yaakub et al., 2020). Table 1 shows a summary of the profiles of the study participants, which include age, gender, race, position held, grade of position and length of service. In contrast, the school profile consists of the state and location of the school involved in this study.

Based on the information collected in Table 1, the number of male respondents was 151 (34.5%), while female respondents were 287 (65.5%). In terms of age, the findings of the study showed a total of 261 people aged 51 years and above, followed by 145 respondents aged 41 to 50 years (33.1%), while the rest of the total respondents of 32 people (7.3%) were less than 40 years old. Next, the Malay respondents were 320 people (73.1%), Chinese 65 people (14.8%), Indians 16 people (3.7%), and other races were 37 people (8.4%). In terms of positions held, 57 Principals and Senior Administrative Assistant Teachers (13%) participated in this study. In contrast, 56 people (12.8%) consisted of Senior Assistant Teachers of Student Affairs, followed by 55 Senior Assistant Teachers of Co-curriculum (12.6%), while the most respondents were Heads of Departments, 213 people (48.6%).

Furthermore, the study's findings related to position grade showed that three people (0.7%) of the total respondents involved were DG 41. In comparison, 42 people (9.6%) were at DG 44, 178 people (40.6%) were at DG 48 posts, 176 people (40.2%) were at DG 52 grade posts, followed by respondents who were at DG 54 grade posts which were 39 people (3.9%). In terms of length of service, the findings show that four people (0.9%) have served between 1 to 10 years, a total of 105 people (24%) of the total respondents are serving between 11 to 20 years, while 325 people (74.2%) have served more than 20 years. Next, the number of respondents involved in this study according to the breakdown from each state and location, whether in urban, suburban or rural, as shown in Table 2.

Study Participant Profile		n	%
Gender	Male	151	34.5
	Female	287	65.5
Age	Less than 40 years old	32	7.3
-	41–50 years old	145	33.1
	51 years old and above	261	59.6
Race	Malay	320	73.1
	Chinese	65	14.8
	Indian	16	3.7
	Others	37	8.4

Table 1Profile of study participants and schools

Table 1 (Continue)

Study Participant Profile		n	%
Position Held	Principal	57	13.0
	Senior Assistant Teachers of	57	13.0
	Administration		
	Senior Assistant Teachers of Student	56	12.8
	Affairs Senior Assistant Teachers of	55	12.6
	Curriculum		
	Heads of Departments	213	48.6
Position Grade	DG 41	3	0.7
	DG 44	42	9.6
	DG 48	178	40.6
	DG 52	176	40.2
	DG54	39	8.9
Length of Service	Less than five years	4	0.9
	5 to 10 years	4	0.9
	11 to 20 years	105	24.0
Length of Service	Less than five years	4	0.9
	5 to 10 years	4	0.9
	11 to 20 years	105	24.0
	More than 20 years	325	74.2
State	Johor	30	8.9
	Kedah	24	5.5
	Kelantan	30	6.8
	Melaka	19	4.3
	Negeri Sembilan	16	3.7
	Pahang	54	12.3
	Perak	45	10.3
	Perlis	7	1.6
	Pulau Pinang	24	5.5
	Sabah	24	5.5
	Sarawak	40	9.1
	Selangor	27	6.2
	Terengganu	34	7.8
	Wilayah Persekutuan Kuala Lumpur	44	10.0
	Wilayah Persekutuan Labuan	8	1.8
	Wilayah Persekutuan Putrajaya	3	0.7
School Location	Urban	254	58.0
	Suburban	49	11.2
	Rural	135	30.8

Source: Authors' work

Financial Literacy Model in Mathematics Education

School Profile		n	%
State	Johor	30	8.9
	Kedah	24	5.5
	Kelantan	30	6.8
	Melaka	19	4.3
	Negeri Sembilan	16	3.7
	Pahang	54	12.3
	Perak	45	10.3
	Perlis	7	1.6
State	Pulau Pinang	24	5.5
	Sabah	24	5.5
	Sarawak	40	9.1
	Selangor	27	6.2
	Terengganu	34	7.8
	Wilayah Persekutuan Kuala Lumpur	44	10.0
	Wilayah Persekutuan Labuan	8	1.8
	Wilayah Persekutuan Putrajaya	3	0.7
School Location	Urban	254	58.0
	Suburban	49	11.2
	Rural	135	30.8

Table 2 School profile

Source: Authors' work

Study Instrument

This study uses a questionnaire instrument that has been constructed based on a questionnaire that has been modified from the questionnaire of Ghani and Adnan (2017). This questionnaire contains three parts: Part A related to school profiles and respondents, which consists of 9 items and Parts B and C, which contain 24 items covering the analysis of the needs and importance of developing the financial literacy model for B40 Malaysian secondary school students. Next, the views of the respondents on the need for this financial literacy model were measured using a 5-point Likert scale as follows: (1) strongly disagree, (2) disagree, (3) disagree, (4) agree and (5) strongly agree. A pilot study was also conducted to test this questionnaire instrument's reliability.

Additionally, two experts in the field of financial literacy were consulted for instrument validity. The Cronbach's alpha values obtained for both constructs were 0.902 and 0.913. Cronbach's alpha values above 0.7 indicated a high-reliability value of the items (Taber, 2018). Thus, with a reliability value exceeding 0.7, it indicated that the level of reliability of this questionnaire instrument was high.

Study Analysis

Data from the survey was analyzed using Statistical Program for Social Science (SPSS) version 26.0 to obtain mean scores, percentages and standard deviations. Descriptive analysis is conducted to state and explain the variables in a phenomenon (Piaw, 2013, 2020) and to summarize a set of observations as well as to present a large amount of information in the simplest possible way, such as the mean and standard deviation (Sundaram et al., 2014; Bland, 2015). At the same time, the data from the interviews was analyzed based on the context of the questions asked to the participants involved in this study. Table 3 shows the interpretation of the mean scores of the needs analysis used and modified according to the suitability of the study.

RESULTS

Research Question 1: What are the views of secondary school leaders in Malaysia on the need to develop a financial literacy model for B40 Malaysian secondary school students?

Table 4 shows that the average overall score for the need for a financial literacy model for Malaysian B40 secondary school students to be developed is high and very necessary, with a mean score of 4.13 and a standard deviation SD of 0.235. These findings indicate a need to develop a financial literacy model for B40 secondary school students in Malaysia. The highest mean score is 4.42 (SD = 0.495), and this model is seen to improve students' basic knowledge related to financial aspects.

Table 3				
Interpretation	of the	mean	score	value

Mean Score	Interpretation
	(Level of agreement)
3.33 to 5.00	High
1.67 to 3.33	Medium
0.00 to 1.66	Low
Source: Pallant (2020)	

Source: Pallant (2020)

In addition, this model is also seen to cultivate students' responsible nature towards personal financial management (mean score = 4.40, SD = 0.490) as well as help students control spending well (mean score = 4.39, SD = 0.497) and obtain new information related to financial products and services (mean score = 4.39, SD = 0.498). The lowest mean score compared to other items is 3.61 (SD = 0.541), which helps students control themselves and determine the priority of financial products that need to be subscribed to. Overall, the mean scores for the other items are also high, and this indicates that secondary school leaders agreed that the development of a financial literacy model for secondary school students was much needed at this time.

Research Question 2: What are the views of secondary school leaders in Malaysia on the importance of developing a financial literacy model for Malaysian B40 secondary school students?

Table 5 shows the average overall score for the importance of financial literacy model development of B40 Malaysian secondary school students with a mean value of 4.23 (SD = 0.351) on the interpretation of the high mean. These findings clearly indicate the importance of developing this financial literacy model for the context of B40 secondary school students in Malaysia. The highest mean score recorded for item "*this model can help improve students' basic knowledge of finance*", with a mean score of 4.42 and a standard deviation of 0.493.

Next, the item with a mean score of 4.38 (SD = 505) is the item "this model can help students plan financially well", followed by the item "this model can help foster prudence towards financial spending" with a mean score of 4.37 with a standard deviation

Table 4

Needs analysis towards developing a financial literacy model for Malaysian B40 secondary school students

No	Item	Mean Score	Standard Deviation	Interpretation
1	This model is relevant to the needs of students as consumers of financial products and services.	3.97	0.414	High
2	This model enhances students 'basic knowledge of finance.	4.42	0.495	High
3	This model enhances students' knowledge and understanding of financial products and services.	4.00	0.394	High
4	This model helps students make financial decisions more accurately.	4.03	0.319	High
5	This model helps students plan savings well.	4.09	0.584	High
6	This model helps students use savings well.	4.33	0.517	High
7	This model helps students control spending well.	4.39	0.497	High
8	This model helps students control themselves to determine the priority of financial products to which they can subscribe.	3.61	0.541	High
9	This model enhances students 'understanding of financial risks such as debt and education loans.	3.89	0.343	High
10	This model fosters the responsible nature of students towards personal financial management.	4.40	0.490	High
11	This model helps students obtain new information related to financial products and services.	4.39	0.498	High

Husaina Banu Kenayathulla, Nor Huda Ahmad Puad and Muhammad Faizal A. Ghani

Table 4	(Continue)
---------	------------

No	Item	Mean Score	Standard Deviation	Interpretation
12	This model helps students manage investments well.	3.74	0.507	High
13	This model helps improve financial literacy among students.	4.38	0.487	High
	Overall average score	4.13	0.235	High

Source: Authors' work

of 0.483. Furthermore, school leaders also think that this model can help students manage finances (mean score = 4.35, SD = 0.4789) as well as savings (mean score = 4.34, SD = 0.539).

Meanwhile, two items recorded the same mean score (4.32), and they are "this model is seen to help improve students' understanding of savings" (SD = 0.538) and "this model foster students' responsible attitudes towards personal finance" (SD = 0.469). In addition, secondary school leaders also agreed that this model could help foster a positive attitude towards financial management (mean score = 4.30, SD = 0.590), help improve students' knowledge and skills related to financial products and services (mean score = 3.96, SD = 0.612) as well as helping students manage investments well (mean score = 3.88, SD = 0.576). The lowest mean score compared to other items is 3.83 (SD = 0.504), which is "this model can help improve students' understanding of financial risks such as debt, education loans and investments". Based on the mean scores for all items, it can be concluded that all items state a high mean score, and this proves that secondary school

leaders in Malaysia agree that this financial literacy model is very important to develop, especially in the context of B40 secondary school students in Malaysia.

Analysis of Experts' Views on The Importance of Financial Literacy to B40 Secondary School Students in Malaysia

The analysis of the literature review found that financial literacy is important for all individuals, especially for secondary students in Malaysia from the B40 category. The researchers found that a consensus agreement among experts exists on this issue based on the respondents' statements:

Importance of Financial Literacy to B40 Secondary School Students in Malaysia.

"Financial literacy is very important. We want the B40 group to be financially literate. They know how to manage their financial situation so that they can bring their family out of poverty. To me, this is highly important" (P1).

"If asked whether it is important or not, it definitely is. This is because we must understand that when students are given Table 5

The importance of the development of the Financial Literacy Model for B40 Malaysia Secondary School Students

No	Item	Mean Score	Standard Deviation	Interpretation
1	This model can help improve students' basic knowledge of finance.	4.42	0.493	High
2	This model can help improve students' knowledge and skills related to financial products and services.	3.96	0.612	High
3	This model can help improve students' understanding of savings.	4.32	0.538	High
4	This model can help increase students 'understanding of financial risks such as debt, education loans and investments.	3.83	0.504	High
5	This model can help students plan financially well.	4.38	0.505	High
6	This model can help foster a responsible attitude of students towards personal finance.	4.32	0.469	High
7	This model can help foster a positive attitude towards financial management.	4.30	0.590	High
8	This model can help foster a prudent attitude toward financial spending.	4.37	0.483	High
9	This model can help students manage their finances well.	4.35	0.478	High
10	This model can help students manage savings well.	4.34	0.539	High
11	This model can help students manage investments well.	3.88	0.576	High
	Overall average score	4.23	0.351	High

Source: Authors' work

a certain amount of money, they do not know what to do with it because this is the norm since they were small. Thus, this is why they need to know how to manage money. Money needs to be saved, not to be spent for fun and buying motorbikes. It's really important" (P2). "Generally, financial literacy is a very important aspect. It is a basic that they need. After secondary school ends, they will enter a new world, thus they need to be independent and manage their money themselves. It comes first. It doesn't matter what you learn but the basic always comes to money in life. So, financial literacy is important because in the end, those who lack financial literacy will end up with bankruptcy. It will cause a lot of problems. Basically for me, all students regardless of B40, M40 ,or T20 require financial literacy" (P3).

"From my observation, financial literacy is very important. Everyone needs to be smart in managing their personal financial situation. We do not want them to be involved in bankcruptcy or poverty after completing their studies" (P4).

"We worry that, if the children go out without financial literacy and are not able to manage their finances, it will cause them to be trapped. Maybe they are lacking in money, and seek financial help from illegal money lenders or be involved in scams, investments or other illegal activities. That's what might happen. But if they are aware of financial planning in their lives, it will be properly managed" (P5).

"So to me, it is more important for the B40 category to understand financial literacy because of their family's financial position. Which means they need to have a better understanding of money and how hard it is to earn money" (P6).

Respondent P1 believes that financial literacy is very important, especially for secondary school students who are part of

the B40 group, in managing their finances so that poverty is not inherited from their parents or families. Additionally, respondent P2 agrees that financial literacy is important so that students know how to handle money, as they find that most B40 students do not have experience in money management, especially in large amounts.

Respondent P3 believes that financial literacy is a basic knowledge needed in life, especially because money is necessary. Thus, with good financial literacy, students are able to be independent and manage their finances by themselves after completing high school. Furthermore, respondents P3 and P4 also agree that having good financial literacy will help them avoid poverty or bankruptcy after secondary school education.

Respondent P5 views financial literacy's importance from its impact and consequences after these students leave school. Students need to be given an adequate foundation of financial literacy to manage their finances well and have sufficient financial resources. Otherwise, they are likely to engage in illegal activities such as lending money from unlicensed moneylenders, online fraud, illegal investment activities and money laundering. Meanwhile, the respondent P6 thinks that the B40 students are a group that is in dire need of financial literacy due to their financial situation and the position of their families because when they understand the hardships and difficulties faced by their parents to earn money, they will be able to comprehend the importance of financial literacy in their daily lives.

DISCUSSION

Needs Analysis Towards the Development of a Financial Literacy Model for Malaysian B40 Secondary School Students

This study aims to obtain the views of secondary school leaders on the need and importance of developing a financial literacy model for national secondary school students in the context of B40 Malaysia. Overall, the mean score for both constructs, namely the need for the development of the B40 Malaysia Secondary School Students Financial Literacy Model and the importance of the development of the B40 Malaysia Secondary School Financial Literacy Model based on the level of acceptance of school leaders on the use of financial literacy model in the future was high. Therefore, the results of this study clearly illustrate that this financial literacy model is very important and necessary where school leaders are seen to be willing to use this literacy model to assess and improve the level of financial literacy of secondary school students in Malaysia in the future.

Referring to the study's findings that this model helps improve financial literacy among students, the mean score recorded was high. These findings clearly show a need to improve the financial literacy level of secondary school students from the B40 group in Malaysia, which is still seen at a low level. These findings are consistent with the findings of a study conducted in Malaysia, which compared the level of literacy of students in the United Kingdom with students in Malaysia by using survey results from a questionnaire developed by the OECD. Overall, according to the study's findings, both countries still have low levels of financial literacy (Janor et al., 2017).

The same situation also occurred in Pahang and Negeri Sembilan, where a study involving secondary school students as respondents found that the financial literacy level of these students was still relatively low due to a lack of exposure related to financial knowledge (Ghazali et al., 2017; Ramasamy et al., 2018). This financial knowledge is one of the three main domains in financial literacy apart from behaviors and attitudes towards finance. Based on the study's results, the highest mean score recorded involved financial knowledge aspects. Thus, there is a need for the construction of this financial literacy model, where this model is seen to be able to improve students' basic knowledge related to financial aspects.

Meanwhile, the mean score for both items, namely, this model improves students' knowledge and understanding and helps students obtain new information related to financial products and services, was also high. This is in line with the current situation where there are many choices of financial products and services offered by banking and financial institutions in our country. Thus, financial literacy plays a very important role, especially for secondary school students who are still shallow in knowledge and understanding when choosing the best financial products and services when they grow up (Abdullah & Hussin, 2021).

Although most of these secondary school students are still entirely dependent on their parents in financial aspects, the exposure at an early stage seems to have the potential to form positive values, attitudes and behaviors towards financial management. It can indirectly increase their financial literacy to a better level. According to the study's findings, the high overall average score indicates the urgent need for a financial literacy model that focuses on B40 secondary school students in Malaysia.

The Importance of the Development of the Financial Literacy Model for B40 Malaysia Secondary School Students

Houston (2010) defines financial literacy as a measurement of a person's capacity to understand and apply knowledge related to their finances. Financial literacy also refers to the awareness, knowledge, skills, attitudes, and behaviors needed to make financial decisions that will have a longterm effect on one's financial well-being (Atkinson & Messy, 2012). Thus, adequate financial knowledge was able to help every individual, especially young people, solve finance-related problems (Durband et al., 2018). This statement was in line with the study's findings, where the mean score for the item that this model is very important in helping improve students' basic knowledge related to finance was the highest.

In addition, school leaders also agreed that this model is important to improve students' knowledge and skills related to financial products and services, savings as well as financial risks such as debt, education loans and investments. According to Dewi et al. (2020), people with better knowledge and understanding of financial concepts will be able to handle their finances better, considering their existing knowledge and experience of finance. The findings of this study were also in line with studies by the Central Bank of Brazil (2017) and OECD (2023) that basic knowledge of finance can also help consumers, especially young people, in choosing the best financial products and services that suit their needs in line with the rapid development of the current finance industry.

This financial literacy model is very important in improving the attitudes and behaviors of B40 secondary school students in Malaysia towards financial aspects. Students with a positive attitude toward money will also be more likely to display positive financial behaviors (Akben-Selcuk, 2015). The study's findings supported this statement, where the overall mean score for items related to students' attitudes towards finance was high. Findings showed that school leaders agreed that this model was important to foster students' responsible attitude towards personal finance, positive attitude towards financial management, prudent attitude towards financial spending, and help students plan financially well.

Apart from financial knowledge and attitudes towards finance, items for financial behavior also recorded a high mean score. Findings showed that school leaders agreed that this financial literacy model was important to help high school students manage their finances, savings and investments well. Financial literacy is also a basic knowledge in economics and finance that can assist an individual in making better decisions and subsequently achieving financial well-being in the future (Abdullah & Hussin, 2021).

Through the findings of this study, it can be seen that having even a little financial knowledge is useful for an individual to be financially resilient, especially in the face of difficult periods such as the COVID-19 pandemic that is plaguing the world today (Clark et al., 2020). Additionally, financially literate individuals are better prepared to handle financial difficulties because they can manage finances better before this pandemic. Thus, they are more likely to survive the shocks of this economic crisis (Van Dalen & Henkens, 2020). The aspect of financial literacy is seen to play a very important role in the daily life of an individual, not only during the COVID-19 pandemic but also at all times to ensure a positive impact on financial well-being in the future (Sabri & Zakaria, 2015; Yuesti et al., 2020; Zulfiqar & Bilal, 2016).

CONCLUSION

This study identified the need to develop a financial literacy model for Malaysian B40 secondary school students. The school leaders perceived that the financial literacy model is needed and important for B40 Malaysian secondary school students to build a strong foundation of financial literacy. A strong foundation of financial literacy can provide students with the knowledge and skills to confidently make financial decisions and manage personal finances efficiently and wisely in choosing the best financial products and services. It can be concluded that this survey has provided a positive overview of the need and importance of developing a model of financial literacy for these secondary school students. This study shows that it is important to obtain feedback from various stakeholders to understand the importance and need for developing a financial literacy model for B40 secondary school students in Malaysia.

ACKNOWLEDGEMENT

This work was supported by the Fundamental Research Grant Scheme (FRGS/1/2019/SS109/UM/02/11, FP079-2019A, Kementerian Pendidikan Malaysia).

REFERENCES

- Abdullah, M. A., & Hussin, M. F. (2021). Literasi kewangan Islam: Sorotan kajian lepas dan kaedah pengukuran [Islamic financial literacy: Highlights of past studies and measurement methods]. *Journal of Business Innovation*, 5(1), 43-45.
- Acharya, A. S., Prakash, A., Saxena, P., & Nigam, A. (2013). Sampling: why and how of it? *Indian Journal of Medical Specialities*, 4(2). https://doi. org/10.7713/ijms.2013.0032
- Ahmad, N. W., Ripain, N., Bahari, N. F., & Shahar, W. S. S. (2016). *The impact of financial literacy* on financial behavior: A literature study [Poster presentation]. 2nd International Conference on Economics & Banking 2016, Selangor, Malaysia. https://conference.uis.edu.my/iceb2016/ eproceedings/EB029.pdf

- Akben-Selcuk, E. (2015). Factors influencing college students' financial behaviors in Turkey: Evidence from a national survey. *International Journal of Economics and Finance*, 7(6), 87-94. https://doi. org/10.5539/ijef.v7n6p87
- Aladdin, Y. H., & Ahmad, A. (2017). Tahap literasi kewangan di kalangan mahasiswa [The level of financial literacy among students][Poster Presentation]. International Conference on Global Education V, Padang, Indonesia. https:// www.researchgate.net/publication/321049902_ tahap_literasi_kewangan_di_kalangan_ mahasiswa
- Albeerdy, M. I., & Gharleghi, B. (2015). Determinants of the financial literacy among college students in Malaysia. *International Journal of Business Administration*, 6(3), 15-24. https://doi. org/10.5430/ijba.v6n3p15
- Atkinson, A., & Messy, F. A. (2012). Results of the OECD/International Network on Financial Education (INFE) pilot study. https://doi. org/10.1787/5k9csfs90fr4-en
- Beutler, I. F., & Hibbert, J. R. (2001). The effects of financial behaviors on the quality of family life: Evidence from adolescent perceptions [Poster presentation]. 19th Annual Association for Financial Counseling and Planning Education Conference, Orlando, United States.
- Bland, M. (2015). An Introduction to Medical Statistics (4th ed.). Oxford University Press. https://doi.org/10.1007/s00362-017-0925-5
- Cameron, M. P., Calderwood, R., Cox, A., Lim, S., & Yamaoka, M. (2013). Personal financial literacy among high school students in New Zealand, Japan and the USA. *Citizenship, Social and Economics Education*, 12(3), 200-215. https:// doi.org/10.2304/csee.2013.12.3.200
- Central Bank of Brazil (2017). *Financial stability report - March 2017*. https://repositorio.banrep. gov.co/handle/20.500.12134/9785
- Chaulagain, R. P. (2015). Contribution of financial literacy to behavior. *Journal of Economics and Behavioral Studies*, 7(6(J)), 61-71. https://doi. org/10.22610/jebs.v7i6(j).618

- Chowa, G. A., Despard, M. R., & Osei-Akoto, I. (2012). Financial knowledge and attitudes of youth in Ghana. Washington University, Center for Social Development. https://www. researchgate.net/ publication/309282235_Financial_knowledge_ and_attitudes_of_youth_ in_Ghana Creswell, J. W. (2005). Educational research: Planning, conducting, and evaluating quantitative and qualitative research. Pearson. https://www. researchgate.net/publication/324451568
- Danes, S. M., & Hira, T. K. (1987). Money management knowledge of college students. *Journal of Student Financial Aid*, 17(1), Article 1. https:// doi.org/10.55504/0884-9153.1435
- Dewi, V., Febrian, E., Effendi, N., & Anwar, M. (2020). Financial literacy among the millennial generation: Relationships between knowledge, skills, attitude, and behavior. *Australasian Accounting, Business and Finance Journal,* 14(4), 24-37. https://doi.org/10.14453/aabfj. v14i4.3
- Durband, D. B., Law, R. H., & Mazzolini, A. K. (2018). *Financial counseling*. Springer. https:// doi.org/10.1007/978-3-319-72586-4
- Dwivedi, SN., Sreenivas, V., & Sundaram, K. R. (2014). Medical statistics: Principles and methods (2nd ed). Lippincott Williams & Wilkins.
- Financial Education Network. (2019). *Malaysia* national strategy for financial literacy 2019 – 2023. https://www.fenetwork.my/
- Firli, A. (2017). Factors that influence financial literacy: A conceptual framework. IOP Conference Series: Materials Science and Engineering, 180, Article 012254. https://doi. org/10.1088/1757-899x/180/1/012254
- Friedline, T. (2012). Predicting children's savings: The role of parents' savings for transferring financial advantage and opportunities for financial inclusion. *Children and Youth Services Review*, 34(1), 144-154. https://doi.org/10.1016/j. childyouth.2011.09.010
- Ghazali, M. S., Azer, I., Mohamad, S. A., Muhamad, A. N. A., & Mat, A. (2017).

Personal financial literacy among high school students in Raub Pahang, Malaysia. Journal of Engineering and Applied Sciences, 12(7), 1830-1834. https://www.researchgate.net/publication/318652423Gomulia, B., Barlian, I., & Dewi, V. I. (2020). Financial literacy for elementary school students in urban area. Frontiers Journal of Accounting and Business Research, 2(1), 1-9.

- Hannafin, M. J., & Peck, K. L. (1988) The design development and evaluation of instructional software. Macmillan Publishers. https://www. researchgate.net/publication/31736669
- Household Income and Expenditure Survey Report. (2022). Household Income & Expenditure. https://open.dosm.gov.my/dashboard/householdincome-expenditure
- Hung, A., Parker, A. M., & Yoong, J. (2009). Defining and measuring financial literacy. RAND corporation.https://doi.org/10.2139/ ssrn.1498674Hussin, N. L., & Rosli, L. S. (2019). Financial literacy among students at KUIM. Journal of Business Innovation, 4(1), 102-110.
- Huston, S. J. (2010). Measuring financial literacy. Journal of Consumer Affairs, 44(2), 296-316. https://doi.org/10.1111/j.1745-6606.2010.01170.x
- Isomidinova, G., Singh, J. S. K., & Singh, K. (2017). Determinants of financial literacy: A quantitative study among young students in Tashkent, Uzbekistan. *Electronic Journal of Business & Management*, 2(1), 61-75.
- Janor, H., Yakob, R., Hashim, N. A., Zanariah, & Wei, C. A. C. (2016). Financial literacy and invesment decisions in Malaysia and United Kingdom: A comparative analysis. *Malaysian Journal of Society and Space*, 12(2), 106-118.
- Jordà, Ò., Singh, S. R., & Taylor, A. M. (2022). Longerrun economic consequences of pandemics. *Review of Economics and Statistics*, 104(1), 166-175. https://doi.org/10.1162/rest a 01042

- Jorgensen, B. L. (2007). Financial literacy of college students: Parental and peer influences [Doctoral dissertation, Virginia Polytechnic Institute and State University]. Virginia Tech. http://hdl. handle.net/10919/35407
- Lusardi, A. (2015). Financial literacy skills for the 21st century: Evidence from PISA. *Journal of Consumer Affairs*, 49(3), 639-659. https://doi. org/10.1111/joca.12099
- Lusardi, A., & Mitchell, O. S. (2008). Planning and financial literacy: How do women fare? *American Economic Review*, 98(2), 413-17. https://doi.org/10.1257/aer.98.2.413
- Lusardi, A., & Mitchell, O. S. (2014). The economic importance of financial literacy: Theory and evidence. *Journal of Economic Literature*, 52(1), 5-44. https://doi.org/10.1257/jel.52.1.5
- Mohd Tajudin, N., Othman, R., & Zamzamir, Z. (2019). A thinking-based learning module for enhancing 21st century skills. *International Journal of Innovative Technology and Exploring Engineering*, 8(6S4) 397-401. https://doi. org/10.35940/ijitee.f1080.0486s419.
- Mokhtar, N., Dass, T. M., Sabri, M. F., & Ho, C. S. (2018). A preliminary evaluation of financial literacy in Malaysia. *Journal of Wealth Management & Financial Planning*, 5(6), 3-16. http://dx.doi.org/10.5539/ass.v11n18p49
- Monticone, C. (2010). How much does wealth matter in the acquisition of financial literacy? *Journal* of Consumer Affairs, 44(2), 403-422. https://doi. org/10.1111/j.1745-6606.2010.01175.x
- Moore, D. (2003). Survey of financial literacy in Washington State: Knowledge, behavior, attitudes, and experiences, social and economic sciences research center, Washington State University. Washington State University, 10(2.1), 4729-4722. https://doi. org/10.13140/2.1.4729.4722
- National Insolvency Department. (2019). *Bankruptcy Statistic 2019*. https://www.mdi.gov.my/index. php/legislation/statistics/75-bankruptcy/1984bankruptcy-statistic-2019

- Organisation for Economic Cooperation and Development, OECD. (2016). *PISA 2015 Results in Focus*. PISA in Focus. (Report No. 67). OECD Publishing, Paris.
- Organisation for Economic Cooperation and Development, OECD. (2023). OECD/INFE 2023 International Survey of Adult Financial Literacy. https://doi.org/10.1787/56003a32-en
- Othman, R., Aris, N. A., Mardziyah, A., Zainan, N., & Amin, N. M. (2015). Fraud detection and prevention methods in the Malaysian public sector: Accountants' and internal auditors' perceptions. *Procedia Economics and Finance*, 28, 59-67. https://doi.org/10.1016/s2212-5671(15)01082-5
- Pallant, J. (2020). SPSS survival manual: A step by step guide to data analysis using IBM SPSS. Routledge. https://doi.org/10.4324/9781003117452
- Piaw, C. Y. (2013, 2020). *Mastering research* statistics. *Malaysia*. McGraw Hill.
- Radianto, W. E. D., Efrata, T. C., & Dewi, L., (2019.) Impact of family's socio-economic context on financial literacy of young entrepreneurs. *Expert Journal of Business and Management*, 7(2), 230-235. https://www.researchgate.net/ publication/342048934
- Rai, K., Dua, S., & Yadav, M. (2019). Association of financial attitude, financial behaviour and financial knowledge towards financial literacy: A structural equation modeling approach. *FIIB Business Review*, 8(1), 51-60.https://doi. org/10.1177/2319714519826651
- Ramasamy, M., Kenayathulla, H. B., & Ghani, M. F. A. (2018). Socioeconomic factors that affect the financial literacy skills of secondary school students in Negeri Sembilan. JuPiDi: Jurnal Kepimpinan Pendidikan, 5(3), 10-33.
- Ramlan, A. M. (2017). Improving the students' mathematics learning outcomes through quantum teaching method. *Journal of Mathematics Education*, 2(1), 24-30. https://doi.org/10.31327/ jme.v2i1.258

- Rowley, J. (2014). Designing and using research questionnaires. *Management Research Review*, 37(3), 308-330. https://doi.org/10.1108/mrr-02-2013-0027
- Sabri, M. F., & Zakaria, N. F. (2015). The influence of financial literacy, money attitude, financial strain and financial capability on young employees' financial well-being. *Pertanika Journal of Social Sciences & Humanities*, 23(4).
- Said, N., Musa, M., Meng, C. C., & Yaakob, M. N. (2022). Development of a consumer mathematics (financial management) training module for secondary school mathematics teachers: Is there a need? *International Journal of Education*, *Islamic Studies and Social Sciences Research*, 7(2), 181-191.
- Santini, F. D. O., Ladeira, W. J., Mette, F. M. B., & Ponchio, M. C. (2019). The antecedents and consequences of financial literacy: A meta-analysis. *International Journal of Bank Marketing*, 37(6). 1462-1479. https://doi. org/10.1108/ijbm-10-2018-0281
- Sohn, S. H., Joo, S. H., Grable, J. E., Lee, S., & Kim, M. (2012). Adolescents' financial literacy: The role of financial socialization agents, financial experiences, and money attitudes in shaping financial literacy among South Korean youth. *Journal of Adolescence*, 35(4), 969-980. https://doi.org/10.1016/j. adolescence.2012.02.002
- Susanti, N., Rahmayanti, R., Padmakusumah, R. R., & Susanto, R. (2019). Factors affecting students' financial literation: A study on Widyatama University, Indonesia. Universal Journal of Educational Research, 7(5), 7-14. https://doi. org/10.13189/ujer.2019.071502
- Susilowati, N., Kardiyem, K., & Latifah, L. (2020). The mediating role of attitude toward money on students' financial literacy and financial behavior. *JABE (Journal of Accounting And Business Education)*, 4(2), 58-68. http://dx.doi. org/10.26675/jabe.v4i2.6622

- Thomas, B., & Subhashree, P. (2020). Factors that influence the financial literacy among engineering students. *Procedia Computer Science*, 172, 480-487. https://doi.org/10.1016/j. procs.2020.05.161
- Usman, M., Ali, Y., Riaz, A., Riaz, A., & Zubair, A. (2020). Economic perspective of coronavirus (COVID-19). *Journal of Public Affairs*, 20(4), Article e2252. https://doi.org/10.1002/pa.2252
- van Dalen, H. P., & Henkens, K. (2020). The COVID-19 pandemic: Lessons for financially fragile and aging societies. Work, Aging and Retirement, 6(4), 229-232. https://doi. org/10.1093/workar/waaa011
- Whitebread, D., & Bingham, S. (2013). Habit formation and learning in young children. London Money Advice Service. https://altorwealth.com/ wp-content/uploads/2024/04/the-money-adviceservice-habit-formation-and-learning-in-youngchildren-may2013.pdf



SOCIAL SCIENCES & HUMANITIES

Journal homepage: http://www.pertanika.upm.edu.my/

Internet Use and Social Participation of Young Adults: Evidence from Rights Safeguard Online in China

Yang Zhang* and Yeqin Song

School of International Relations and Public Affairs, Fudan University, 200433 Shanghai, China

ABSTRACT

The digitalization process in developing countries is accelerating, and the Internet has become a medium for connecting politics, society, and citizens' lives. Previous studies have explored the positive connections between internet growth and citizens' social participation, but the mechanisms of effects have not been revealed. For young adults, safeguarding rights online is the most common form of social participation in the digital era. In this study, we provided an analytical framework on the impact of internet use on young adults' rights to safeguard online based on the public sphere theory. Using data from 1,343 young adults in China, we examined the influence of internet use on youths' intention to safeguard their rights online and the mediating role of functional perceptions. The results showed that Internet use was positively associated with young adults' intention to safeguard their rights online, perceptions of three internet functions, which are resource acquisition, issue discussion, and fairness promotion, mediated this association, and the mediating role of internet function perceptions was more significant in participation in activities organized by others than in self-initiated rights safeguard. This study reveals the intrinsic mechanism of internet use to social participation, and we argued that the public sector in developing countries should be aware of the influence of the Internet on social participation and take reasonable measures to ensure that young adults effectively and legally engage in digital platforms.

ARTICLE INFO

Article history: Received: 07 April 2023 Accepted: 29 February 2024 Published: 14 June 2024

DOI: https://doi.org/10.47836/pjssh.32.2.20

E-mail addresses: dale_jiang@163.com (Yang Zhang) 1403509125@qq.com (Yeqin Song) *Corresponding author *Keywords:* Cyber-space governance, internet use, public sphere, rights safeguard, social participation

INTRODUCTION

The boom of information communication technology and policy support has given rise to a wide range of internet users in developing countries (Zhang et al., 2017). As of June 2023, the netizens in China reached 1.079 billion, with an internet penetration rate of 76.4%, and more than half of them were young adults. For young adults, the Internet has effectively influenced their beliefs, attitudes, and behaviors by disseminating information and transforming the media environment (Dutton & Reisdorf, 2019; Shin & Lwin, 2017). Meanwhile, the rapid development of the economy and society has resulted in various conflicts of interest affecting young adults' cognition and behaviors on the Internet (Boulianne & Theocharis, 2020; Zheng et al., 2019). The emergence of rights safeguard online is one of the consequences of internet popularization (Benney, 2007; Ruess et al., 2023) that has influenced the network governance and social order (Biao, 2012; Huhe et al., 2018). In this study, rights safeguard online refers to citizens defending their legal rights and interests through the Internet (Benney, 2007; Cooper et al., 2013; Lorentzen & Scoggins, 2015; Wong, 2011), which can be seen as a particular type of social participation. It involves political rights, as well as social, economic, and cultural rights.1

With the improvement of the educational level and the continuous enhancement of civic awareness, young adults have become a group with a strong sense of social responsibility and political participation (Earl et al., 2017; Oyedemi, 2015). They pay more attention to civil rights and are inclined to take individual or collective actions to protect rights (Lorentzen & Scoggins, 2015). Thus, they may initiate rights safeguard actions when their rights are violated or support others' rights safeguard activities because of responsibilities. Traditional ways of protecting rights are often carried out, such as court prosecutions and petitioning through letters and visits system² offline (Pils, 2016). The Internet offers different channels for safeguarding the rights of young adults in a fast, open, anonymous, and interactive way (Chan et al., 2012).

However, some governments have applied existing repressive laws to the cyber domain and have adopted information technology to monitor online "voices." In recent years, the Chinese government has also been concerned with online opinions or social participation and has been paying more attention to the "voices" on the Internet by taking measures such as supervision or response (Chan et al., 2012; Chen, 2017). According to Freedom in the World 2023, global freedom has declined for 17 consecutive years. The Internet Freedom Score for China is nine, and the Civil Rights Score is 11.

According to the public sphere theory, the Internet is a virtual space associated with democracy, participation, and rights (Batorski & Grzywińska, 2018; Fenton, 2018; Mirra & Garcia, 2017). It raises a

¹ Rights safeguarding online is a broad concept encompassing many activities. For instance, when Chinese citizens are cheated during the consumption process and cannot obtain compensation, they often seek support from others by making the incident public on the Internet to protect their interests.

² In China, with the letters and visits system, citizens can visit local or national government offices in person. The system is intended to allow citizens to seek redress for injustices, resolve disputes, and safeguard rights.

topic that deserves attention: Does Internet use impact young adults' intention to initiate or participate in online rights defense? If so, is there any inner mechanism? Some studies have found that young people's online activities are affected by several factors, including technology, membership in organizations, and internet resources (Anduiza et al., 2010; Bakker & de Vreese, 2011; Zhang & Chia, 2006). However, the mechanism has not yet been fully revealed. Discussions of Internet use and its role in strengthening democracy and political participation often return to Habermas' theory of the public sphere (Fenton, 2018). This study used a multiple mediation model to explore how the perception of internet functions mediates the relation between internet use and online rights defense. The results will provide a new perspective to understanding young adults' social participation in the information era.

LITERATURE REVIEW

The Internet, Social Participation and Democratization

Can the Internet reinvent democracy? There are three mutually extruding conclusions and perspectives in the relevant literature on the political Internet. The first view is that the Internet can mobilize social participation. The Internet has contributed to the development and strength of social movements in many ways (Jiang et al., 2019). It is seen as a means of reinvigorating youth political knowledge and participation, such that using the Internet significantly increases young adults' political knowledge, improving the possibility of voting participation (McAllister, 2016). Digital networks can enable individuals and organizations to make their voices heard, raise public awareness and mobilize collective action (Batorski & Grzywińska, 2018; Huhe et al., 2018). Against the backdrop of a marked decline in formal political participation in some countries, such online forms of participation hold the promise of greater participation for demographic groups that are politically underrepresented, like women, ethnic minorities, youth, and less educated and low-income individuals (Ruess et al., 2023). In this context, the Internet provides an alternative channel where people can express their opinions and articulate their issues in relative safety (Tang & Sampson, 2012).

The second perspective argues that the Internet has a limited role in facilitating democratic behaviors such as social participation, for example, rights defense and that it can even depress democratization (Chae et al., 2019; Shao & Wang, 2017). Although the citizens in East and Southeast Asia are experiencing dramatic internet changes, internet control appears to be increasingly prevalent due to political, cultural, and other factors, and digital networks are monitored by ruling elites to manipulate public opinion and dissuade civic activists (Lee, 2017). The rise of public discourse on the Internet may be viewed as dissent in some countries, and spontaneous and unauthorized public online activity is suppressed and restricted (Tang & Sampson, 2012). More studies have shown why internet use reduces civic and social engagement simply in terms of the purpose of internet use - internet use is largely motivated by entertainment or comprehensive personal demands (Cao et al., 2011; Chae et al., 2019).

The last view is similar to the previous conclusion in that they argue that internet use is not linked to individual social participation, nor is it related to the democratization process. Some scholars have found that citizens only engage in superficial collective actions on the Internet, but these collective actions are not politically charged and do not have a democratic effect (Chae et al., 2019; Momen, 2020). In other words, these citizens are unwilling to invest significant efforts to implement meaningful change, such as participating in rights safeguards (Kristofferson et al., 2014).

An important reason for this divergence of views is that how the Internet affects social participation and democratic action remains understudied. This issue is critical in explaining the mechanisms by which technology provides new capabilities for individual citizens to intervene in the public sphere. Youth groups and online rights activism have been addressed in a considerable body of literature (Bosch, 2017; Earl et al., 2017; Kamau, 2017). Youth are the best net users, and deficits in material, motivational, and skill acquisition are the least common among young people (Hirzalla et al., 2011). When they engage in collective activities, they are not dependent on political and governmental news; instead, benefiting from the technological capabilities of social interaction, they are able to engage in politics through interpersonal discussions, gaining access to the psychological resources of participation, such as self-efficacy for politics (Lee, 2017). The current study only describes them descriptively but has not been examined through data analysis, especially in China.

Hypotheses Building

In most developing countries, including China, the awakening of public awareness of rights has increased people's enthusiasm for rights safeguards and has triggered realistic rights defense actions, like strikes, participation in public protests, and increased willingness to take legal actions against strong power (Lorentzen & Scoggins, 2015). The growing political role of the Internet has rekindled academic debates about the impact of information and communication technologies on the public sphere and democracy (Batorski & Grzywińska, 2018). Rights safeguarding online is an emerging method for citizens to use the Internet to protect rights (Lorentzen & Scoggins, 2015), an inevitable outcome of the digital age.

With the rapid spread of the Internet in China, users can quickly obtain large amounts of unofficial or alternative information on public issues, which not only liberates the minds of netizens but also promotes social participation (Cheng et al., 2015). The information obtained on social media may encourage young adults to share information, express opinions, and even try to support the protests by calling on their social media networks (MacAfee & De Simone, 2012; Shiratuddin et al., 2017; van Laer & van Aelst, 2010). Young adults can appeal to the public and government to focus on the rights of victims or vulnerable groups through the Internet, which might result in rights defense (Tang et al., 2016). Therefore, the advantage of the Internet on rights defense is that it provides convenient and interactive channels and strengthens young adults' rights safeguard intention, further developing into rights defense actions. Specifically, the Internet has brought opportunities for young people's social participation and collective action, thereby becoming a beneficial tool for organizing and coordinating actions (van Laer & van Aelst, 2010). The use of social media could encourage users to generate emotional resonance and even lead to group protests on specific issues (García-Galera et al., 2014; Shao & Wang, 2017; Ye et al., 2017). It may quickly attract individuals to gather, participate in an event, and take more action (Kavanaugh et al., 2005). Moreover, the Internet allows young individuals to hide their identity or have anonymity when participating in rights safeguards (Tedesco, 2007). Thus, young adults can initiate actions online to defend or support others' rights and safeguard activities in the extensive virtual social networks shaped by the Internet. Accordingly, we propose the following hypotheses.

H1: The use of the Internet has a positive effect on young adults' intention to rights online.

H1a: The use of the Internet has a positive effect on young adults' intention to initiate rights safeguards online.

H1b: The use of the Internet has a positive effect on young adults' intention to participate in rights safeguarding online.

The public sphere is often defined as "a network for the exchange of information and ideas; In this process, the flow of information disseminated is filtered and synthesized, thereby merging into a set of public opinions on a specific topic." According to Habermas' public sphere theory, the Internet plays a key role in the communication structure of the public sphere (Regilme, 2018). Several studies consider how digital media are fundamentally changing the public sphere and expanding opportunities for expression and action for young citizens, arguing that with the help of the Internet, young people are using knowledge, skills and identity to understand and participate in life in the public sphere (Mirra & Garcia, 2017).

Taking Facebook as an example, (Batorski & Grzywińska, 2018) make an empirical analysis of the network public sphere from three dimensions: structural, representational and interactive. Social networking sites are believed to promote young people's participation in rights protection in various ways, such as promoting discussion and forming consensus (Mirra & Garcia, 2017). In view of the above, we explore the online rights safeguard intention and behaviors of young adults from the three dimensions, i.e., resource acquisition, issue discussion, and fairness promotion functions based on the public sphere theory.

First, the previous research reveals that the popularity of the Internet has made it easier for young adults to obtain the information resources they want and promoted their social participation (Anduiza et al., 2010; Ekström & Östman, 2015). Second, unlimited and active discussion in public space is necessary for civil society, and an apparent positive relationship between online social interaction and expressive participation can be observed (Kahne et al., 2013). Many studies on the Internet have focused on the potential of social networking sites and media to provide a platform for democratic communication (Jha & Kodila-Tedika, 2020; Kamau, 2017). Most young adults use internet-based tools for public affairs discussion purposes, especially videos, social networks, and citizen participation websites that target young people. They prefer to conduct democratic communications and discussions through online media (Boulianne & Theocharis, 2020).

Third, the rapid development of information technology has broadened the scope of public access to information and further improved social transparency (van Praag, 2011; Zhu et al., 2020). Internet use has dramatically affected individuals' perceptions of social fairness and increased their trust in the Internet to promote social fairness. The social fairness individuals perceive is crucial to their psychology, decision-making, and behaviors (Tao, 2015). Young adults are willing to use social media on the Internet to organize online activities and even set up various volunteer associations to safeguard social fairness, justice, and the interests of disadvantaged groups (Dong et al., 2017). We thus propose the following intrinsic mechanism hypotheses:

H2: The perception of Internet functions mediates the association between the use of the Internet and the intention to safeguard rights online.

H2a: Internet use influences youths' intention to safeguard rights online by affecting their perceptions of resource acquisition functions.

H2b: Internet use influences youths' intention to safeguard rights online by affecting their perceptions of public issues discussion functions.

H2c: Internet use influences youths' intention to safeguard rights online by affecting their perceptions of fairness promotion functions.

METHODS

Data

The data used in this study were obtained from the 2017 Chinese General Social Survey (CGSS2017), one of the most important data sources of Chinese society, which included online rights defense of the youth in the survey for the first time. According to World Health Organization (WHO) criteria, the population is divided according to age into minors (0–17 years old), young adults (18–44 years old), middle-aged people (45–59 years old), and older people (60 years old and older) (Hu et al., 2020). Some previous studies also define young adults aged 18–44 (Jing et al., 2021; Qiu et al., 2020), which is consistent with the reality of Chinese society. Thus, 1,343 valid samples are taken after considering the control variables and demographic characteristics.

Measurements

Independent Variable. The CGSS2017 data contains questions on young adults' use of the Internet. Most studies use frequency to measure internet use to reflect individual differences (Szymkowiak et al., 2021). We took the frequency of internet use by young adults as an independent variable, measured by "In the past year, how often did you use the internet?" A five-point Likert scale was used to measure this item.

Dependent Variables. Two items were related to the intention of rights safeguarding online, "If your rights are violated, would you consider using the internet to defend your rights?" and "Will you participate or support online rights defense actions initiated by others?" These correspond to the intention to initiate online rights defense and participation in online rights defense. Regarding data processing, the value of online rights defense was set to 1, and the value of not choosing online rights defense was 0.

Mediating Variables. The Internet's issue discussion, resource acquisition, and fairness promotion functions were chosen as mediating variables to explain the influence mechanism of Internet use on the young adults' online rights defense intention. The items in CGSS2017 were "Do you agree that the internet enables more people to discuss government affairs?", "Do you agree that the internet will enable more people to gain access to more social resources?" and "Do you agree the internet can promote social equity?" Point "1" means they agree with the functions of the Internet for public affairs discussion, resource acquisition, or promoting social fairness functions, and point "0" means they do not agree with the functions of the Internet.

Control Variables. The control variables may affect young adults' intention to defend their rights on the Internet. In this study, the age of the youth was coded as a continuous variable. Gender was coded as "0" for "female" and "1" for "male ."Educational level was divided into three grades (1 =junior school and below; 2 = high school; 3 = college degree or above). Marital status was coded as "1" for "married" and "0" for "not married ."Hukou was coded as "1" for "non-agricultural (urban)" and "0" for "agricultural (rural) ."Political status ranged from 1 to 3 (1 = public; 2 = members of)the Chinese communist youth league; 3 =members of the democratic party and the Communist Party of China). The following items measured social fairness and trust: "Do you agree that most people in this

society can be trusted?" and "Do you think the society is fair?" The five-point Likert scale was used to measure these two items.

RESULTS

Descriptive Analysis

Table 1 shows that the average age of the samples is 32.53 years old, and females accounted for about 52.42% of the total.

Table 1Descriptive statistics of main variables

Moreover, 8.27% of the respondents have never used the Internet in the past year, while 51.15% use it often. Among the respondents, 41.62% intended to initiate online rights safeguards when their rights are violated. In comparison, 40.52% would participate in online rights safeguard activities when the rights of others are being violated.

Types	Variables	n	Percentage
	Internet use		
	1 = Never	111	8.27%
Independent	2 = Rarely	54	4.02%
variable	3 = Sometime	93	6.92%
	4 = Often	398	29.64%
	5 = very frequently	687	51.15%
	Age		
	18–29	469	34.92%
	30–39	560	41.70%
	40-44	314	23.38%
	Gender		
	0 = female	704	52.42%
	1 = male	639	47.58%
	Education level		
	1 = junior school and below	538	40.06%
	2 = high school	302	22.49%
Control	3 = college degree or above	503	37.45%
variables	Hukou		
	0 = agricultural (rural)	837	62.32%
	1 = non-agricultural (urban)	506	37.68%
	Marital status		
	0 = not married	372	27.70%
	1 = married	971	72.30%
	Political status		
	1 = public	1,049	78.11%
	2 = members of the Chinese communist youth	1,049	13.10%
	league	118	8.79%
	3 = members of the party (includes Democratic)	110	0.7970

Pertanika J. Soc. Sci. & Hum. 32 (2): 783 - 804 (2024)

Internet Use and Social Participation of Young Adults

Types	Variables	n	Percentage
	Social trust		
	1 = strongly disagree	79	5.88%
	2 = disagree	293	21.82%
	3 = neutral	180	13.40%
	4 = agree	705	52.49%
	5 = strongly agree	86	6.40%
	Social fairness		
	1 = unfair	107	7.97%
	2 = somewhat unfair	405	30.16%
	3 = neutral	290	21.59%
	4 = somewhat fair	512	38.12%
	5 = fair	29	2.16%
	Resource acquisition function of the Internet		
	0 = disagree	339	26.08%
	1 = agree	961	73.92%
Madiatina	Issue discussion function of the Internet		
Mediating variables	0 = disagree	466	35.87%
variables	1 = agree	833	64.13%
	Fairness promotion function of the Internet		
	0 = disagree	647	50.51%
	1 = agree	634	49.49%
	Intention to initiate rights safeguard online		
	0 = no	784	58.38%
Domondont	1 = yes	559	41.62%
Dependent variables	Intention to participate in rights safeguard		
variables	online	799	59.49%
	0 = no	544	40.51%
	1 = yes	211	10.0170

Table 1 (Continue)

Source: Authors' work

Regression Analysis

Table 2 shows the results of the logit regression model about the effects of internet use on young adults' intention to safeguard their rights online. Model 1 estimates the correlation between internet use and the intention to initiate online rights safeguard. The coefficient is significantly positive ($\beta =$ 0.462, *p* < 0.010), indicating that the higher the frequency of internet use, the more likely young individuals will initiate online rights safeguard activities. Model 2 shows that after controlling for covariates, internet use still significantly influenced the intention to initiate online rights defense ($\beta = 0.248$, p < 0.010). The results also show that age and education level significantly correlate with young adults' intention to initiate rights safeguards online, indicating that as they grow older, their intention to initiate online rights safeguards may follow a downward trend. In contrast, those with high education levels are more inclined to initiate online rights protection activities.

The dependent variable in Model 3 is the young adults' intention to participate in others' online rights defense activities. The result reveals that the more frequently young adults use the Internet, the stronger their intention to participate in or support others' online rights defense activities ($\beta = 0.464$, p < 0.010). The results remain significant after controlling for covariates ($\beta = 0.232$, p < 0.010). Education level still positively affected the intention to participate in online rights defense, while age and this intention are negatively correlated.

Table 2

		Intention to initiate rights safeguard online		Intention to participate in rights safeguard online	
Variables					
		Model 1	Model 2	Model 3	Model 4
Internet use		0.462***	0.248***	0.464***	0.232**
Internet use		(0.056)	(0.063)	(0.056)	(0.064)
Age			-0.037***		-0.050***
Age			(0.011)		(0.011)
Gender	Male		-0.044		0.006
Gender	ividic		(0.120)		(0.121)
	High school		0.489***		0.558***
Educational	ingli senooi		(0.169)		(0.171)
level	College degree		0.761***		0.949***
	or above		(0.175)		(0.177)
TT 1	Non-agricultural		0.063		-0.066
Hukou	(urban)		(0.137)		(0.139)
Marital	M		-0.160		0.060
status	Married		(0.177)		(0.179)
	Members of the		0.070		0.0(4
D 11/1 1	Chinese communist		0.070		-0.064
Political	youth league		(0.202)		(0.202)
status	Members of the party		-0.017		0.036
	(includes Democratic)		(0.216)		(0.217)
G			0.041		0.102*
Social trust			(0.060)		(0.060)
Social			0.063		-0.008
fairness			(0.061)		(0.061)
Constant		-2.286***	-0.839*	-2.352***	-0.627
		(0.249)	(0.509)	(0.253)	(0.513)
N		1,343	1,343	1,343	1,343
Pseudo R ²		0.045	0.044	0.088	0.095

Notes: Standard errors in parentheses; *** p < 0.010, ** p < 0.050, * p < 0.100. *Source*: Authors' work In order to enhance the validity and reliability of regression results, we used two approaches to do the robustness check. First, drop those who never use the Internet (N = 111) and run the regression analysis. Second, the independent variable was substituted by assessing the frequency of internet usage among young individuals using the item "In the past year, how often did you engage in online activities during your leisure time?" The findings indicate that increased internet usage increases the likelihood of young individuals initiating or participating in online rights defense.

Mediating Effects

First, we explored the relationship between independent and mediating variables. This study established three regression models to examine whether internet use is associated with the perceptions of internet functions. Covariates are controlled in all three models. The results in Table 3 show that internet use positively affects young adults' perception of internet functions. When using the Internet more frequently, young adults are more likely to perceive the Internet's function of resource acquisition ($\beta = 0.226$, p < 0.010), issue discussion ($\beta = 0.108$, p <0.100), and fairness promotion (= 0.132, p <0.050).

Tal	bl	e	3
Ta	bl	e	3

	Perception of Internet functions						
Variables	Model 1	Model 2	Model 3				
	Resource acquisition	Issue discussion	Fairness promotion				
The internet use	0.226***	0.108*	0.132**				
	(0.060)	(0.056)	(0.057)				
Control variables	controlled	controlled	controlled				
Constant	-1.034*	-0.293	-2.032***				
	(0.535)	(0.492)	(0.490)				
Ν	1,300	1,299	1,281				
Pseudo R-squared	0.029	0.025	0.018				

Logit regression of the internet use on the perception of internet functions

Notes: The covariates were controlled. Standard errors in parentheses; *** p < 0.010, ** p < 0.050, *p < 0.100. *Source:* Authors' work

Second, we explored the indirect effect of mediating variables in models. The dependent variable of the first three models is the intention of the youth to initiate online rights protection activities. In comparison, the latter three models represent the intention to participate in online rights protection activities others organize.

Based on the results presented in Table 4, in Model 1, a significant positive relationship between the resource acquisition function and the youth's intention to initiate rights

Variable	Intention to initiate online			Intention to participate in online			
		rights defense	2		е		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	
The	0.185***	0.210***	0.201***	0.164**	0.198***	0.185***	
Internet use	(0.065)	(0.065)	(0.065)	(0.066)	(0.066)	(0.067)	
Resource	0.594***			0.797***			
acquisition	(0.142)			(0.147)			
Issues		0.568***			0.761***		
discussion		(0.128)			(0.131)		
Fairness			0.534***			0.662***	
promotion			(0.121)			(0.123)	
Control variables	Controlled	Controlled	Controlled	Controlled	Controlled	Controlled	
Constant	-0.810	-0.974*	-0.618	-0.648	-0.814	-0.383	
	(0.521)	(0.523)	(0.521)	(0.528)	(0.530)	(0.528)	
Ν	1,300	1,299	1,281	1,263	1,300	1,299	
Pseudo	0.087	0.090	0.087	0.102	0.106	0.101	
R-squared							

Table 4
<i>Logit regression of mediation effects</i>

Notes: Standard errors in parentheses; *** p < 0.010, ** p < 0.050, * p < 0.100.

Source: Authors' work

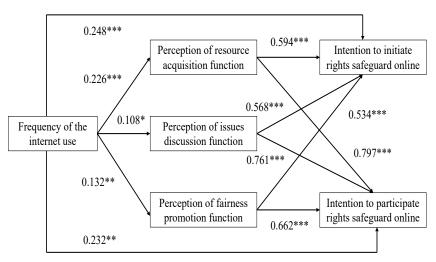


Figure 1. Results of the mediating analysis *Source:* Authors' work

safeguard online ($\beta = 0.594$, p < 0.010) can be observed. Models 2 and 3 also prove that the issue discussion and fairness promotion functions of the Internet have significant effects on the youth's intention ($\beta = 0.568$, p < 0.010; = 0.534, p < 0.010). Meanwhile,

Models 4 to 6 verify the significant relationships between the perception of the three functions of the Internet and the intention of the youth to participate in online rights safeguard activities ($\beta = 0.797$, p < 0.010; $\beta = 0.761$, p < 0.010; $\beta = 0.662$, p < 0.010). From the above model results, we can conclude that the perception of internet functions partially mediates internet use and the youths' intention to initiate rights safeguard online (Figure 1).

Robust Examination of The Mediating Effects

The Sobel tests were applied to further examine the robustness of this study. Table 5 shows that the indirect effect is significant. The results indicate that the perception of resource acquisition, issue discussion, and fairness promotion functions of the Internet

positively influenced the young adults' intention to initiate rights safeguard online actions. The mediating effects are 14.93%, 7.94%, and 9.17%, respectively, which means the mediating effects of the perception of the internet resource acquisition function are more significant than the other two. Models 4 to 6 also suggest that perception of the Internet's function mediates the positive association between Internet use and young adults' intention to participate in online rights safeguard activities. The mediating effects are 21.63%, 11.28%, and 12.47%, respectively. The Sobel tests verified the conclusion that the mediating effect of the perception of internet functions appeared in the relationship between internet use and young adults' intention to safeguard rights online.

T 1 1 .			.			
Independent variable	Internet Use					
Dependent variable	Intention to initiate online rights defense			Intention to participate in online rights defense		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Mediating variable	Resource acquisition	Issue discussion	Fairness promotion	Resource acquisition	Issue discussion	Fairness promotion
Sobel statistic	0.006*** (0.002)	0.003* (0.002)	0.004*** (0.002)	0.009*** (0.012)	0.004** (0.002)	0.005** (0.002)
Indirect effect	0.006** (0.002)	0.003* (0.002)	0.004*** (0.002)	0.009*** (0.012)	0.004** (0.002)	0.005** (0.002)
Proportion that is mediated	14.93%	7.94%	9.17%	21.63%	11.28%	12.47%
Ν	1300	1299	1281	1300	1299	1281

Table 5

Notes: Covariates were controlled. Standard errors in parentheses; *** p < 0.010, ** p < 0.050, * p < 0.100. *Source:* Authors' work

Considering that the bootstrap method has a relatively high statistical effect, the conditional indirect effects of 95% confidence intervals (CIs) were obtained using the bootstrap method. The mediating paths constructed in Table 6 show the indirect effects of internet use through the perception of three internet functions on young adults' intention to safeguard their rights online. After controlling for covariates, we found the indirect paths (Table 6) significant (the 95% confidence interval for the indirect effect did not include zero). The indirect effects through the perception of internet resource acquisition function on the young adults' intention to initiate online rights safeguard were significant, with a point estimate of 0.006 and a 95% bias-corrected confidence interval excluding zero (0.002 to 0.010). Similarly, the indirect effects of the other mediating variables had a confidence interval excluding zero, indicating a statistically significant partial mediation.

Table 6Bootstrap analysis of multiple mediation effects

Madiatina matha	Indirect	Model	Model summary		BC 95% CI	
Mediating paths	effects	SE	Z-score	Lower level	Upper level	
$UI \rightarrow RA \rightarrow TI$	0.006***	0.002	2.97	0.002	0.010	
$\mathrm{UI} \rightarrow \mathrm{ID} \rightarrow \mathrm{TI}$	0.003**	0.002	1.75	0.001	0.007	
$\mathrm{UI} \rightarrow \mathrm{FP} \rightarrow \mathrm{TI}$	0.004**	0.002	2.13	0.001	0.008	
$\mathrm{UI} \rightarrow \mathrm{RA} \rightarrow \mathrm{TP}$	0.007***	0.003	3.10	0.003	0.013	
$\text{UI} \rightarrow \text{ID} \rightarrow \text{TP}$	0.004*	0.002	1.91	0.001	0.009	
$\mathrm{UI} \rightarrow \mathrm{FP} \rightarrow \mathrm{TP}$	0.005***	0.002	2.19	0.001	0.010	

Notes: N = 1,379. Bootstrap sample repeated times = 1000. Covariates were controlled. *** p < 0.010, ** p < 0.050, * p < 0.100; UI = the internet use. TI = intention to initiate rights safeguard online. TP = intention to participate in rights safeguard online. RA = resource acquisition function. ID = issues discussion function. FP = fairness promotion function.

Source: Authors' work

DISCUSSION

The relationship between the Internet and democracy has received much attention in various studies, especially in a country such as China, which is undergoing a profound transformation in the fields of technology, economy and culture (Li & Shang, 2020; Shao & Wang, 2017; Wandaogo, 2022). The development of China's digital society has brought about two phenomena. The first is the growth and popularization of network technology, with most young people regularly using the Internet (Huhe et al., 2018). The second is the increase in civic awareness, which leads to a wider prevalence of democratic actions on the Internet (Lorentzen & Scoggins, 2015), such as online rights defense. According to the public sphere theory, the Internet provides a platform for youth to express their opinions, making resources such as information and attention within reach, facilitating the formation of a public space or a public opinion field, and stimulating youth's social participation behavior (Anduiza et al., 2009; Boulianne & Theocharis, 2020). Young adults who are willing to express their opinions actively safeguard their rights online. Not only do they initiate rights protection online, but they also participate in or support the actions of others.

First, the Internet is not simply an essential source of information and a means for citizens to act collectively; it also provides an open and free space for citizens to discuss online public events, which may explain why public sphere theory is appropriate for understanding young adults' online rights defense (Shao & Wang, 2017). As an instrumental and emerging communication channel, the Internet enables organizations and individuals to break through barriers of geographic distance, censorship, and personal responsibility (Pendry & Salvatore, 2015; Van Deursen & Helsper, 2018). The Internet can play a role in reducing the costs of informing, mobilizing, and engaging in the struggle for rights safeguards (Lee, 2015). Young adults are, therefore, more inclined to take rights online when necessary.

Second, the perception of internet functions mediates the effect of internet use on the intention to defend rights online, and this finding expands the current literature on the Internet and democracy. Those with a relatively high frequency of internet use can better recognize the functions of the Internet, which in turn would inspire their intention to take action to defend their rights online. According to the results of the mediating test, the perception of the Internet's resource acquisition function has the strongest mediation explanatory effect on the youths' intention to start rights safeguard online, suggesting that their capacity to mobilize Internet resources will have a significant impact on the likelihood of their engaging in active rights safeguard behaviors. Discussions on government affairs allow young people to participate in politics (Freelon, 2010; Ye et al., 2017). Young individuals can post their views and opinions on events and government affairs on the Internet when their rights are violated, which will attract the attention of the public and relevant government departments (Wong, 2011).

Promoting social fairness on the Internet is also an essential mediating factor for young people to become initiators of rights safeguard activities. This contradicts some studies that have concluded that internet use reduces citizens' sense of social fairness (Zhu et al., 2020). The recognition of this function indicates that these young people believe the Internet can play a role in rights safeguard actions, significantly aiding them in adequately resolving the problems of rights infringement and achieving social fairness.

CONCLUSION

Some studies have argued that the impact of the Internet in promoting democracy has been exaggerated (Bakker & de Vreese, 2011; Chae et al., 2019; Gunitsky, 2015). More scholars have called for a rethinking of the role of the Internet. Despite the serious challenges to social participation on the Internet, this is the case for transitional democracies and even mature democracies worldwide (Lee, 2017; McAllister, 2016; Momen, 2020). Our conclusion finds that the Internet still significantly promotes rights safeguarded online for citizens, especially youth, in developing countries. The more frequently the Internet is used, the stronger the intentions of young people to take rights safeguard actions online when faced with rights violations. Internet use also enhances the intention of young adults to participate or support others in their rights to safeguard online actions. The perception of resource acquisition, issue discussion, and fairness promotion functions of the Internet positively influenced the young adults' intention to initiate and participate in rights safeguarding online. It is consistent with the findings of previous studies (Dong et al., 2017; Jiang et al., 2019). The Internet is capable of fostering democratic values among its users, expanding access to a plurality of information and perspectives, and allowing new modes of political communication to be realized (Huhe et al., 2018).

Implication

This study contributes to the theory and

literature on democratic behavior and social participation among young adults by providing evidence on the role of functional internet perception in internet use and rights safeguarding online. Specifically, we make three main contributions to theoretical understanding and innovation. Firstly, while previous research has focused more on the negative effects of internet use on the psychology and behavior of young people (Ak et al., 2013; He et al., 2021; Liu et al., 2020), this study shifts the focus onto a typical form of social participation rights safeguard online and explores the broader democratic implications of China's internet development based on public sphere theory. Secondly, this study constructs an analytical framework for the relationship between internet use and rights safeguarded online. It introduces the mediating variable of perceived Internet functionality to reveal the mechanisms and relationships between them, thus enriching the literature on the impact of the Internet on individuals. Thirdly, in contrast to existing literature (Aarons & Rona, 2016; Goodwin-De Faria & Marinos, 2012; Tang et al., 2016; Wong, 2011), this study distinguishes between spontaneous and participatory rights safeguard online, further expanding the typology of social participation in the digital age, further expanding the types of social participation in the digital age, in which the Internet is used as a public sphere (Batorski & Grzywińska, 2018; Fenton, 2018; Regilme, 2018).

In the democratic era, the Internet contributes to pluralism and the public

sphere and triggers fundamental value changes for citizens (Huhe et al., 2018; Momen, 2020). As a result, incidents involving online rights defense are expected to become more frequent. Our findings highlight the imperatives of improving information literacy (Karim et al., 2021) and safeguarding the legal rights of young adults (Xu et al., 2017). This study, therefore, provides some practical implications for the public sector related to education and cyberspace governance. Educational institutions such as schools should improve young adults' ability to recognize and evaluate online information (Karim et al., 2021). The government should protect young adults from infringement of their rights and interests as well as provide practical guidance and appropriate solutions in democratic participation activities (Medaglia & Zhu, 2017; Zeng et al., 2017). In addition, it is also necessary to improve the system and mechanism of online rights defense from the aspects of public policies, laws and regulations.

Limitation and Recommendation

Some limitations should be noted. First, considering the nature of the cross-sectional design data set, we cannot analyze trends over time in the same sample and make long-term comparisons. In future works, a longitudinal or experimental design is useful for collecting data over multiple years and examining whether young adults' online rights safeguard intention has been affected. Second, the sample size is relatively small because of the secondary data, which affects the generalization of the conclusion. Thus, the sample size can be expanded for analysis. Third, other environmental variables may moderate the relationship between internet use and the intention of the youth to defend their rights online, such as the type of area in which the young adults live. Thus, exploring the moderating roles of these variables is necessary.

ACKNOWLEDGMENTS

The authors acknowledge the Program for the Advancement of Research on Conflict and Collaboration (PARCC) at Maxwell School of Citizenship and Public Affairs at Syracuse University, U.S. for supporting this paper. This paper is funded by The Program of China Scholarship Council (CSC) and The Distinguished Ph.D. Student Program, School of International Relations and Public Affairs, Fudan University, China.

REFERENCES

- Aarons, L., & Rona, G. (2016). State responsibility to respect, protect and fulfill human rights obligations in cyberspace. *Journal of National Security & Policy*, 8, 503–530.
- Ak, Ş., Koruklu, N., & Yılmaz, Y. (2013). A study on turkish adolescent's internet use: Possible predictors of internet addiction. *Cyberpsychology, Behavior, and Social Networking, 16*(3), 205– 209. https://doi.org/10.1089/cyber.2012.0255
- Anduiza, E., Cantijoch, M., & Gallego, A. (2009). Political participation and the internet: A field essay. *Information, Communication* & Society, 12(6), 860-878. https://doi. org/10.1080/13691180802282720
- Anduiza, E., Gallego, A., & Cantijoch, M. (2010). Online political participation in Spain: The impact of traditional and internet resources.

Journal of Information Technology and Politics, 7(4), 356-368. https://doi. org/10.1080/19331681003791891

- Bakker, T. P., & de Vreese, C. H. (2011). Good news for the future? young people, internet use, and political participation. *Communication Research*, 38(4), 451–470. https://doi. org/10.1177/0093650210381738
- Batorski, D., & Grzywińska, I. (2018). Three dimensions of the public sphere on Facebook. *Information, Communication & Society, 21*(3), 356–374. https://doi.org/10.1080/136911 8X.2017.1281329
- Benney, J. (2007). Rights defence and the virtual China. Asian Studies Review, 31(4), 435–446. https://doi.org/10.1080/10357820701710732
- Biao, T. (2012). Rights defence (weiquan), microblogs (weibo), and popular surveillance (weiguan). *China Perspectives*, 2012(3), 29–39. https://doi. org/10.4000/chinaperspectives.5943
- Bosch, T. (2017). Twitter activism and youth in South Africa: The case of #RhodesMustFall. Information, Communication & Society, 20(2), 221–232. https://doi.org/10.1080/136911 8X.2016.1162829
- Boulianne, S., & Theocharis, Y. (2020). Young people, digital media, and engagement: A meta-analysis of research. Social Science Computer Review, 38(2), 111–127. https://doi. org/10.1177/0894439318814190
- Cao, H., Sun, Y., Wan, Y., Hao, J., & Tao, F. (2011). Problematic internet use in Chinese adolescents and its relation to psychosomatic symptoms and life satisfaction. *BMC Public Health*, 11(1), Article 802. https://doi.org/10.1186/1471-2458-11-802
- Chae, Y., Lee, S., & Kim, Y. (2019). Meta-analysis of the relationship between internet use and political participation: examining main and moderating effects. *Asian Journal of Communication*, 29(1), 35–54. https://doi.org/10.1080/01292986.2018. 1499121

- Chan, M., Wu, X., Hao, Y., Xi, R., & Jin, T. (2012). Microblogging, online expression, and political efficacy among young Chinese citizens: The moderating role of information and entertainment needs in the use of weibo. *Cyberpsychology, Behavior, and Social Networking, 15*(7), 345– 349. https://doi.org/10.1089/cyber.2012.0109
- Chen, D. (2017). "Supervision by public opinion" or by government officials? Media criticism and central-local government relations in China. *Modern China*, 43(6), 620–645. https://doi. org/10.1177/0097700417706704
- Cheng, Y., Liang, J., & Leung, L. (2015). Social network service use on mobile devices: An examination of gratifications, civic attitudes and civic engagement in China. *New Media and Society*, *17*(7), 1096–1116. https://doi. org/10.1177/1461444814521362
- Cooper, A., Nazzari, V., Kon Kam King, J., & Pettigrew, A. (2013). Speaking rights: Youth empowerment through a participatory approach. *International Journal of Child, Youth and Family Studies, 4*(3.1), 489-501. https://doi. org/10.18357/ijcyfs43.1201312627
- Dong, T., Liang, C., & He, X. (2017). Social media and internet public events. *Telematics and Informatics*, *34*(3), 726–739. https://doi. org/10.1016/j.tele.2016.05.024
- Dutton, W. H., & Reisdorf, B. C. (2019). Cultural divides and digital inequalities: Attitudes shaping internet and social media divides. *Information Communication and Society*, 22(1), 18–38. https://doi.org/10.1080/136911 8X.2017.1353640
- Earl, J., Maher, T. V., & Elliott, T. (2017). Youth, activism, and social movements. *Sociology Compass, 11*(4), e12465. https://doi.org/10.1111/ soc4.12465
- Ekström, M., & Östman, J. (2015). Information, interaction, and creative production: The effects of three forms of internet use on youth democratic engagement. *Communication Research*, 42(6), 796-818. https://doi. org/10.1177/0093650213476295

- Fenton, N. (2018). Fake democracy: The limits of public sphere theory. *Javnost - The Public*, 25(1–2), 28–34. https://doi.org/10.1080/13183 222.2018.1418821
- Freelon, D. G. (2010). Analyzing online political discussion using three models of democratic communication. New Media and Society, 12(7), 1172–1190. https://doi. org/10.1177/1461444809357927
- García-Galera, M. C., Del-Hoyo-Hurtado, M., & Fernández-Muñoz, C. (2014). Engaged youth in the internet. The role of social networks in social active participation. *Comunicar*, 22(43), 35–43. https://doi.org/10.3916/C43-2014-03
- Goodwin-De Faria, C., & Marinos, V. (2012). Youth understanding & assertion of legal rights: Examining the roles of age and power. *The International Journal of Children's Rights*, 20(3), 343–364. https://doi. org/10.1163/157181812X652607
- Gunitsky, S. (2015). Corrupting the cyber-commons: Social media as a tool of autocratic stability. *Perspectives on Politics*, 13(1), 42–54. https:// doi.org/10.1017/S1537592714003120
- He, D., Liu, Q.-Q., & Shen, X. (2021). Parental conflict and social networking sites addiction in Chinese adolescents: The multiple mediating role of core self-evaluation and loneliness. *Children and Youth Services Review, 120,* Article 105774. https://doi.org/10.1016/j. childyouth.2020.105774
- Hirzalla, F., van Zoonen, L., & de Ridder, J. (2011). Internet use and political participation: Reflections on the mobilization/normalization controversy. *The Information Society*, 27(1), 1–15. https://doi.org/10.1080/01972243.2011 .534360
- Hu, Z., Wang, M., Cheng, Z., & Yang, Z. (2020). Impact of marginal and intergenerational effects on carbon emissions from household energy consumption in China. *Journal of Cleaner Production, 273*, Article 123022. https://doi. org/10.1016/j.jclepro.2020.123022

- Huhe, N., Tang, M., & Chen, J. (2018). Creating democratic citizens: Political effects of the internet in China. *Political Research Quarterly*, 71(4), 757–771. https://doi. org/10.1177/1065912918764338
- Jha, C. K., & Kodila-Tedika, O. (2020). Does social media promote democracy? Some empirical evidence. *Journal of Policy Modeling*, 42(2), 271–290. https://doi.org/10.1016/j. jpolmod.2019.05.010
- Jiang, J., Meng, T., & Zhang, Q. (2019). From internet to social safety net: The policy consequences of online participation in China. *Governance*, 32(3), 531–546. https://doi.org/10.1111/gove.12391
- Jing, Z., Li, J., Wang, Y., Yuan, Y., Zhao, D., Hao, W., Yu, C., & Zhou, C. (2021). Association of smoking status and health-related quality of life: Difference among young, middle-aged, and older adults in Shandong, China. *Quality* of Life Research, 30(2), 521–530. https://doi. org/10.1007/s11136-020-02645-9
- Kahne, J., Lee, N. J., & Feezell, J. T. (2013). The civic and political significance of online participatory cultures among youth transitioning to adulthood. *Journal of Information Technology and Politics*, 10(1), 1–20. https://doi.org/10.1080/19331681. 2012.701109
- Kamau, S. C. (2017). Democratic engagement in the digital age: Youth, social media and participatory politics in Kenya. *Communication*, 43(2), 128–146. https://doi.org/10.1080/02500167.20 17.1327874
- Karim, M., Nikou, S., & Widén, G. (2021). The role of youths' perceived information literacy in their assessment of youth information and counselling services. *Information Research*, 26(2), 1–20. https://doi.org/10.47989/irpaper900
- Kavanaugh, A. L., Reese, D. D., Carroll, J. M., & Rosson, M. B. (2005). Weak ties in networked communities. *Information Society*, 21(2), 119–131. https://doi. org/10.1080/01972240590925320
- Kristofferson, K., White, K., & Peloza, J. (2014). The nature of slacktivism: How the social

observability of an initial act of token support affects subsequent prosocial action. *Journal of Consumer Research*, 40(6), 1149–1166. https:// doi.org/10.1086/674137

- Lee, F. L. F. (2015). Internet, citizen self-mobilisation, and social movement organisations in environmental collective action campaigns: Two Hong Kong cases. *Environmental Politics*, 24(2), 308–325. https://doi.org/10.1080/096440 16.2014.919749
- Lee, S. H. (2017). Digital democracy in Asia: The impact of the Asian internet on political participation. *Journal of Information Technology* & *Politics*, 14(1), 62–82. https://doi.org/10.1080 /19331681.2016.1214095
- Li, Y., & Shang, H. (2020). Service quality, perceived value, and citizens' continuous-use intention regarding e-government: Empirical evidence from China. *Information & Management*, 57(3), Article 103197. https://doi.org/10.1016/j. im.2019.103197
- Liu, Q., Wu, J., Zhou, Z., & Wang, W. (2020). Parental technoference and smartphone addiction in Chinese adolescents: The mediating role of social sensitivity and loneliness. *Children and Youth Services Review, 118*, Article 105434. https://doi. org/10.1016/j.childyouth.2020.105434
- Lorentzen, P., & Scoggins, S. (2015). Understanding China's rising rights consciousness. *The China Quarterly*, 223(223), 638–657. https://doi. org/10.1017/S0305741015000776
- MacAfee, T., & De Simone, J. J. (2012). Killing the bill online? Pathways to young people's protest engagement via social media. *Cyberpsychology, Behavior, and Social Networking, 15*(11), 579– 584. https://doi.org/10.1089/cyber.2012.0153
- McAllister, I. (2016). Internet use, political knowledge and youth electoral participation in Australia. *Journal of Youth Studies*, 19(9), 1220–1236. https://doi.org/10.1080/13676261.2016.1154936
- Medaglia, R., & Zhu, D. (2017). Public deliberation on government-managed social media: A study on Weibo users in China. *Government*

Information Quarterly, *34*(3), 533–544. https:// doi.org/10.1016/j.giq.2017.05.003

- Mirra, N., & Garcia, A. (2017). Civic participation reimagined: Youth interrogation and innovation in the multimodal public sphere. *Review of Research in Education*, 41(1), 136–158. https:// doi.org/10.3102/0091732X17690121
- Momen, M. N. (2020). Myth and reality of freedom of expression on the internet. *International Journal* of Public Administration, 43(3), 277–281. https:// doi.org/10.1080/01900692.2019.1628055
- Oyedemi, T. (2015). Participation, citizenship and internet use among South African youth. *Telematics and Informatics*, 32(1), 11–22. https:// doi.org/10.1016/j.tele.2014.08.002
- Pendry, L. F., & Salvatore, J. (2015). Individual and social benefits of online discussion forums. *Computers in Human Behavior*, 50, 211–220. https://doi.org/10.1016/j.chb.2015.03.067
- Pils, E. (2016). Assessing evictions and expropriations in China: Efficiency, credibility and rights. *Land Use Policy*, 58, 437–444. https://doi. org/10.1016/j.landusepol.2016.07.015
- Qiu, Y., Xie, Y. J., Chen, L., Wang, S. L., Yang, H., Huang, Z., Liu, P., & Mo, B. (2020). Electronic media device usage and its associations with BMI and obesity in a rapidly developing city in South China. *Frontiers in Public Health*, *8*, 1–11. https://doi.org/10.3389/fpubh.2020.551613
- Regilme, S. S. F. (2018). Habermasian thinking on civil society and the public sphere in the age of globalization. *Perspectives on Political Science*, 47(4), 271–277. https://doi.org/10.1080/104570 97.2016.1175805
- Ruess, C., Hoffmann, C. P., Boulianne, S., & Heger, K. (2023). Online political participation: The evolution of a concept. *Information, Communication & Society, 26*(8), 1495– 1512. https://doi.org/10.1080/136911 8X.2021.2013919
- Shao, P., & Wang, Y. (2017). How does social media change Chinese political culture? The formation of fragmentized public sphere. *Telematics*

and Informatics, 34(3), 694–704. https://doi. org/10.1016/j.tele.2016.05.018

- Shin, W., & Lwin, M. O. (2017). How does "talking about the internet with others" affect teenagers" experience of online risks? The role of active mediation by parents, peers, and school teachers. *New Media and Society*, 19(7), 1109–1126. https://doi.org/10.1177/1461444815626612
- Shiratuddin, N., Hassan, S., Mohd Sani, M. A., Ahmad, M. K., Khalid K. A., Abdull Rahman, N. L., Abd Rahman, Z. S., & Ahmad, N. S. Y. (2017). Media and youth participation in social and political activities: Development of a Survey Instrument and Its Critical Findings. *Pertanika Journal of Social Sciences and Humanities*, 25(S), 1–20.
- Szymkowiak, A., Melović, B., Dabić, M., Jeganathan, K., & Kundi, G. S. (2021). Information technology and Gen Z: The role of teachers, the internet, and technology in the education of young people. *Technology in Society*, 65, 1–10. https://doi.org/10.1016/j.techsoc.2021.101565
- Tang, L., & Sampson, H. (2012). The interaction between mass media and the internet in nondemocratic states: The case of China. *Media, Culture & Society, 34*(4), 457–471. https://doi. org/10.1177/0163443711436358
- Tang, L., Shan, D., & Yang, P. (2016). Workers' rights defence on China's internet: An analysis of actors. *Information, Communication & Society,* 19(8), 1171–1186. https://doi.org/10.1080/1369 118X.2015.1107613
- Tao, H. L. (2015). Multiple earnings comparisons and subjective earnings fairness: A cross-country study. *Journal of Behavioral and Experimental Economics*, 57, 45–54. https://doi.org/10.1016/j. socec.2015.04.002
- Tedesco, J. C. (2007). Effects on young adult political information efficacy. American Behavioral Scientist, 50(9), 1183–1195. https://doi. org/10.1177/0002764207300041
- Van Deursen, A. J., & Helsper, E. J. (2018). Collateral benefits of internet use: Explaining the diverse outcomes of engaging with the internet. New

Media & Society, 20(7), 2333–2351. https://doi. org/10.1177/1461444817715282

- van Laer, J., & van Aelst, P. (2010). Internet and social movement action repertoires: Opportunities and limitations. *Information Communication* and Society, 13(8), 1146–1171. https://doi. org/10.1080/13691181003628307
- van Praag, B. (2011). Well-being inequality and reference groups: An agenda for new research. *Journal of Economic Inequality*, 9(1), 111–127. https://doi.org/10.1007/s10888-010-9127-2
- Wandaogo, A. (2022). Does digitalization improve government effectiveness? Evidence from developing and developed countries. *Applied Economics*, 54(33), 3840–3860. https://doi.org /10.1080/00036846.2021.2016590
- Wong, L. (2011). Chinese migrant workers: Rights attainment deficits, rights consciousness and personal strategies. *The China Quarterly*, 208, 870–892. https://doi.org/10.1017/ S0305741011001044
- Xu, G., Shen, H., & Bock, C. (2017). Perceived violation of rights and interests and collective action participation in China. *Social Behavior* and Personality, 45(5), 719–732. https://doi. org/10.2224/sbp.5872
- Ye, Y., Xu, P., & Zhang, M. (2017). Social media, public discourse and civic engagement in modern China. *Telematics and Informatics*, 34(3), 705– 714. https://doi.org/10.1016/j.tele.2016.05.021
- Zeng, J., Stevens, T., & Chen, Y. (2017). China's solution to global cyber governance: Unpacking the domestic discourse of "Internet Sovereignty." *Politics & Policy*, 45(3), 432–464. https://doi. org/10.1111/polp.12202
- Zhang, W., & Chia, S. C. (2006). The effects of mass media use and social capital on civic and political participation. *Communication Studies*, 57(3), 277–297. https://doi. org/10.1080/10510970600666974
- Zhang, X., Wen, D., Liang, J., & Lei, J. (2017). How the public uses social media wechat to obtain health information in China: A survey study.

BMC Medical Informatics and Decision Making, 17(2), 71–79. https://doi.org/10.1186/s12911-017-0470-0

- Zheng, S., Wang, J., Sun, C., Zhang, X., & Kahn, M. E. (2019). Air pollution lowers Chinese urbanites' expressed happiness on social media. *Nature Human Behaviour*, 3(3), 237–243. https:// doi.org/10.1038/s41562-018-0521-2
- Zhu, Z., Ma, W., Sousa-Poza, A., & Leng, C. (2020). The effect of internet usage on perceptions of social fairness: Evidence from rural China. *China Economic Review*, 62, Article 101508. https:// doi.org/10.1016/j.chieco.2020.101508

REFEREES FOR THE PERTANIKA JOURNAL OF SOCIAL SCIENCES & HUMANITIES

Vol. 32 (2) Jun. 2024

The Editorial Board of the Pertanika Social Sciences & Humanities wishes to thank the following:

Abdelkader Ababneh (YU, Jordan)

Abdul Rashid Abdul Aziz (USIM, Malaysia)

Abdul Razak Abd Manaf (UUM, Malaysia)

Ahmad Azaini Abdul Manaf (UMK, Malaysia)

Ahmad Shah Pakeer Mohamed (UiTM, Malaysia)

Aimillia Mohd Ramli (IIUM, Malaysia)

Anuar Mohd Yusof (UMK, Malaysia)

Ariff Aizuddin Azlan (UiTM, Malaysia)

Åsa Mickwitz (UH, Finland)

Azwan Azmawati Azman (USM, Malaysia)

Carmen Benitez (UTPL, Ecuador)

Charanjit Kaur Swaran (UPSI, Malaysia)

Collin Jerome (UNIMAS, Malaysia)

Eizah Mat Hussain (UM, Malaysia)

Elenita Natalio Que (UP, Phillipines)

Elistina Abu Bakar (UPM, Malaysia)

Evi Eliyanah (UM, Indonesia) Fahmi Gunawan (IAIN Kendari, Indonesia)

Gary Mclean (NIDA, Thailand)

Goutam Karmakar (UWC, South Africa)

Hafiszah Ismail (UiTM, Malaysia)

Hanita Hassan (UTM, Malaysia)

Hardev Kaur Jujar Singh (UPM, Malaysia)

Hazliza Haron (UiTM, Malaysia)

Hemendra Singh Chandalia (CUH, India)

Henry Kao (HKU, Hong Kong)

Ibrahim Hakan Karatas (MEDENIYET, Türkiye)

Ida Baizura Bahar (UPM, Malaysia)

Inesė Ratnikaitė (ŠVK, Lithuania)

Intan Hashimah Mohd Hashim (USM, Malaysia)

Janina Kleemann (MLU, Germany)

Junaidah Yusof (UTM, Malaysia)

Juraifa Jais (UNITEN, Malaysia)

Karel Karsten Himawan (UPH, Indonesia) Katherine M. Hertlein (UNLV, United States)

Khairul Farhah Khairuddin (UKM, Malaysia)

Khalaf Tahat (UAEU, United Arab Emirates)

Kok Su Mei (UM, Malaysia)

Laksmita Sari Ida Ayu (UNUD, Indonesia)

Lara Bertola (Rennes School of Business, France)

Lee Yok Fee (UPM, Malaysia)

Lilliati Ismail (UPM, Malaysia)

Maria Midea M. Kabamalan (UP, Phillipines)

Marlina Mohamad (UTHM, Malaysia)

Mashita Abdul Jabar (UiTM, Malaysia)

Mastur Hammad Ismail Rehim (AAU, United Arab Emirates)

Melissa Ng Lee Yen Abdullah (USM, Malaysia)

Min Fan (CUC, China)

Mohamad Fazli Sabri (UPM, Malaysia)

Mohamad Noor Salehhuddin Sharipudin (UPM, Malaysia)

Mohammed Shormani (Ibb University, Yemen) Mohd Azidan Abdul Jabar (UPM, Malaysia)

Mohd Azul Mohamad Salleh (UKM, Malaysia)

Mohd Faizal Nizam Lee Abdullah (UPSI, Malaysia)

Mohd Hafizal Ismail (UPM, Malaysia)

Mohd Muzhafar Idrus (USIM, Malaysia)

Mohd Yuszaidy Mohd Yusoff (UKM, Malaysia)

Mohd Zufri Mamat (UM, Malaysia)

Mohd. Mahadee Ismail (UPM, Malaysia)

Moussa Pourya Asl (Oulu, Finland)

Muhamad Fairus Kamaruzaman (UiTM, Malaysia)

Muhamad Nadzri Mohamed Noor (UKM, Malaysia)

Muhammad Danial Azman (UM, Malaysia)

Muhammad Safuan Abdul Latip (UiTM, Malaysia)

Muhammad Wildan (UIN Sunan Kalijaga, Indonesia)

Muhammad Yunus Anis (UNS, Indonesia)

MZainora Asmawi (IIUM, Malaysia)

Najat Ahmed Busabaa (HU, Yemen)

Nawal Fadhil Abbas (UOB, Iraq)

Nazni Noordin (UiTM, Malaysia)

Noor Hadzlida Ayob (UPSI, Malaysia) Noor Sulastry Yurni Ahmad (SQU, Oman)

Nooreen Noordin (UPM, Malaysia)

Nor A'tikah Mat Ali (UUM, Malaysia)

Nor Azura Adzharuddin (UPM, Malaysia)

Nor Zaiham Midawati Abdullah (UBD, Brunei)

Norhakimah Khaiessa Ahmad (UPM, Malaysia)

Norhuzailin Hussain (UPM, Malaysia)

Nurahimah Yusoff (UUM, Malaysia)

Nurfashareena Muhamad (UKM, Malaysia)

Phang Ing (UMS, Malaysia)

Purnima Bali (Shoolini, India)

Puvaneswaran Kunasekaran (UPM, Malaysia)

Rafidah Abd Karim (*UiTM, Malaysia*)

Raja Noor Farah Azura Raja Maamor Shah (UPSI, Malaysia)

Rama Wijaya Abdul Rozak (UPI, Indonesia)

Ramayah Thurasamy (USM, Malaysia)

Ramlee Mustapha (UPSI, Malaysia)

Roziah Mohd Rasdi (UPM, Malaysia)

Ruthpackiavathy Rajen Durai (UPM, Malaysia)

Saravanan P. Veeramuthu (USM, Malaysia)

Shaheen Mansori (MUST, Malaysia)

Shaidatul Akma Adi Kasuma (USM, Malaysia)

Shalini Nadaswaran (UM, Malaysia)

Shamarina Shohaimi (UPM, Malaysia)

Shanthini Pillai (UKM, Malaysia)

Sharifah Azizah Haron (UPM, Malaysia)

Shawn L. Nissen (BYU, United States)

Shirin Hasanpour (TUOMS, Iran)

Stephen Chia Ming Soon (USM, Malaysia)

Suhaimi Hassan (UTHM, Malaysia)

Suhardi Maulan (UPM, Malaysia)

Syed Zamanat Abbas (PSAU, Saudi Arabia)

Tamas Kiss (Sunway, Malaysia)

Ting Su Hie (UNIMAS, Malaysia)

Trent Larson (NCAT, United States)

Ugochukwu David Abasilim (CU, Nigeria)

Utami Widiati (UM, Indonesia)

Wan Amizah Wan Mahmud (UKM, Malaysia)

Wendy Hiew (UM, Indonesia)

Yanwar Pribadi (UINBANTEN, Indonesia) Yap Ngee Thai (UPM, Malaysia)

Yap Teng Teng (UM, Malaysia)

Yasemin Gulbahar (ANKARA, Türkiye)

Yeu-Ting Liu (NTNU, Taiwan) Yohanes Andy Rias (IIK Bhakta, Indonesia)

Yufi Adriani (UIN Jakarta, indonesia)

Zakiyah Jamaluddin (UUM, Malaysia)

Zalina Mohd Kasim (UPM, Malaysia) Zeinab Zaremohzzabieh (UPM, Malaysia)

Zuha Rosufila Abu Hasan (UMT, Malaysia)

AAU	– Al Ain University	UITM	– Universiti Teknologi MARA
ANKARA	– Ankara University	UKM	– Universiti Kebangsaan Malaysia
BYU	– Brigham Young University	UM	– Universita Negeri Malang, Indonesia
CU	– Covenant University	UM	– Universitä Negeri Malang, muonesia
CUC	– Communication University of China	UMK	– Universiti Malaysia Kelantan
CUH	– Central University of Haryana	UMS	– Universiti Malaysia Sabah
НКЦ	– The University of Hong Kong	UMT	– Universiti Malaysia Sabah – Universiti Malaysia Terengganu
HU		UNIMAS	
	– Hadhramout University		– Universiti Malaysia Sarawak
IAIN Kendari	– Institut Agama Islam Negeri Kendari	UNITEN	– Universiti Tenaga Nasional
IIK Bhakta	– Institut Ilmu Kesehatan Bhakti Wiyata	UNLV	 University of Nevada Las Vegas
IIUM	 International Islamic University Malaysia 	UNS	– Universitas Sebelas Maret
MEDENIYET	– Istanbul Medeniyet Universitesi	UNUD	– Udayana University
MLU	 Martin Luther University Halle-Wittenberg 	UOB	 University of Baghdad
MUST	 Malaysia University of Science and Technology 	UP	 University of the Philippines
NCAT	 North Carolina Agricultural and Technical State University 	UPH	– Universitas Pelita Harapan
NIDA	 National Institute of Development Administration 	UPI	– Universitas Pendidikan Indonesia
NTNU	– National Taiwan Normal University	UPM	– Universiti Putra Malaysia
PSAU	 Prince Sattmam Bin Abdulaziz University 	UPSI	– Universiti Pendidikan Sultan Idris
SQU	– Sultan Qaboos University	USIM	– Universiti Sains Islam Malaysia
ŠVK	– Šiaulių Valstybinė Kolegija	USM	– Universiti Sains Malaysia
TUOMS	 Tabriz University of Medical Sciences 	UTHM	– Universiti Tun Hussein Onn Malaysia
UAEU	- United Arab Emirates University	UTM	– Universiti Teknologi Malaysia
UBD	– Universiti Brunei Darussalam	UTPL	– Universidad Tecnica Particular de Loja
ÜH	– University of Helsinki	UUM	– Universiti Utara Malaysia
UIN Jakarta	– Universitas Islam Negeri Syarif Hidayatullah Jakarta	UWC	 University of the Western Cape
UIN Sunan Kalijaga		YU	– Yarmouk University
UINBANTEN	– Universitas Islam Negeri Sultan Maulana Hasanuddin Banten		· · · · · · · · · · · · · · · · · · ·

While every effort has been made to include a complete list of referees for the period stated above, however if any name(s) have been omitted unintentionally or spelt incorrectly, please notify the Chief Executive Editor, *Pertanika* Journals at <u>executive_editor.pertanika@upm.edu.my</u>

Any inclusion or exclusion of name(s) on this page does not commit the *Pertanika* Editorial Office, nor the UPM Press or the university to provide any liability for whatsoever reason.

735	
761	
783	

Yang Zhang and Yeqin Song

Predictability Effect of Arabic Stress Pattern in English Lexical Stress Production by Arab EFL Undergraduates Samah Yaslam Saleh Baagbah and Paramaswari Jaganathan	535
Review Article Mainstreaming Flood Mitigation in Building Code: A Bibliometric Analysis Nurin Mansoor, Aznah Nor Anuar, Akbariah Mohd Mahdzir and Nurul Huda Md. Adnan	563
Review Article The Effect of Trust in Food Safety, Perception, Product Features and Consumers' Characteristics on Consumers' Purchase Decision for Safe Food: A Systematic Literature Review Aishah Suhaimi, Akmal Aini Othman, Ahmad Faiz Ghazali and Veera Pandiyan Kaliani Sundram	583
Unveiling the Influence of Subjective Norms on Flood Preparedness Among Household Renters: The Moderating Effect of Trust in Public Protection Mohd Rozaimy Ridzuan, Jamal Rizal Razali, Soon-Yew Ju, Noor Amira Syazwani Abd Rahman and Lai-Kuan Kong	605
Developing a Framework for Assessing Transformative Competencies of Junior High School Students Through Construct Modelling Approach Chalunda Podjana, Putcharee Junpeng, Nuchwana Luanganggoon, Chatchawan Nongna and Keow Ngang Tang	629
The Federal Character Principle and Political Exclusion of Southeast Nigeria, 2015–2019 Emmanuel Onyebuchi Ezeani, Kingsley Ekene Okoye and Emmanuel Terkimbi Akov	651
Retirement Village Design Features: Generation X's Expectation Asmah Alia Mohamad Bohari, Farah Ajlaa Julaihi, Kuryati Kipli, Mohd Azrai Azman, Sharifah Rahama Amirul and Xin Hu	675
Pemaknaan Semula Cerita Rakyat Melayu dalam Filem Animasi Upin & Ipin: Keris Siamang Tunggal (2019) Steven Alezender and Jacquelina Karimon	703
Infectious Disease Epidemics in Kazakhstan in the 1900–1930s and Their Impact on Healthcare Development Gulzhaukhar Kokebayeva, Sabit Shildebai and Aigul Smanova	721

Pertanika Journal of Social Sciences & Humanities Vol. 32 (2) Jun. 2024

Content

Foreword Mohd Sapuan Salit	i
The Effects of Brain-based Learning Strategies on Low Ability Malaysian English as a Second Language Learners' Writing Performance Albert Wilson, Joseph Ramanair and Souba Rethinasamy	345
Examination of Teachers' Views on Erasmus+ Projects in Schools Serap Çimşir	365
Case Study	
The Application of an Unplugged and Low-Cost Children's Coding Education Tool in a Gamification Context Lei Wang, Miao Huang and Julina Ismail@Kamal	387
Post-COVID-19 Spatial Resilience in Community-based Tourism: A Case	409
Study on Ayutthaya Patiphol Yodsurang, Unyaporn Suthutvoravut and Wandee Pinijvarasin	
Review Article	
Work Outcomes and Well-being Among Working Women: A Systematic	437
Literature Review Syara Shazanna Zulkifli and Hazalizah Hamzah	
Review Article	
A Review of Chinese as a Second Language Journal Publication Trends:	465
The Case of Universiti Teknologi MARA Min Hui Leow, Foo Terng Hoe and Chin Shuang Goh	
Review Article	
Issues and Challenges of Primary Education Toward Implementing	487
Technical and Vocational Education Training to Meet the Fourth Industrial	
Revolution Demand: A Systematic Literature Review	
Latifah Mohd Ali, Mohd Fauzi Kamarudin, Shajahan Maidin and Shafinaz Ismail	
Gender Vulnerability and Resistance in Selected Malayalam Movies The	519
Great Indian Kitchen and Jaya Jaya Jaya Jaya Hey	

Sumathra Subramani and Rashmi Rekha Borah





Pertanika Editorial Office, Journal Division Putra Science Park 1st Floor, IDEA Tower II UPM-MTDC Technology Centre Universiti Putra Malaysia 43400 UPM Serdang Selangor Darul Ehsan Malaysia

http://www.pertanika.upm.edu.my/ E-mail: executive_editor.pertanika@upm.edu.my Tel: +603 9769 1622



http://penerbit.upm.edu.my E-mail: penerbit@upm.edu.my Tel: +603 9769 8851

