Journal of Social Sciences & Humanities

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The revamped Journal of Social Sciences & Humanities (JSSH) 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, particularly in the Asia Pacific region. Other Pertanika series include Pertanika Journal of Tropical Agricultural Science (JTAS); and Pertanika Journal of Science and Technology (JST).

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Editorial Statement

Pertanika is the official journal of Universiti Putra Malaysia. The abbreviation for Pertanika Journal of Social Sciences & Humanities is *Pertanika J. Soc. Sci. Hum.*

Editorial[i]

Humanities and Social Sciences Education:
Synergy between Technology & Society

It is imperative that undergraduate engineering education focuses on the interface between technology and society, in addition to the intensive technical knowhow. The interdisciplinary perspective of Social Science and Humanity courses has a pivotal role to play in addressing the broad domain of knowledge so as to understand societal needs and humane values. This is accomplished by knowledge acquired through a vast range of disciplines, to name a few, economics, finance, management, sociology, gender studies, political science, psychology, philosophy, history, and linguistics, covering topics on rural/urban development, cultural processes, governance, gender sensitization, conflict management, heritage, poverty alleviation, climate change, and globalization. This endeavour helps future technocrats in developing a holistic personality that enables them to understand the intricate nuances of societal patterns and behavioural sciences, thereby making them well equipped to handle challenges in life.

Exposure to Humanities and Social Science education leads to creativity and innovation. Science and technology is embedded in the social and cultural milieu, and it is thus important that students of undergraduate engineering programme are ingrained into the social environment, which is the base for practising the technology learnt. Humanities and Social Science courses are instrumental in instilling critical thinking, analytical approach, and good humane values amongst students, amidst the pursuit of knowledge, active-learning, community outreach and in building skills to gain hands-on experiences. Understanding of human nature, society, culture and institutions is central to Social Science education. This helps students to prepare for personal enrichment, pave way for productive careers, achieve enlightened citizenship and lifelong learning, along with skill development so as to face challenges in real-life situations with ease and confidence. Meanwhile, empirical research and field studies help in understanding social realities, learning research methodology in Social Sciences, computational application in data

analysis, preparation of reports and making presentations. The use of multi-dimensional approaches in an integrated framework helps in impact assessment of developmental programmes. Impact assessment provides a framework for balanced considerations of the social, economic, environmental and health impacts of development interventions, and in this way, it strengthens students' analytical capacity and assessment skills by making them work through ground realities.

Technical education that is accompanied by value based courses highlighting moral and social values helps them to become fine human beings armed with professional knowledge. The key point is that technocrats must not be restricted to merely engineering and technological knowledge; they must also develop sensitivity to the socio-cultural environment, thereby bringing in greater cohesiveness between technology and society.

It has generally been observed that Humanities and Social Science courses are often perceived as soft courses, take a back seat in engineering and technological institutes, and this issue needs to be addressed.

While imparting engineering and technology education, it is worthwhile to take note of the importance of Humanities and Social Sciences in building sensitivity to societal variables, learning scientific pursuits in the backdrop of Millennium Development Goals, identifying gaps in amalgamation of scientific knowledge and social change, promoting multidisciplinary approaches to research with a synergy between technology and society, encouraging problem solving approach that bridges the gap between theory and practice, as well as sharing the best practices in providing knowledge for holistic development of budding engineers and technocrats.

In this era of inter-disciplinary education, the application of science and technology to the issues of societal concern would be instrumental in providing holistic knowledge to students of professional stream.

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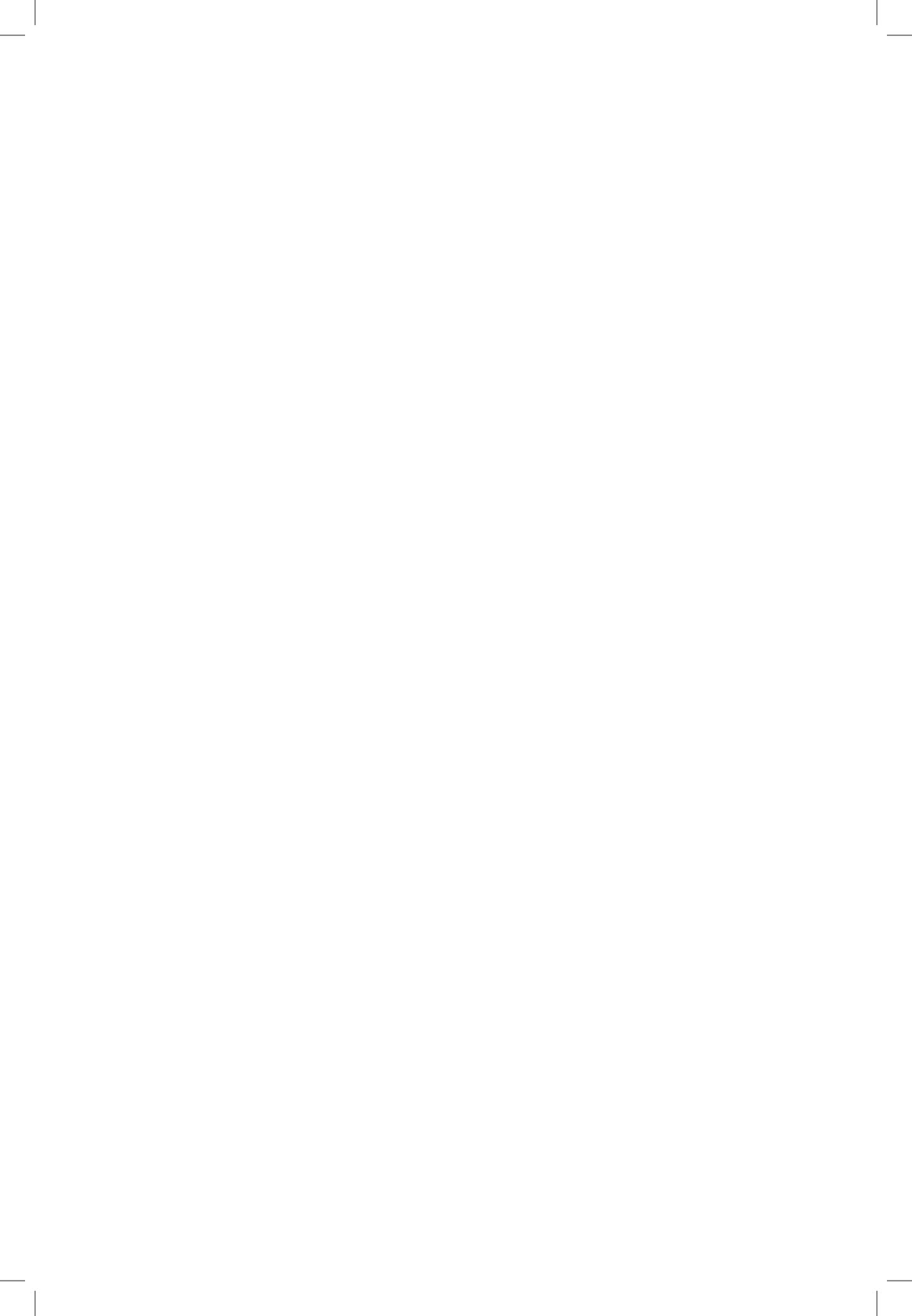
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Contents

The Effects of Three Formats of Assessment on the Achievement of Students with Hearing Disabilities

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ABSTRACT

The purpose of this paper is to present findings of a factorial-experimental study which investigated the effects of the additional time and examination format in minimizing the language gap faced by hearing impaired students when answering Malay Language question paper in the Primary School Assessment (UPSR). Three formats were tested in this study, namely, Ordinary Format, DEAS I Format and DEAS II Format. Thirty-six hearing impaired students who were in Form One from Seremban, Melaka and Muar were separated into three experimental groups with equal level of Malaysian Language. All the groups answered the comprehension and essay question in the Malaysian Language examination in the actual time and additional time simultaneously. Questionnaires (to teacher and students), interviews, and observation were also conducted. Results showed that for all the three formats, the subjects performed better in extra time than regular time. A comparison of the performance based on the formats revealed higher achievement in the comprehension and writing sections set in regular time and extra time for the subjects exposed to the DEAS II Format. Therefore, extra time and DEAS II Format are successful in minimizing the language gap between hearing impaired students and normal students in the examination. In more specific, the adaptive approach used in DEAS II Format enables a fair assessment of hearing impaired students' capabilities. Meanwhile, the findings from the questionnaires and interviews showed that both the teachers and students agreed that extra time and appropriate examination format could improve the achievements of hearing impaired students during the examination.

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to each student's needs and also enables different administrations for different sessions of examination will help reduce the language gap among the hearing impaired students.

The extra time allocated allows a fair assessment for students with special needs. In particular, it creates an opportunity for the students to perform without any disturbances from their impairment (Phillips, 1994; Elliot *et al*., 1998). Geisinger (1994) found that the adaptability in administering the examination for the special-need students is meant to discover the real performance of the students in the examination that they are sitting for. This opinion is supported by McDonnell *et al*. (1997) who stated that there is a significant performance in the examination that employs adaptability.

In most cases, an extra time of 50 percent of the actual time allocated for an examination was sufficient for most students with special needs. Buchkoski (1999) stated that studies have shown that extra time is the best method to be employed for students with reading difficulties like the hearing impaired students. In fact, many studies have shown that in comparison with normal students, the score of children with special needs is statistically higher in examinations with extra time given (Elliot *et al.*, 2003; Jarrow, 2000; Buchkoski, 1999). The researchers also pointed out that despite the unlimited extra time given, none of the hearing impaired students utilized the extra given time during the examination (Jarrow, 2001; Buchkoski, 1999). Tindal and Fuchs (1999) repeatedly carried out studies at

colleges to observe the effectiveness of extra time for examinations, i.e. if achievements are significantly good. The objective of this paper was to identify the most effective and suitable examination format for hearing impaired students in Malaysia.

LITERATURE REVIEW

Cawthon and Wurtz (2008), Alster (1997), Centra (1986), Hill (1984) and Runyan (1991) stated that their findings on the performances of students with special needs in examinations with extra time are almost the same. Jarrow (2001), who is the President of Disability Access Information and Support (DAIS), is an expert in providing services for students with special needs and he stresses that it is imperative to provide the extra time for these students although not every student requires that extra time. The extra time is suitable especially for examination that requires a high level of language proficiency (Harker *et al*., 1993; Tindal *et al*., 1998; Jarrow, 2001; Martin, 2001; Mounty, 2001). Huesman *et al*. (2000) and Elliot *et al*. (2003) stated that on the average, special need students utilize a minimum amount of the extra time given. While the normal students use an extra of seven minutes, the special needs students only use the first 20 minutes of the extra time given. According to Cawthon and Wurtz (2008), Cawthon (2006) and Elliot *et al*. (2003), the extra time can lower the students' anxiety in relation to their performances, enable them to perform their best in examination and improve their motivation to complete the examination.

''Accommodations'' refer to a range of changes to test administration and test content; they are designed to remove factors that penalize students because of their disability and also do not change the target skill of the assessment (Cawthon, 2006). The goal for accommodations is to make certain that the test measures content knowledge (target skill) and not the ability to take the test (access skill) (Elliott & Braden, 2000; Shriner & DeStefano, 2003). Thus, students with special needs in general will feel comfortable, more interested, highly motivated, less disappointed, and can perform better, as well as perceive the examination as less difficult and prefer to seat for examination with extra time given (Elliot et al., 2003). Studies by Halla (1988) and Montani (1995) proved that students with poor academic performances had shown the same results as those normal students in examinations with extra time.

The use of common examination papers for both normal and special needs students was found to be unsuitable in many studies conducted around the world as language skills and proficiency are different between hearing impaired students and normal students (Johnson et al., 2001; Courtin, 2000; British Hearing impaired Association, 1996; Abdullah, 1993; Allen 1986). This difference in language ability is termed as language gap. Based on this situation, the examination question paper for hearing impaired students should be made more language friendly and follow the Universal Design (UD) format to minimizing the language gap before the questions can

be answered by the hearing impaired candidates. The particular adaptation here refers to the various ways of minimizing the effects of deafness. Hearing impairment can be a negative factor in hindering students' understanding of examination questions.

According to the Malaysian Examination Syndicate (MES) (2000), a student's performance may vary according to different circumstances. This means any disruption that suddenly takes place may change the students' results. For example, a sudden sound of noise during the examination can disrupt the student's concentration. MES also gave other examples like illness, lethargy, emotional stress, anxiety and others. In addition, MES also emphasizes that the administrator conducting the examinations must prepare a conducive location for the examination and implement the right examination regulations. Therefore, the examination adaptability for the hearing impaired must be implemented to mirror the true performance of these students.

Sign language is the main medium of instruction while learning and communicating (Goh et al., 1993; Abdullah, 2001, 2002; Martin, 2001; Jarrow, 2001; Mounty, 2001). Cawthon and Wurtz (2008) found that students in schools for the hearing impaired were more likely to use American Sign Language (88%), those in district/regional programmes used oral and sign language together (79%), and those in mainstream programmes used either oral only (67%) more than other communication modes. In Malaysia, most hearing impaired

students communicate using Malaysian Sign Language (MYsl) together with total communication. Generally, the use of a sign language at home and in school among hearing impaired students gives an impact on their lives, especially with aspects related to linguistics. Hence, this also will affect their performance in examination results. Under normal circumstances, hearing impaired students read and write in Malaysian Language but this creates a confusion during examination because the sign language has a different system with that of the Malaysian Language. As a result, hearing impaired students would produce Malay Language written works that consist of what is referred to as *deafness* problems by Myklebust (1964). The problems include wrong syntax structure, inaccurate use of words semantically, unnecessary use of affixes and unnecessary omission of words. These problems are caused by the interference from the sign language that is regarded as their first language (Goh *et al.*, 1993; Abdullah, 2001; Abdullah, 2002).

The findings of several other studies have shown that hearing impaired students' academic achievement is still below average. This is caused by their poor language proficiency (Powers, 1996; Gregory *et al.*, 1995; Kluwin, 1993; Abdullah, 1993). Other studies (Webster *et al.*, 1981; Wood *et al.*, 1996; Lewis, 1996; Powell, 1995; Harrison, Simpson & Stuart, 1992; Holden-Pitt, 1997; Courtin, 2000; Antia & Kreimeyer, 2001) have confirmed that language and writing ability among the hearing impaired students are different because of the interference from their sign language.

Apart from the language problem, the hearing impaired students also face other problems related to language. Among others are low motivation, unconfident in oneself, inferiority complex and low cognitive as a result of their hearing impaired (Yachnick, 1986; Powers, 1990; Cates, 1991; Maxon *et al.*, 1991; Kluwin & Stinson, 1993; Powers, 1996). These weaknesses are identified as parts of the factors that lead to the low performances of the hearing impaired students in classroom lessons and examinations. A suitable examination format for the hearing impaired students is highly required during examinations to overcome all the reasons mentioned earlier. Thus, the present study focuses on the performance of the Malay Language subject as this subject seems to show a significantly low performance among the hearing impaired students. This subject has also been excluded from the moderation programmes by MES (Lembaga Peperiksaan Malaysia, 2002).

An examination format that is both fair and suitable with the students' impaired ability is currently practiced in various developed countries (Davies & Wavering, 1999; Chaleff & Toranzo, 2000; Siegel, 2000). Accommodation used by these researchers to study the hearing impaired students' performance in examination has showed positive impact. On that basis, the same method can be applied to hearing impaired students in Malaysia. For instance, a study by Cawthon (2006) found that accommodations use were similar for both mathematics and reading, with the exception of two accommodations: read

aloud (test items are read to students) and signed question-response (test items are interpreted and the students respond in sign language). Specifically, average use of accommodations was higher in mainstreamed programmes for frequent breaks, individual administration, interpreter for directions, and read aloud. Within each school, accommodations were administered in more grade ranges in the mainstream settings than in schools for the deaf or district-wide/school programmes (Cawthon, 2006). Most models allow hearing impaired students to take examination using their first language which is the sign language. The same mechanism can be applied here. They should use Malaysian Sign Language (MySL) during examinations. MySL is the standard language used to ease communication more effectively among deaf people in Malaysia (Goh & Teh, 1993; Abdullah, 1994).

Due to low language proficiency and unsuitable language format, it is not surprising that hearing impaired students are always left behind in academics (Moores & Sweet, 1990; Harris & Beech, 1992; Kluwin & Gaustad, 1992; O'Donnel *et al.,* 1992; Holt, 1993; Kluwin, 1993). Research findings also showed that hearing impaired students face problems in writing skills. In other words, their writing and ability to read is also weak (Quigley, 1986; Bodner-Johnson, 1986; Geers & Moog, 1989; Meadow, 1980; Griffiths, 1983). Luetke-Stahlman (1988) stated that the analysis on the hearing impaired students' writing revealed that the vocabulary used by them is rather limited, while the sentence structures are simple and rigid as compared to their normal friends of the same age. They also tend to repeat the same vocabulary and using limited words (Moores, 1985). Izani (1995) and Abdullah (2001) found in their research that the students had the right ideas but they were unable to express those ideas in written form and were not able to master basic grammar. The findings also showed that they rarely used suffixes in their writing.

Research by Cooper and Rosenstein (1996) showed that hearing impaired students face difficulty in almost every aspect of writing compared to normal students. There have been opinions that these weaknesses stem from their inability which seems to be a strong factor behind their academic performance (Holt, 1994; Luckner & Mc Neill, 1994; Titus, 1995; Nunes & Moreno, 1997). A study by Myklebust in 1953 discovered that hearing impaired students failed to master the language well and have an extreme inferiority complex compared to normal students.

The language introduced at an early stage to hearing impaired students is a key factor that determines their life (Myklebust, 1953). Awang (1981) stressed that the quality of a person's language is very much influenced by the language he or she was exposed to during childhood. The MySL has only a limited number of vocabulary and thus limits the usage of the language itself (Zulkifley, 1994). This situation is very true in the Malaysian setting. According to Helen (1995), most hearing impaired students face significant problems

in speaking skills and writing skills. In fact, most of them are unable to lip read accordingly and their reading ability is only minimal (Schelessinger & Meadow, 1972). Quigley (1984) also found that the reading ability of hearing impaired students, whose age ranges between 14 and 16 year old, is the same with that of a 7-year-old normal student.

MATERIAL AND METHODS

This study was carried out using an experimental method. Three sets of examination formats were tested to assess their effectiveness. The format of the examination is referred to as Hearing impaired Examination Accommodation System (DEAS). The target groups are as follows (12 students in each group):

No	Format	Group	Answering Mode
i	Normal examination format	control group	Answering normal question paper (paper pencil format)
Ii	(DEAS I) Group translation with writing responses	experimental group 1	One translator signed all the instruction and question to the group of 12 students. They answered the questions on the answering paper.
iii	(DEAS II) One to one translation	experimental group 2	One translator signed all the instructions and questions to each of the students (one translator to one student). They answered the question by giving responses to the translator. The translator wrote the answers in the answer paper.

RESULTS AND DISCUSSION

a. Normal format

   ii. The mean for comprehension in actual time is 21.67 is lower compared to the mean for additional time, i.e. 26.5.

   iii. The mean for essay question in actual time is 13.00. This is lower than the mean for additional time which is 15.17.

b. DEAS I Format

   i. The mean for comprehension question in actual time is 21.33 and it is lower compared to the mean for additional time, which is 27.33.

   ii. The mean for essay question in actual time is 13.25 and this is lower as compared to the mean for additional time (15.75). The extra time has improved the students' understanding of the questions on comprehension and essay question that are being tested.

TABLE 1
Mean score for comprehension and writing for normal time and additional time

Exam format		Score for comprehension (actual time)	Score for comprehension (additional time)	Writing (actual time)	Writing (additional time)
Normal	Mean	21.67	26.5	13.00	15.17
	N	12	12	12	12
Translation for group (DEAS I)	Mean	21.33	27.33	13.25	15.75
	N	12	12	12	12
Translation for individual (DEAS II)	Mean	28.33	34.67	15.83	18.67
	N	12	12		12

c. DEAS II Format

   i. The mean for comprehension question in actual time is 28.33 and this is lower compared to the mean for additional time which is 34.67.

   ii. The mean for essay question in actual time is 15.83, and this is also lower compared to the mean in additional time which is 18.67. The extra time has improved the students' understanding of the questions on comprehension and essay question that are being tested.

TABLE 2
The means for comprehension for every format, normal time and extra time

Time	Normal	Mean for DEAS I	Mean for DEAS II
Actual	21.6	21.3	28.3
Additional	26.5	27.2	34.7
Improvement	4.9	5.9	6.4

TABLE 3
The mean for writing performance for every format, normal time and extra time

Time	Normal	Mean for DEAS I	Mean for DEAS II
Actual	12.83	13.25	15.83
Additional	15.08	15.91	18.66
Improvement	2.25	2.66	

The research findings indicated that the examination that allows extra time and interpretation of sign language has helped them to understand the instruction and questions in examination papers more. This has also reduced the problems caused by the hearing impaired. The students' performances have improved in the examination with additional time, especially in DEAS I and II format. Although the performance in DEAS I showed an improvement, it was still comparatively low as compared to the performance in DEAS II format. Meanwhile, the performance for the normal format using the additional time showed an improvement but the improvement was insignificant compared to the performance in DEAS II and I formats.

The research findings also indicated two factors that have become the stumbling block for the students. The first factor is the language proficiency and the limited time to answer. The language difficulty factors identified among the students are confusion with long questions (66.7%), inability to understand the sentences (77.7%) and words (75%). Another factor is time, whereby students did not have enough time to read and to understand the information in each item.

Another factor contributing to the students' poor performance is the teacher's weakness in communicating and teaching using the sign language. In this research, the finding has showed that some teachers are incompetent in communicating using Malay Coded Sign Language (BMKT) in their teaching. They have also admitted that they face difficulties teaching abstract words and ideas. This was proven by 95.4% of the teachers (respondents) who agreed that the examination questions for the hearing impaired students should be administered in their first language. Around 95.4% of the respondents who also agreed that additional time and translation were able to improve the students' understanding to comprehension and essay question. All the respondents (100%) also believe that both the formats were able to enhance the hearing impaired students' performance in examinations. Thus, interpretation of the sign language and additional time are two factors that could certainly help to minimize the side effects of hearing impairment. In addition, these factors can improve hearing impaired students' motivation and self-confidence during examination. The overall picture of the assessments is similar to other students with disabilities, with extended time as the most frequently used accommodation across all settings (Cawthon, 2006).

CONCLUSION AND SUGGESTIONS

It is apparent that the examination system for the hearing impaired students being practiced in Malaysia must be improvised or revamped. In particular, all the examination items constructed and administered must take into account all the factors that are hindering hearing impaired students from performing. Every hearing impaired student must be given an equal opportunity in their examinations. This is because a well-balanced examination has been shown to have enabled them to show their real academic performances. For this purpose, an institution should be established under the Ministry of Education to be responsible for all the examinations that involve students with special needs. This institute will be responsible for preparing special teachers who are experts in translating examination items into the Malay Coded Sign Language at all levels and must be administrated by individuals who are highly qualified in special needs education. The institution must also work together with the Malaysian Examination Syndicate. In addition, all the staff teaching hearing impaired students must be exceptionally excellent in the Malay Coded Sign Language. They must undergo or attend a course to master the Malay Coded Sign Language for a certain

period of time, such as once in every 3 years to coordinate and to learn the latest vocabulary of the sign language, in line with the progress of education in Malaysia.

This research has shown that the DEAS II format is successful in improving the performance of the hearing impaired students in their examination. In order to enhance hearing impaired students' performances so as to give them equal opportunities with those of normal students in the exam, the Ministry of Education must consider DEAS II format as an alternative exam format for all students with hearing impairment in Malaysia. The introduction and usage of this particular format in the school examination will make this country at par with developed nations.

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SOCIAL SCIENCES & HUMANITIES

Teachers' Perception towards the Implementation of Inclusive Education in Penang, Malaysia

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ABSTRACT

The objective of this study was to measure teachers' perception towards the implementation of inclusive education in Penang, Malaysia. This study involved 133 mainstream teachers and 37 special education teachers from Penang. Research instrument for this study was adapted from the instrument Contexts, Input, Process and Product, which was introduced by Stufflebeam in 1971. This study involved a questionnaire that contains two sections. Section A is on teachers' demography and Section B concerns with the factors that contribute to the teachers' perception towards the implementation of inclusive education. The results of this study are discussed in terms of frequencies, percentages, independent *t*-test and One-Way ANOVA. The results showed that 32.35% of the respondents have positive perception and 50.59% have moderate perception towards the implementation of inclusive education. On the other hand, this study also revealed that 17.06% of the respondents have negative perception towards the implementation of inclusive education. The findings of this study also highlighted that different types of teachers and their academic qualification do influence or create the difference in term of their perception towards the implementation of inclusive education. In addition, the findings of this study also showed that there is a positive relationship between the types of teachers and their perception towards the implementation of inclusive education.

Keyword: Inclusive education, teachers' perception, special education teachers

INTRODUCTION

Malaysian has its policy of education for all and this includes children with special needs. In Malaysia, education for the special need children has started since 1920 for the visually impaired children, since

1954 for the hearing impaired children, and since 1969 for children with learning disabilities. In particular, special education has been implemented based on Section I Education Act 1996, which interprets special education as:

i. Education programme for special need children in special school (visually impaired and hearing impaired).

ii. Integrated programme where the special need children (visually impaired, hearing impaired, and learning disabilities) study in a separate classroom or building among themselves in a mainstream school compound.

iii. Inclusive programme where the special need children study together with their normal peers in a mainstream classroom.

STATEMENT OF THE PROBLEM

Inclusive education in special education is a new education system introduced in Malaysia. Therefore, its implementation involves a lot of problems and misunderstanding among school administrators, teachers and parents of special need children and mainstream students. The problems are normally concerning the special education teachers, mainstream education teachers, special need students, mainstream students, support staff, teaching aids, curriculum, as well as teaching and learning processes. Other than that, researchers also looked at the context, input, process and product, which contributed to the implementation of the inclusive education programme.

Problems Regarding Context

Special education in Malaysia is implemented according to the Malaysian Special Education Philosophy, which clearly states that there is a need for integration and inclusion for special need children where applicable; on the other hand, there is a need in maintaining the segregation, wherever applicable. Placement of the special need children in schools relies on the aspect of educable. There is a professional body which is responsible to identify whether a child is educable or trainable, suitable for inclusive or integrated programme or special school. The visually impaired students, for instance, study in mainstream classrooms that are taught by mainstream teachers with assistance from special education teachers. The hearing impaired and learning disabilities students, who can follow the mainstream school system and perform accordingly, are also given opportunity to study together with their normal peers in the mainstream classroom.

Problem Regarding Input

When a school has inclusive education, its staff have to really understand the meaning of inclusive education. In their study, Zalizan and Norani (2000) stated that school organization must understand the objectives and principles of the implementation of inclusive education. In inclusive education, mainstream teachers are those who deal directly with the special need children; therefore they must have a clear understanding of what inclusive education is all about. School's administrators must

also understand the inclusive education well because they are the ones who are in charge of the disabled friendly infrastructure and environment for the inclusive education at their schools. Mohd Siraj (1996) as well as York and Vandercook (1991) stated that inclusive education would only succeed if the special need children were to be totally included in the mainstream classrooms. The teaching and learning processes must focus on the children's strength as well as consider their weaknesses. Individual Education Plan (IEP) should also be planned based on the students' individual needs. Parents of the mainstream students must also understand inclusive education and be willing to accept the fact that their children are learning with children with special needs.

According to Rosenberg and O'Shea (1998), the lack of training and exposure among the mainstream teachers in inclusive education, as well as appropriate special teaching aids, can lead to the failure of the implementation of inclusive education.

Problems Regarding Process

Semmel *et al*. (1991) stated that it is important to have a good collaboration between mainstream teachers, special education teachers and support staff in order to have good quality teaching and learning processes for special need children.

According to Anthony (1992), the role of special education teachers and the mainstream teachers can be well-defined through the collaborative model. According to him, the main problem for effective collaborative is the failure to provide enough

time for the collaboration. Teachers involve in the inclusive education must have enough exposure to the various teaching strategies, behaviour modification, and collaboration techniques.

Abdul Rahim (1994) mentioned that it is important to have good understanding of inclusive education, the acceptance for inclusive education in the schools and the ability of the teachers to implement the inclusive education. In his study in the state of Kedah, Haniz (1998) found that 66.9% of the mainstream teachers had a negative perception towards inclusive education and this was merely because they lacked the experiences, knowledge, as well as understanding of the needs of education for the special need children.

Problems Regarding Product

Failure in mastering the reading skills, writing skills, and counting skills has been identified as the main reasons for the weaknesses in academic achievement among students. Students' attitude can also influence their academic achievement. According to Salleh (1999), among the problems faced by special education students are low self motivation, not keen in asking questions, short term memory skills, and low self confident.

In inclusive education, special need children have the opportunity to interact and socialized with other mainstream children in a healthy environment. These special need children have been found to show positive social skills when they mingle around with their mainstream peers

in inclusive education setting (Farmer & Farmer, 1996; Henderickson *et al.*, 1996; Hall & McGregor, 2000). Through inclusive education, the special need children will be able to build self skills, positive development in language, cognitive and motor skills.

Problems Pertaining to the Different Perceptions between Mainstream Teachers and Special Need Teachers towards the Implementation of Inclusive Education

Other than trying to see the problem pertaining to context, input, process and product, this study also attempted to find the perception towards inclusive education among special education teachers and mainstream teachers. The perception was towards the issues of placement, the roles of teachers which include special education teachers and mainstream teachers, school head masters or principals, and the benefits from the inclusive education.

OBJECTIVES

The objectives of this study are as follows:

i. To study the teachers' perception towards the implementation of inclusive education based on the type of teachers (special education teachers and mainstream teacher).

ii. To study the teachers' perception towards the implementation of inclusive education based on teachers' gender.

iii. To study the teachers' perception towards the implementation of inclusive education based on teachers' academic qualification.

iv. To study the teachers' perception towards the implementation of inclusive education based on the length of service.

HYPOTHESES

i. There is no significant difference in the level of teachers' perception towards the implementation of inclusive education based on the type of teachers (special education teachers and mainstream teachers).

ii. There is no significant difference in the level of teachers' perception towards the implementation of inclusive education based on teachers' gender.

iii. There is no significant difference in the level of teachers' perception towards the implementation of inclusive education based on teachers' academic qualifications.

iv. There is no significant difference in the level of teachers' perception towards the implementation of inclusive education based on their length of service.

METHOD

Participants

This study involved 37 special education teachers and 133 mainstream teachers who had been selected from seven schools in Penang through purposive sampling technique. The researchers used the purposive sampling technique because all the respondents who were involved in this study are teaching in the inclusion programme in their schools.

Instrument

The research instrument for this study was adapted from the instrument Contexts, Input, Process and Product Model (CIPP) which had been used by Stufflebeam (1971). The questionnaire consists of two sections: Section A is on teachers' demography and Section B explores on the factors contributing to the perception of the teachers toward the effectiveness of inclusive education. The questionnaire uses 5-point Likert Scale (refer Table 1). Descriptive analysis (total score, frequencies, and percentage), independent *t*-test and One-way ANOVA were used to analyze the data.

TABLE 1
5 Likert Scale

Statement	Score
Strongly Agree	5
Agree	4
Not Sure	3
Disagree	2
Strongly Disagree	1

In Section B, all the four factors (context, input, process, and product) were included accordingly (refer Table 2).

TABLE 2
Items according to the factor

Factor	Item
Context	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, and 12
Input	13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23 and 24
Process	25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35 and 36
Product	37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47 and 48

As for the teachers' perception, three levels of perception were set for them based on the 48 items in the questionnaire (refer Table 3).

TABLE 3
Level of Teachers' Perception

Score	Level of Teachers' Perception
48 – 111	Negative Perception
112 – 176	Moderate Perception
177 – 240	Positive Perception

Pilot Study

Prior to the actual study, a pilot study involving the use of a questionnaire containing 48 items was carried out to get the internal validity of the items in the questionnaire. The respondents for the pilot study were 30 teachers and all of them were not included in the actual study. Cronbach Alpha was used to find the internal consistency of the instrument and the results showed that the internal consistency obtained was 0.9760. The internal consistency for the context factor was 0.9208, and this was 0.9245 for input, 0.9302 for process, and 0.9565 for product.

FINDINGS AND DISCUSSION

Teachers' Perception towards Inclusive Education

Teachers' perception towards inclusive education was analyzed according their total scores in the questionnaire. The researchers had set three levels of teachers' perception, namely, negative perception (score 48 – 111), moderate perception (score 112 – 176), and positive perception

(score 177 – 240). The findings of this study showed that 29 respondents (17.06%) had a negative perception, 86 respondents (50.59%) had moderate perception, whereas 55 respondents (32.35%) had a positive perception towards inclusive education (refer to Table 4).

TABLE 4
Teachers' Perception Level

Perception Level	Score	Frequency	%
Negative Perception	48 – 111	29	17.06
Moderate Perception	112 – 176	86	50.59
Positive Perception	177 – 240	55	32.35
Total		170	100.00

The results in Table 4 shows that half of the respondents had an average level of perception and one third had positive perception towards the implementation of inclusive education. This shows that most of the teachers (special education teachers and mainstream teachers) had either moderate or positive perception towards inclusive education. This finding contradicts with the result from a study by Haniz (1998) who found that nearly two third (66.9%) of the mainstream teachers had a negative perception towards inclusive education and this is merely because those teachers lacked the experiences, knowledge, as well as understanding of the need of education for the special need children. The explanation for these contradicting findings is the exposure, training as well as courses that were provided to the teachers (special

education teachers and mainstream teachers) during their pre-service training course and in-service training. Moreover, the current scenario shows that parents of the special need children are aware of the importance of the inclusive programme.

Comparing Special Education Teachers' Perception towards Inclusive Education with Mainstream Teachers and Mainstream Teachers' Perception

Comparing the special education teachers' perception towards inclusive education with those of the mainstream teachers and mainstream teachers' perception, the results of this study revealed that four respondents (10.81%) had negative level of perception, 19 respondents (51.35%) had moderate level of perception, and 14 respondents (37.84 %) had positive level of perception towards the implementation of inclusive education (refer Table 5).

Based on the findings presented in Table 5, there is not much difference in the perceptions of the special education teachers and the mainstream teachers towards the implementation of the inclusive education. Table 5 also shows that 51.35% of the special education teachers and 50.37% of the mainstream teachers have moderate perception towards inclusive education. Surprisingly, this study discovered that 10.81% of the special education teachers had a negative perception towards the implementation of the inclusive education programme compared to 18.80% of the mainstream teachers. As for the category of positive perception, the result showed that 37.84% of the special education teachers

TABLE 5
Teachers' Perception towards Implementation of Inclusive Education based on the Type of Teachers (Special Education Teachers and Mainstream Teachers)

Perception Level	Score	Frequency		Percentage	
		Special Education Teachers	Mainstream Teachers	Special Education Teachers	Mainstream Teachers
Negative Perception	48 – 111	4	25	10.81	18.80
Moderate Perception	112 – 176	19	67	51.35	50.37
Positive Perception	177 – 240	14	41	37.84	30.83
Total		37	133	100.00	100.00

had positive perception towards inclusive education as compared to 30.83% of the mainstream teachers. It is also surprising to find that special education teachers who have been trained in special education also have either negative or moderate perception towards inclusive education, which is rather similar to the level of perception of the mainstream teachers who are not trained in special education.

Perception Level Based on Teachers' Gender

Table 6 shows the different levels of teachers' perception towards the implementation of inclusive education based on their gender. The findings of this study showed that 23.68% of the male teachers had negative perception towards the implementation of inclusive education as compared to the female teachers (11.70 %). The results also showed that 50% of the male teachers and 51.05% of the female teachers had a moderate perception towards the implementation inclusive education. Meanwhile, 26.32% of

the male teachers and 37.24% of the female teachers had a positive perception towards the implementation inclusive program (refer to Table 6). Overall, the results showed that female teachers had better perceptions towards the implementation of inclusive education compared to their male counterparts.

Teachers' Perception towards Inclusive Education According to the Type of Teachers

The results of the independent *t*-test show that there is a significant difference between the perception towards the implementation of the inclusive education between special education teachers and mainstream teachers (t=0.465, df=168, p=0.014, two-tailed) (refer to Table 7). In specific, special education teachers were found to have positive perception towards inclusive education compared to the mainstream teachers. The reason underpinning this result is the exposure that the special education teachers received during their pre-service training and in-service training.

TABLE 6
Teachers' Perception Level According to Teachers' Gender

Perception Level	Score	Frequency		Percentage	
		Male Teachers	Female Teachers	Male Teachers	Female Teachers
Negative Perception	48 – 111	18	11	23.68	11.70
Moderate Perception	112 – 176	38	48	50.00	51.06
Positive Perception	177 – 240	20	35	26.32	37.24
Total		76	94	100.00	100.00

TABLE 7
Independent Samples *t*-Test Based on the Type of Teachers

Category of Teachers	N	Mean	SD	T	df	Significant (2-tailed)
Special education teachers	37	161.13	18.85			
Mainstream teachers	133	141.23	14.76	0.465	168	0.014

p<0.05

TABLE 8
Independent Samples *t*-test based on Gender

Teachers' Gender	N	Mean	SD	*t*	df	Significant (2-tailed)
Male teachers	76	140.59	15.73	0.745	168	0.458
Female teachers	94	151.14	15.86			

p<0.05

Ho1: There is no significant difference in the level of teachers' perception towards the implementation of Inclusive Education based on the type of teachers

Another result from the independent *t*-test also shows that there is no significant difference between the perception towards the implementation of inclusive education among special education teachers and mainstream teachers based on their gender (*t*=0.745, df=168, *p*=0.458, two-tailed)

(refer to Table 8). This finding also shows that there is no difference in the level of perception towards the implementation of inclusive education between the male and female teachers (special education teachers and mainstream teachers).

Ho2: There is no significant difference in the level of teachers' perception towards the implementation of Inclusive Education based on gender

Ho3: There is no significant difference in the level of teachers' perception towards the implementation of Inclusive Education based on academic qualification

In order to test this particular hypothesis, the researchers used the One-Way Analysis of Variance (refer to Table 9). The results showed that there is a significant difference in the perception level of the teachers based on their academic qualifications (F = 5121, df = 3/169, p = 0023), and therefore, Ho3 has to be rejected. In order to determine the pair of academic qualification that has significant difference, the researchers used the Tukey HSD tests (refer to Table 10).

TABLE 9
ANOVA for the Teachers' Perception Level Based on Their Academic Qualification

Variables	Sum of Square	df	Mean Square	F	Sig. 2-tailed
Between Groups	6186.519	5	1237.304	5.402	0.023
Within Groups	58179.327	254	229.052		
Total	64365.846	259			

$p < 0.05$

TABLE 10
Tukey's Results According to the Teacher's Perception Level Based on Their Academic Qualification

Academic Qualification	Basic teaching certificate	Diploma in Education	Degree	M.A/PhD
Mean	192.20	180.93	179.95	169.82

Academic Qualification (I)	Academic Qualification (J)	Mean Difference (I – J)	Standard Error	Sig.
Basic teaching certificate	Diploma in Education	11.27	8.99	0.193
	Degree in Education	12.25	8.12	0.293
	M.A/PhD	22.38	8.65	0.023*
Diploma in Education	Basic teaching certificate	-11.27	8.99	0.193
	Degree in Education	0.98	5.26	0.116
	M.A/PhD	11.11	6.05	0.065
Degree in Education	Basic teaching certificate	-12.25	8.12	0.293
	Diploma in Education	- 0.98	5.26	0.116
	M.A/PhD	10.13	4.66	0.094
M.A/PhD	Basic teaching certificate	-22.38	8.65	0.023*
	Diploma in Education	-11.11	6.05	0.065
	Degree in Education	-10.13	4.66	0.094

$p < 0.05$

Table 11
ANOVA for Perception Level Based on Period of Service

Variables	Sum of Square	df	Mean Square	f	Sig. 2-Tailed
Between Groups	5861.768	4	1465.442	2.545	0.021*
Within Groups	95010.021	165	575.818		
Total	100871.788	169			

P<0.05

Ho4: There is no significant difference in the level of teachers' perception towards the implementation of Inclusive Education based on their period of service

Based on the Tukey HSD test, with significant difference in the level of p<0.05, the results showed that there is a significant difference in the perception towards the implementation of inclusive education between the respondents with the lowest academic qualification (basic teaching certificate) and those who hold higher academic qualification (masters/PhD). The results also showed that the mean perception of the respondents who hold the basic teaching certificate was 192.20, while the mean of the respondents who holds a masters/PhD qualification was 169.82 (refer to Table 10).

In testing hypothesis 4, the researchers used the one-way ANOVA. The results revealed that there is a significant difference in the teachers' perception towards the implementation of inclusive education based on their length of service (F=2.545, df=4/169, p=0.021). Therefore, researchers

conduct Tukey HSD test (refer to Table 12).

The results from the Tukey HSD test showed that there is a significant difference in the period of service. The results indicated that the teachers who have worked for a shorter period of time (1 – 5 years) had positive perception towards the implementation of inclusive education as compared to those with longer period of service, which is more than 20 years. The possible explanation for this significant finding is the so-called new teachers who have been serving between one to five years possess a basic exposure towards inclusive education during their basic teacher training course. On the other hand, teachers who have been working for more than 20 years most probably do not have any exposure on inclusive education. Therefore, this issue influences their perception towards the implementation of inclusive education.

CONCLUSION

The result of this study shows that half of the teachers involved in this study have a moderate perception towards inclusive education. This number includes the special education teachers and the explanation for that is the possibility that these teachers

TABLE 12
Tukey Test Analysis for the Perception Level Based on the Period of Service

Period of Service	1 - 5 Years	6 - 10 Years	11 - 15 Years	16 - 20 Years	More Than 20 Years
Mean	179.54	171.71	168.00	167.33	165.00

Period of Service (I)	Period of Service (J)	Mean Difference (I – J)	Standard Error	Sig.
1 - 5 Years	6 - 10 Years	7.83	4.65	0.444
	11 - 15 Years	11.54	8.29	0.170
	16 - 20 Years	12.21	14.02	0.108
	More Than 20 Years	14.54	17.11	0.015*
6 - 10 Years	1 - 5 Years	-7.83	4.65	0.444
	11 - 15 Years	3.71	9.00	0.029
	16 - 20 Years	4.38	14.45	0.198
	More Than 20 Years	6.71	17.46	0.195
11 - 15 Years	1 - 5 Years	-11.54	8.29	0.170
	6 - 10 Years	-3.71	9.00	0.029
	16 - 20 Years	0.67	16.00	0.308
	More Than 20 Years	3.00	18.76	0.398
16 - 20 Years	1 - 5 Years	-12.21	14.02	0.108
	6 - 10 Years	-4.38	14.45	0.198
	11 - 15 Years	-0.67	16.00	0.308
	More Than 20 Years	2.33	21.91	0.504
More Than 20 Years	1 - 5 Years	-14.54	17.11	0.015*
	6 - 10 Years	-6.71	17.46	0.195
	11 - 15 Years	-3.00	18.76	0.398
	16 - 20 Years	-2.33	21.91	0.504

$P < 0.05$

have not been given enough information on inclusive program even though they are special education teachers.

Result of this study also shows that 10.81% of special education teachers have a negative perception and 51.35 % have a moderate perception towards the implementation of inclusive program even though they themselves involve directly in the inclusive program. The question arise here is, if they themselves are not confident in the implementation of the inclusive education, how do they teach in the inclusive program?

On the other hand, this study finds that the special education teachers have better perception towards inclusive education compared to the mainstream teachers. This is due to the exposure that the special education teachers receive during their pre-service training as well as in-service training. When referring to the academic

qualification, the result of this study shows that teachers who hold basic teaching certificate has higher mean of perception towards the implementation of inclusive education compare to the teachers who hold masters/ PhD qualification. In addition, the result of this study also shows that teachers who work a shorter period of time $(1 - 5$ years) have a higher perception towards the implementation of inclusive education compared to teachers who work for more than 20 years. This is because these teachers are exposed to the inclusive education in their basic teacher training course.

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Relationship between Big-five Personality Domains and Students' Academic Achievement

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ABSTRACT

Personality is a multidimensional psychological construct that can influence the way students engage in learning and their academic performance. This study aimed to examine the relationships between the different personality domains and students' academic performances in Malaysian context. The sample consisted of 360 students (Male, n = 180; Female, n = 180) from five randomly chosen secondary schools in a state in the northern part of Peninsular Malaysia. A quantititave survey approach was used in this study. In particular, the Malay Version Five-Factor Personality Inventory (NEO-FFI) was used to measure the students' personality domains while their academic achievement was denoted by Grade Point Average (GPA). Inferential statistics revealed that there were no gender differences in the different personality domains, except for neuroticism, where females had recorded a higher mean score. The Pearson's correlation coefficient analysis revealed that openness and conscientiousness were positively related to Malaysian students' academic achievements. Finally, regression analysis has confirmed that the two variables accounted for the changes in students' academic performances. The findings have significant implications for education matters.

Keywords: Big-Five personality, neuroticism, extraversion, openness to experiences, greeableness, conscientiousness

INTRODUCTION

Academic excellence is a crucial public policy issue that is frequently discussed in Malaysia. The release of public examination results never fails to capture widespread attention throughout society, especially amongst parents, teachers, school administrators and the Malaysian Ministry

of Education (MOE). Many stakeholders regard students' academic achievement as a priority concern due to its significant implications for their future. Achievements in public examinations, for instance, could determine students' placement in science or arts stream; their competitiveness for securing scholarships; influence further studies and future job prospects; and impact their futures in many other ways. In short, it has long-term implications. However, statistics has shown that there are still many low-achieving students in the public examinations and regular school-based assessment such as monthly tests. For example, approximately 36.47% candidates (n = 17,163) failed to obtain a Grade D for all the subjects they took in the 2008 *Penilaian Menengah Rendah* (Lower Secondary Examination). The figure showed that more than one-third of the students failed to obtain the minimum passing grade in this examination. These low-achieving students are generally perceived by the society as having low cognitive abilities because intelligence is always considered as the prime determinant in academic performance (Rodhe & Thompson, 2007). However, numerous studies in educational psychology have revealed that apart from intelligence, academic performance can also be influenced by non-cognitive factors. One of the factors that is emphasised in the literature of educational psychology is students' personality type (Steinmayr & Spinath, 2008; Bratko *et al.,* 2006). Personality is a construct that has not been widely researched on in the Malaysian

context. Past studies have shown that personality forms the behaviour of a person and affects one's learning habits, and in turn influences his or her academic success (O'Conner & Paunonen, 2006; Furnham & Heaven, 1990; De Raad, 2000). Personality traits such as conscientiousness denote learning habits that are considered favourable to academic achievements, namely hardworking, responsible, and self-discipline (Lieven *et al*., 2002; Chamorro-Premuzic & Furnham, 2003a; Chamorro-Premuzic & Furnham, 2003b; Nguyen *et al*., 2005; Laidra *et al*., 2007, Gray & Watson, 2002; Noftle & Robins, 2007). As such, other than intelligence, personality may be another dominant factor that could play significant roles in students' academic success.

Personality is a multidimensional psychological construct. The existence of earlier studies on personality has resulted in the emergence of several different approaches that explain personality from different perspectives. The Five Factor Model, amongst other, is the most widely used approach in explaining the learning behaviour and academic achievement of students (Gray & Watson, 2002; Chamorro-Premuzic & Furnham, 2003a; Chamorro-Premuzic & Furnham, 2003b; Noftle & Robins, 2007). This model explains one's personality from five domains. The categorization of the personality domains was statistically supported by the results of factor analyses. Each domain contains a cluster of personality traits. The model was found to be culturally unbiased, universal,

stable, and consistent across time. As noted by Mischel, Shoda and Ayduk (2008), the authenticity of the model is proven as the dimensions could accurately describe the individuals' characteristics in real-life context. The existence of the five dimensions of personality construct, as proposed by the Five Factor Model, was supported by past study (Larsen & Buss, 2005). According to O'Connor and Paunonen (2007), these domains are neuroticism, extraversion, openness to experiences, agreeableness and conscientiousness, which were found to be related to academic achievements of older students, including those at the college and university levels.

Personality Domain and Academic Achievement

Previous research has examined the relationship between personality domains and students' academic achievement at primary, secondary and tertiary educational levels (see Table 1). Relevant past studies were reviewed and summarized in terms of samples' education level, instrument used to gauge personality, and key research findings. Literature reviews suggest that different personality domains seem to have distinctive influence on academic achievement across different educational levels. For this reason, the studies were categorized mainly according educational level. The first category consisted of research that focused solely on primary students, such as the large-scale study carried out by Laidra, Pullmann and Allik (2007). The second category included studies that involved a combination

of primary and secondary students, such as research done by Gray and Watson (2002) as well as Noftle and Robins (2007). The third category involved research that focused mainly on university students (Lieven, Coetsier, Fruyt, & Maeseneer, 2002; Chamorro-Premuzic & Furnham, 2003a; Chamorro-Premuzic & Furnham, 2003b; Nguyen, Allen & Fraccastoro, 2005). At the primary level, Laidra *et al*. (2007) sampled a total of 3,618 primary and secondary students (male, n=1,746; female, n=1,872) in the Republic of Estonia, Northern Europe. Two instruments were employed in the study. The findings revealed that students' achievement at the primary level was more associated with openness to experiences, i.e. primary school children who are keen to explore new learning experiences have greater academic success. At the secondary level, however, achievement was more related to the conscientiousness dimension, whereby students who are hard working, systematic and efficient at managing their studies will achieve better academic performance. Literature reviews show that the majority of past studies were more concerned on investigating the personality domains of older children, such as those at the secondary and university levels, in relation to academic performances. Gray and Watson (2002), for instance, found that both secondary and undergraduates' academic achievements, as measured by their Grade Point average (GPA), were more related to the conscientiousness dimension of personality construct as compared to other dimensions of personality (neuroticism,

TABLE 1
Correlation between Five Factor Personality and Academic Achievement

Journal Article	Measurement		Correlation				
	Five Factor Personality	Academic Achievement	N	E	O	A	C
Laidra *et al*. (2007)	EBFQ-C	GPA Grade 2	**-.15**	.03	**.26**	**.23**	**.14**
		GPA Grade 3	**-.13**	.06	**.25**	**.29**	**.19**
		GPA Grade 4	**-.12**	.07	**.28**	**.25**	**.23**
	NEO-FFI	GPA Grade 6	**-.25**	**.14**	**.12**	**.23**	**.32**
		GPA Grade 8	**-.16**	-.00	**.13**	**.08**	**.21**
		GPA Grade 10	**-.19**	-.01	**.18**	**.12**	.30
		GPA Grade 12	**-.11**	-.04	**.11**	.00	.20
Gray & Watson (2002)	NEO-FFI	GPA University	.00	-.09	**.18**	**.15**	**.36**
		GPA Secondary School	.00	-.05	.01	.11	**.22**
Noftle & Robin (2007)	BFI	SAT verbal	**-.05**	.02	**.20**	**-.03**	**.01**
		SAT math	**-.07**	**-.06**	**.05**	**-.06**	**.07**
		GPA College	**.04**	-.02	**.06**	**.03**	**.22**
		GPA Secondary School	.03	.03	.01	**.10**	**.22**
		SAT verbal	-.03	**-.15**	**.20**	-.05	-.09
	NEO-FFI	SAT math	.03	-.08	.02	-.06	-.03
		GPA College	**-.08**	.02	**.13**	.10	**.19**
		GPA Secondary School	.04	-.09	.03	.06	.10
		SAT verbal	**-.02**	.07	**.26**	-.10	.05
		SAT math	**-.08**	-.04	.04	-.03	-.03
	HEXACO	GPA College	.01	-.13	.05	-.03	**.20**
		GPA Secondary School	.05	.03	.02	**.11**	**.26**
		SAT verbal	-	-	**.26**	-	.00
		SAT math	-	-	.05	-	-.06
	NEO-PI-R	GPA College	-	-	**.13**	-	**.18**
		GPA Secondary School	-	-	.04	-	**.25**
Lieven *et al*. (2002)	NEO-PI-R	End of First Year Score	.06	**-.12**	.09	-.05	**.24**
		End of Second Year Score	.03	-.02	.08	-.08	**.17**
		End of Third Year score	.03	-.04	**.15**	-.10	**.19**
Chamorro-Premuzic & Furnham (2003a)	NEO-PI-R	First Year GPA	-.01	**-.17**	-.03	.07	**.25**
		Second Year GPA	**-.22**	-.02	.06	.04	**.36**
		Third Year GPA	**-.21**	**-.13**	.02	.08	**.39**
Chamorro-Premuzic & Furnham (2003b)		CGPA	**-.16**	-.11	.02	.07	**.36**
	NEO-FFI	First Year GPA	**-.28**	.05	**.34**	-.06	.33
		Second Year GPA	**-.31**	.06	.06	.02	.34
		Third Year GPA	**-.32**	-.02	.03	.02	.34
Nguyen *et al*. (2005)		CGPA	**-.35**	.07	.22	.34	.39
		Research Report	**-.25**		.13	-.03	.36
	BFI	End of Course Grade	**-.17**	-.01	**.12**	**.17**	.21
		GPA	.00	**-.19**	.07	.05	.18
				-.08			

Note: Numbers in **bold** show significant correlations at the alpha value of .05.

extraversion, agreeableness and openness to experience). In other words, students with conscientiousness personality traits tend to perform better at both secondary and tertiary levels. Similar findings were obtained by Noftle and Robins (2007) in a large-scale study on 10,497 undergraduate students at the University of California. Conscientiousness was found to be the most influential personality dimension on students' academic performances, and this was followed by the openness dimension. These findings suggest that students who are conscientious and open to learning experiences are more likely to attain academic success than those who are lacking in these two personality traits.

The literature reviews also suggest that primary school students' academic achievement is more related to the openness domain, while secondary school students' performance is more affected by the conscientiousness domain (Laidra *et al*., 2007). Some of the traits in the openness domain are intellectual curiosity, aesthetic sensitivity, attentiveness to inner feelings and preference for variety, which seem to have positive impacts on students' learning. According to Costa and McCrae (1992), openness is associated with high cognitive ability such as divergent thinking, while conscientiousness is a tendency to show self-discipline, such as in actively planning and organizing tasks, acting dutifully and aiming for achievement. Students who are conscientious are purposeful, have strong will to learn and are determined to be successful in the academic context (Costa

& McCrae, 1992; Digman & Takemoto-Chock, 1981). Studies involving secondary and university cohorts, on the other hand, have also identified conscientiousness as the most significant personality domain in relation to academic performance, and this is followed by the openness dimension (Gray & Watson, 2002; Noftle & Robin, 2007). Despite different instruments being used to measure students' personality domains (e.g., NEO-PI-R, NEO FFI or BFI), the findings seem to point to the conclusion that conscientiousness was strongly correlated with academic achievement at the tertiary level (Lieven *et al*., 2002; Chamorro-Premuzic & Furnham, 2003a; Chamorro-Premuzic & Furnham, 2003b; Nguyen *et al*., 2005).

Gender Differences in Personality Domains

Apart from academic achievement, gender differences in the personality domains have also captured the attention of educational researchers. Earlier research by Eysenck and Cookson (1961) showed that boys aged 7 to 16 years were more inclined towards extraversion personality traits as compared to girls; in contrast, female college students had more agreeableness and neuroticism traits than their male counterparts (Chapman *et al.,* 2007). The findings from these past studies indicate that there are gender differences in students' personality domains. The postulation was further supported by Feingold (1994). In line with this, Costa, Terracciano and McCrae (2001) also found that males and females differ

in their personality through a synthesis of data from 26 cultures, representing 23,031 respondents. Women were found to obtain higher scores in neuroticism, agreeableness and openness. Similarly, Nguyen *et al.* (2005) also discovered that female students were more inclined towards agreeableness and conscientiousness, while, male students were emotionally stable compared to their female counterparts. This was supported by Khairul's (2003) findings which indicated that female students' mean score in neuroticism domain was greater than that of the males; however, there were no significant gender differences in agreeableness, extraversion, conscientiousness, and openness domains.

Gender differences seem to be an important construct in psychological research, as this factor may account for many behavioural differences between female and male students. In fact, the Ministry of Education (MOE) has investigated the issue of gender differences in academic achievements in the country. Nevertheless, the possible link between academic gap and personality differences between male and female students is relatively an uncharted area of research in Malaysia, and this calls for more investigation to confirm the hypothesis. In Malaysia, females seem to outperform their male counterparts at all academic levels: primary, secondary and even tertiary levels (Loh, 2008). The annual public examinations results have further reaffirmed the findings that female students performed far better than the males academically. It is therefore important for researchers to confirm whether or not these differences were accounted for by gender differences in the personality domains. We also need to ascertain to what extent personality dimensions explain the academic performances of Malaysian secondary students, as this is a critical educational level whereby higher achievers could gain wider access to higher education. There are also needs to establish the validation of Malay-language instrument in measuring the different dimensions of personality. As supported by literature reviews, the NEO-FFI is considered an appropriate instrument to gauge local students' personality traits. Nevertheless, it needs to be translated and adapted before it could be used in the local context. As a whole, four research questions were formulated to guide this investigation.

OBJECTIVES OF THE STUDY

1. To test the validity and reliability of the Malay Language Version NEO-FFI in measuring secondary students' personality.

2. To determine whether there are any gender differences in personality domains.

3. To test the relationships between personality domains and secondary students' academic achievement.

4. To identify those personality domains that predict secondary students' academic achievement.

METHODOLOGY

This study employed quantitative research approach to achieve the objectives of the study. Details on the samples, instrument, and statistical analysis are as follows:

The sample for this study consisted of 360 secondary school students. Simple random sampling technique was used to select the samples for this study. In more specific, the fish bowl technique had been used to sample the students from five secondary schools in Penang, a northern state in Malaysia. First, the population of secondary students from each of the school was listed and numbered consecutively. Next, the fish bowl or lottery technique was used to select the samples. This technique involves the selection of the sample at random so as to ensure that all the students in the five secondary schools have an equal chance of been selected (Saunders, Lewis & Thornhill, 2003). A specific number was assigned to each student and these numbers were written on pieces of paper and drawn from a box. The process was repeated until the required sample size was reached (Kumar, 2005).

In this study, the Malay Version NEO Five-Factor Inventory (NEO-FFI) (NEO-FFI; Costa & McRae, 1992) was employed to measure students' personality traits. This 60-item, five-point likert scale is amongst the most widely-used instrument to measure personality domains. The scores derived from this self-report instrument are reliable, stable, and have predictive validity (Matthews *et al.,* 2003). The NEO-FFI was developed based on the five factor model of human personality variation, which construes individual differences in terms of the following traits: neuroticism, extraversion, openness, agreeableness, and conscientiousness (Costa & McCrae, 1992; Hrebickova *et al.,* 2002). A double back translation method was used to translate the items into Malay language by a panel of experts who are competent in both English and Malay Languages. Its validity and reliability were tested and the details of the analysis are presented in the discussion section. Academic achievement, on the other hand, was measured by a standardized public examination, the *Penilaian Menengah Rendah* 2008 (Lower Secondary Examination). Performance in the different subjects in PMR examination was computed into continuous data as Grade Point Average (GPA).

Factor analysis and reliability tests were used to test the validity and reliability of the Malay version NEO-FFI. Inferential statistics, which included *t*-test, Pearson's correlation coefficient analysis, and multiple regression analyses, was run to analyze the collected data.

RESULTS

Validity and Reliability NEO-FFI

Factor analysis was carried out in the pilot study to test the validity of the translated version NEO-FFI. The sample consisted of 180 secondary students taken from one school in the state of Penang, Malaysia. Prior to this analysis, the underlying assumption of the factor analysis, such as sphericity, was tested and no violation

was found. The chi-square value was not significant at .05. The Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO), on the other hand, was .651, indicating that the factors are interpretable (Table 2). Based on the loadings (exceeded .30), five domains were identified: neuroticism (10 items), extraversion (10 items), openness (8 items), agreeableness (6 items) and conscientiousness (11 items), and this finding is similar to those obtained in past studies (Costa & McCrae, 1992; Hrebickova *et al.,* 2002).

TABLE 2
Rotated Component Matrix (NEO-FFI)

	Component				
	N	E	O	A	C
S1 N	.382				
S6 N	.497				
S11 N	.525				
S21 N	.577				
S26 N	.481				
S31 N	.338				
S41 N	.476				
S46 N	**.471**	-.384			
S51 N	.458				
S56 N	.572				
S2 E		.422			
S7 E		.660			
S12 E	-.380	**.492**			
S17 E		.654		.306	
S22 E		.481			
S27 E		.343			
S32 E		.582			
S37 E		.765			
S42 E	-.361	**.578**			
S52 E		.638			
S8 O			-.465		

Table 2 (*continued*)

	N	E	O	A	C
S13 O			.619		
S23 O			.539		
S33 O			.601		
S38 O			-.469		
S43 O			.630		
S48 O			.729		
S53 O			.545		
S9 A				.612	
S14 A				.466	
S24 A				.416	
S29 A				.303	
S39 A				.581	
S59 A				.577	
S5 C					.357
S10 C					.640
S15 C					.601
S20 C					.613
S25 C					.533
S30 C	-.331			.304	**.349**
S35 C					.614
S40 C					.473
S50 C					.678
S55 C	-.358				.509
S60 C					.636

Note: N = Neuroticism, E = Extraversion, O = Openness, A = Agreeableness, C = Conscientiousness
Items 3, 4, 18, 28, 45, 54, and 58 were excluded because the loadings were less than .30.
Items 16, 19, 34, 36, 44, 47, 49, and 57 were removed as they did not load on the postulated dimension.

As a whole, the adapted instrument recorded an alpha value (α) of .642, which was considered as acceptable reliability. Cronbach's Alpha analysis was then carried out on all the five subscales. The results showed that the low reliability of the instrument could be due to the items in the openness and agreeableness subscales. The alpha values in these two subscales were rather low (openness subscale, α = .631;

agreeableness subscale, α = .609). The alpha values for the other three subscales, on the other hand, were greater than .70 (neuroticism α = .725, extraversion α = .788 & conscientiousness α = .811). In order to strengthen the reliability of the Malay Version NEO-FFI, the items in the openness and agreeableness subscales were re-examined by experts and some refinements were made. After the items were improved, test-retest (n = 43) was carried out to re-examine the reliability of the scales. The time gap for the two tests was two weeks apart. The results showed that the reliability coefficients of the two subscales were satisfactory; openness, α = .855; agreeableness, α = .779 subscales. The findings generally confirmed that the Malay version NEO-FFI had adequate construct valid. Based on the findings on the factor analysis, there were five main personality domains in this instrument, and this is in line with the original instrument. In term of reliability, the results of test-retest analysis

confirmed that it is a reliable instrument to be used in measuring Malaysian secondary students' personality domains over time.

Gender Differences in Personality Domains

Table 3 reveals the comparison between the male and female students on the five personality dimensions. There were no significant gender differences in extraversion [t (357.698) = -1.205, $p >$ 0.05], openness [t (358) = -.851, p > 0.05], agreeableness [t (358) = -1.799, p > 0.05] and conscientiousness [t (358) = -1.943, p > 0.05] personality domains of the respondents.

As shown in Table 3, female students (M = 31.56) recorded a higher mean score on neuroticism as compared to the males (M = 30.18); the difference was statistically significant [t = -3.142 (358), $p < 0.05$]. This suggests that female students may be more emotionally unstable, feeling more anxious and insecure than their male counterparts.

TABLE 3
Descriptive Statistics and t-Test on Specific Personality Domains by Gender (n=360)

Domain	Male (n = 180)		Female (n = 180)			
	Mean (M)	Standard Deviation	Mean (M)	Standard Deviation	t	Sig. (2-way)
Neuroticism	30.18	4.20	31.56	4.20	-3.14	.002*
Extraversion	35.39	4.88	36.09	6.07	-1.21	.229
Openness	36.94	4.46	37.34	4.46	-.85	.396
Agreeableness	39.62	4.03	40.36	3.76	-1.80	.073
Conscientiousness	39.23	6.09	40.44	5.67	-1.94	.053

Note: *Significant at the alpha level of .05

The Relationships between Personality Domains and Academic Achievement

Pearson's Correlation Coefficient Analysis was carried out to analyse the associations between the five personality domains and students' academic achievement. In this study, academic performances were measured by the Grade Point Average (GPA) obtained through standardized examination. The output of the analysis is presented in Table 4.

TABLE 4
Relationships between Specific Personality Domains and Academic Achievement

Personality Domains	Academic Achievement (GPA)
Neuroticism	.029
Extraversion	.081
Openness to experiences	.222*
Agreeableness	.055
Conscientiousness	.211*

Note: * Significant at .05; GPA = Grade Point Average

As shown in Table 4, two personality domains were found to be significantly related to academic achievement. These domains were openness ($r = .222$, $p < .05$) and conscientiousness ($r = .211$, $p < .05$). Based on Cohen's (1988) guidelines, the strength of associations for these variables was considered small, yet positive and significant at an alpha level of .05. This implies that respondents with greater inclination towards openness and conscientiousness personality domains are more likely to attain higher academic achievement ($r < .30$). The other personality domains of the respondents, namely neuroticism ($r = .029$, $p > .05$), extraversion ($r = .081$, $p > .05$), and agreeableness ($r = .055$, $p > .05$) were not significantly correlated with their academic achievements. This further suggests that the three personality domains were not related to students' academic achievement.

TABLE 5
Model Summary

Model	R	R²	Adjusted R²	Standard Error of the Estimate
1	.250[a]	.062	.057	.777

Predictors: (Constant), Conscientiousness, Openness
Dependent: Academic achievement (GPA)

	y	=	$a + b_1X_1 + b_2X_2$
Which is	y	=	$1.338 + 0.028 X_1 + 0.018 X_2$
Where	y	=	academic achievement (dependent variable)
	a	=	constant
	b_1	=	unstandardized openness coefficients
	X_1	=	domain openness (independent variable)
	b_2	=	unstandardized conscientiousness coefficients
	X_2	=	domain conscientiousness (independent variable)

TABLE 6
Coefficient[a] Value

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Standard Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	1.338	.364		3.674	.000		
	Openness	.028	.011	.154	2.597	**.010**	.742	1.347
	Conscientiousness	.018	.008	.133	2.235	**.026**	.742	1.347

a. Dependent variable: GPA

Predictive Values of Personality Domains on Academic Achievements

Multiple regression analysis (Enter Method) was run to determine the predictive values of personality domains on academic achievement. As demonstrated by the findings in Table 4, only two (openness and conscientiousness) out of five domains were significantly related to students' academic achievements. Hence, only openness and conscientiousness domains were entered into the regression equation (Table 5). As shown in Table 5, the R^2 value was .062, indicating that 6.2% of the variance in academic achievement was explained by openness and conscientiousness domains. In other words, the two variables explained 6.2% of the changes in the students' academic achievement.

Based on the statistically outputs in Table 6, the openness domain could predict academic achievement significantly with a beta value of .154 ($t = 2.597$, $p < .05$) after the effect of conscientiousness was statistically controlled. The conscientiousness domain, on the other hand, was also able to predict achievement significantly. Its beta value was .133 ($t = 2.235$, $p < .05$) after the effects

from the openness domain were controlled. On top of that, diagnostic tests were also run and confirmed that there were no multicollinearity problems in the regression model. The tolerance values for the two predictors were high and Variance Inflation Factor (VIF) was less than 2.0 (Table 6). In addition, the Condition Index revealed values less than 30.0 (Table 7). All the tests supported the findings that the underlying assumptions for the regression analysis were not violated and the model was supported statistically.

TABLE 7
Collinearity[a] Diagnostic

Model	Domains	Condition Index
1	(Constant)	1.000
	Openness	16.404
	Conscientiousness	20.888

Dependent variable: GPA

DISCUSSION AND IMPLICATIONS

The aim of the study was to determine the relationships between the different dimensions of personality and students' academic achievements. When gender differences were examined, the findings showed that the female students were more

inclined towards neuroticism traits than their male counterparts. The finding of this study is similar to the ones obtained by other international studies which claimed that men and women differed in the neuroticism domain when personality is concerned. According to Feingold (1994), gender differences in neuroticism trait are most likely caused by the different chromosomes between males and females. Females have two X chromosomes compared to males, who have only one X chromosome. These chromosome differences have contributed towards weaker personality traits among the females, and thus they are more worried and stressed as compared to their counterparts. However, this study found that even though the difference was significant, the variation was considered to be small (t = -3.142, p < 0.05). Hence, gender differences in personality may not be so much linked to a pair of sex-chromosomes (XX vs. XY). The differences between males and females in terms of neuroticism may be influenced by a combination of genes, physiological as well as nurturing differences between males and females. In other words, the differences between the male and female students in terms of neuroticism might be due to many factors, yet the differences were considered small, as found in this study. In addition, there were no gender differences in other personality domains, such as extraversion, openness, agreeableness and conscientiousness. The findings of this study are similar to those of the other local studies, such as in Khairul's (2003) study, where males and females did not differ in the domains of extraversion, openness, agreeableness and conscientiousness. Such findings are also in line with those exist in other literature (Costa *et al*., 2001; Feingold, 1994; Chapman *et al*, 2007).

The results of this study indicated that the female students were more neurotic compared to male students. The literature review has shown that neuroticism may not contribute positively towards academic achievement (De Raad & Perugini, 2002; Laidra *et al*., 2007; Chamorro-Premuzic & Furnham, 2003b). Nevertheless, many past studies have consistently demonstrated that female students always outperformed males (Gibb, Fergusson & Horwood, 2008; Ryan, 1999). Despite their inclination towards the negative trait in terms of academic performance, females generally still do better than males because learning and achievement may be influenced by many other factors such as language proficiency, learning strategy, the way they were brought up (Zalizan *et al.,* 2005), as well as school factors (Gibb, 2008; Zalizan *et al*., 2005). For example, Zalizan (2005) found that females have more proficiency and learning strategies than males, which helped them in the learning process and prepared them better for examinations. Moreover, Gibbs *et al*. (2008) indicated that school assessment and pedagogy might be biased towards females. According to Gibbs *et al*. (2008), teaching and schooling have become "feminised" and schools are no longer adequately addressing the male students' needs. Hence, to narrow the performance gap between the male and female students

in the country, factors like learning styles, learning proficiency and strategies, family control, assessments and pedagogy may need to be re-examined.

This study also found that the relationship between conscientiousness domain and academic achievement was significant and positive (r = .222, *p* < .05). In particular, students who are responsible, with good discipline, hardworking, and have high motivation have greater tendency to obtain good results. The finding is in line with much past research (see Lieven *et al.*, 2002; Chamorro-Premuzic & Furnham, 2003a; Chamorro-Premuzic & Furnham, 2003b; Nguyen *et al.*, 2005; Laidra *et al.*, 2007, Gray & Watson, 2002; Noftle & Robins, 2007). In addition, similar results were obtained between the openness domain and academic achievement (r = .211, *p* < .05). This result indicates that students who are imaginative, have flexible thinking and originality, accept new ideas and have curiosity show better academic achievements.

On the contrary to past studies, the results indicate that in the Malaysian context, both openness and conscientiousness domains are important for secondary students' academic achievements. Past studies seem to indicate that openness is more strongly related to achievement at the primary level and not so much at the secondary stage. This is likely caused by the change of the personality measure, a difference between the two samples; primary and secondary level (Laidra *et al.*, 2007). According to Laidra *et al.* (2007), some researchers (e.g.

Costa and McCrae) define openness by such characteristics as being imaginative, curious and aesthetically sensitive, whereas others (e.g., Goldberg) define it in terms of intellectual characteristics. The NEO-FFI follows the first definition, while a more intellectual definition is employed in the EBFQ-C (Laidra *et al.*, 2007). Therefore, more research is needed to investigate the relationship between the openness domain and academic achievement in the primary and secondary levels using the same instrument. Besides, a recent research suggests that Asian students' socialized conformity is fairly easy to overcome with explicit instructions to "be creative", or instructions that emphasise the group benefits of creativity (Miller, 2006). According to Chamorro-Premuzic and Furnham (2008), openness determines higher IQ. This IQ affected deep learning, which in turn led to higher exam grades. Thus, in order to achieve good results at the secondary level, where learning is more challenging, students need to have openness traits.

In order to examine how well the domains of openness and conscientiousness explain academic achievement, multiple regressions were conducted. The findings showed that openness and conscientiousness were significant predictors of achievement. These findings were congruent with past studies (Laidra *et al.*, 2006; Noftle & Robins, 2007; Chamorro-Premuzic & Furnham, 2003b). However, the two domains only accounted for 6.2% of the changes in secondary students' achievements. This

implies that academic intelligence may still be a stronger predictor of school performance in standardized test (Farsides & Woodfield, 2003; Kuncel *et al.,* 2004). As found by Steinmayr and Spinath (2008), intelligence explained about 25% of variance in school achievement. The implication of the study shows that further studies need to take in consideration factors such as cognitive ability in predicting academic achievement.

CONCLUSION

Based on the findings of this study, it is concluded that gender differences in academic achievement may not be accounted for by the variation in personality domains. As a whole, personality only has a small influence on academic achievement. Nevertheless, two of the personality domains, namely, openness and conscientiousness, have contributed positively towards secondary students' performance. Research into the different domains of personality provides a more meaningful understanding about the link between personality traits and academic performance in the local context. The findings of this study indicate that counsellors and teachers ought to focus more on conscientiousness and openness traits like self-discipline, good time management, intellectual curiosity, aesthetic sensitivity, and attentiveness to improve students' performance.

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The Phonology of Suffixation and Prefixation in Malay

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ABSTRACT

The aim of this paper was to examine the phonology of suffixation and prefixation in Malay, particularly the phonological alternations that are derived due to the morphological process of affixation. It is apparent that the phonological behaviour of suffixation in this language is quite distinct, both in terms of character and degree of generality from prefixation. Rules that are visibly active at the stem-prefix juncture are not permissible at the stem-suffix juncture, and vice versa. This asymmetry has not been satisfactorily accounted for in previous works. The present analysis attempted to account for this irregularity by adopting the theoretical framework of Optimality Theory (Prince & Smolensky, 2004). The apparent irregularity is accounted for as a consequence of a candidate output satisfying more dominant constraints in the hierarchy. The relevant constraints that play significant roles here are the alignment constraints of the prosody-morphology interface, which require that the edge of some grammatical category coincide with the edge of some prosodic category. The prefix-stem boundary is controlled by ALIGN-PREF, requiring that the right edge of a prefix coincides with the right edge of a syllable, while the stem-suffix boundary is governed by ALIGN-SUF, requiring that the left edge of a suffix coincides with the left edge of a syllable, and ALIGN-STEM, requiring that the right edge of a stem coincide with the right edge of a syllable. ALIGN-SUF and ALIGN-STEM are higher ranked than ALIGN-PREF in the hierarchy. This schematic ranking straightforwardly explains the irregularity in the prefixation and suffixation in Malay.

INTRODUCTION

As commonly observed in many languages, when morphemes combine to form words, some of the neighbouring segments undergo phonological alternations. In the rule-based approach, the generality in the alternation is captured and formalized in terms of input-based rewrite rules. However, current work in phonology, especially with the advent of Optimality Theory (henceforth OT), the phenomena cast under the conventional rule-based approach have now been re-examined and reformulated in terms of output-based well-formedness constraints.

Accordingly, this paper attempts to examine the phonology of Malay, particularly the phonological alternations that are derived due to the morphological processes of prefixation and suffixation. It is observed that the phonology of suffixation and prefixation in this language is quite distinct both in character and degree of generality. Rules such as nasal assimilation and nasal coalescence that are regularly active at the stem-prefix juncture are not permissible at the stem-suffix juncture. These asymmetries have not been satisfactorily accounted for in the previous rule-based works. The present paper offers an account for this irregularity by adopting the theoretical framework of OT (Prince & Smolensky, 2004). The apparent irregularity is accounted for as a consequence of the output candidate that best satisfies the language's constraint hierarchy.

DATA

The Malay data used in the study are prescriptive data as represented in the spelling system. The language has four underlying nasal consonants, namely /m, n, ny, ng/. Generally, a nasal segment which forms the coda of the first syllable is always homorganic, with the following onset obstruent. Underlying non-homorganic nasal-obstruent clusters derived by morphemic concatenation undergo phonological alternations, as follows:

1. Morphemic concatenation at the prefix-stem boundary[1]

    a. /meng+balas/ [mem.ba.las] 'react'

       /meng+datang/ [men.da.tang] 'come'

       /meng+gali/ [meng.ga.li] 'dig'

       /meng+cadang/ [men.ca.dang] 'propose'

       /meng+jilat/ [men.ji.lat] 'lick'

    b. /meng+pasang/ [me.ma.sang] 'set'

       /meng+tiru/ [me.ni.ru] 'copy'

       /meng+kunyah/ [me.ngu.nyah] 'chew'

       /meng+sapu/ [me.nya.pu] 'sweep'

2. Morphemic concatenation at the stem-suffix boundary

> /tanam+kan/　[ta.nam.kan]
> 'bury (imperative)'
>
> /tekan+kan/　[te.kan.kan]
> 'press (imperative)'
>
> /pasang+kan/　[pa.sang.kan]
> 'set (imperative)'

The phonological facts displayed above can be summarized as follows: (i) the final nasal of the prefix assimilates to the place of articulation of a following voiced stop and affricate[2] (1a), (ii) the final nasal of the prefix coalesces with the following voiceless obstruents (except for /c/) yielding a homorganic nasal consonant (1b)[3], and (iii) nasal assimilation and coalescence do not apply at the stem-suffix juncture. These generalizations have not been satisfactorily accounted for in the previous rule-based analyses.

NASAL ASSIMILATION AND COALESCENCE AT THE PREFIX-STEM BOUNDARY

As mentioned, a nasal segment which forms the coda of the first syllable is always homorganic with the following onset obstruent, and this fact is captured in the previous rule-based approach by a very general rule called nasal assimilation (Farid 1980, p. 13; Teoh, 1994, p. 101). In Farid's (1980) analysis, nasal assimilation is formalized as a feature changing rule as in (3), whereas in Teoh's (1994) non-linear analysis, nasal assimilation is interpreted as a process of spreading, that is, the

nasal segment gets its specification for place of articulation through linking with the following consonantal segments, as illustrated in (4).

3. Nasal assimilation as feature changing (Farid, 1980, p. 13)

$$[+\text{nasal}] \rightarrow \begin{bmatrix} \alpha\ \text{ant} \\ \beta\ \text{cor} \\ . \\ . \\ . \end{bmatrix} \quad / \underline{\quad} \quad \begin{bmatrix} C \\ \alpha\ \text{ant} \\ \beta\ \text{cor} \\ . \\ . \end{bmatrix}$$

4. Nasal assimilation as spreading (Teoh, 1994, p. 101)
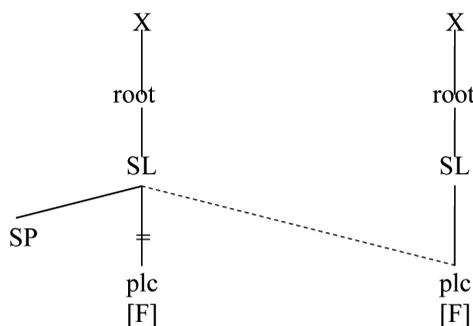
Given the formulations of the rules in (3) and (4), we would expect nasal assimilation to apply accordingly at the stem-suffix boundary because its structural description is fully met. This irregularity, however, is not addressed in Teoh (1994). Farid (1980, p. 13), on the other hand, regards this as an exception as he notes, "Nasals always appear on the surface as homorganic to a following consonant, except in cases of reduplication, or if the cluster consists of nasal plus suffix-initial consonant [-kan]".

In an OT account, the irregularity of nasal assimilation at the suffix juncture is explainable. This process does not take place in the optimal output because the candidate in hand is not the candidate best satisfying the constraint hierarchy. In standard OT analysis (McCarthy & Prince, 1993a, 1993b), nasal assimilation in natural languages is triggered by the CODA COND constraint, which is defined in prose as in (5). In a later development, this constraint has been reinterpreted and reformalized in terms of an alignment statement requiring consonants to be left-aligned with a syllable (Ito & Mester, 1994), as formally defined in (6) below.

5. CODA-COND
   A coda consonant is a nasal homorganic to a following stop or affricate.

6. CODA COND: Align-Left (C, σ)

The formulation in (6) generally implies that all consonants are ruled out from syllable's final position. In more specific cases, however, the consonantal element 'C' in (6) is often more narrowly circumscribed by referring to Cplace, marked Cplace, major segment types (resonant, obstruents), etc., and in this way, CODA COND (6) is, properly speaking, an alignment scheme that in individual grammars is cashed in for some set of elementary alignment conditions (Ito & Mester, 1994, p. 31). Following Ito and Mester (1994), the CODA COND constraint in Malay is formalized in terms of an alignment statement as in (7) (Zaharani, 2004).

7. CODA COND
   Align-Left (CPlace Nasal, σ)

The constraint in (7) penalises any occurrence of specified CPlace nasal in the coda. As widely known, CODA COND is subject to the Linking Condition (Hayes 1986). Any segment which is doubly-linked to both rhyme and onset is immune to this constraint. Thus, geminates and place-linked clusters are not counted as a violation of CODA COND. Ito and Mester (1994, p. 34) call this 'noncrisp alignment', as opposed to the 'crisp' one. The difference between crisp and noncrisp alignments is as follows:

8. **a. [wa.ngi] 'fragrant'**
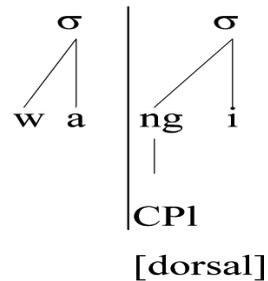
b. [tung. gu] 'wait'
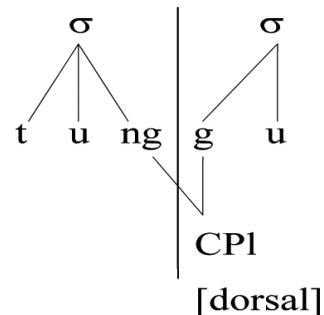
The CPlace in (8a) fulfils CODA COND, since it is exclusively linked as a leftmost syllable daughter ('crisp alignment'). The CPlace in (8b) satisfies CODA COND as well because it is linked to the left edge of the second syllable, in spite of the additional link to the preceding syllable ('noncrisp alignment') (Zaharani, 2004).

Before I offer an OT account of nasal assimilation at the prefix-stem juncture, it must be noted that in the previous studies, the C-final prefix in (1) is represented with nasal segment which is not specified for the feature node [Place] (cf. Teoh, 1994; Kroeger, 1988). This consonant gets its [Place] node from the following obstruent through spreading. It has been argued that underspecification is unnecessary in the analysis of OT (Prince & Smolensky, 2004; Ito, Mester & Padgett, 1995). As Ito, Mester and Padgett (1995) pointed out, "since there is no sequential phonological derivation in Optimality Theory, there is no sense in which (parts of) the phonological derivation could be characterized by underspecification." Following this assumption, I construed the nasal-final prefix in Malay as fully specified in the lexical representation, and is represented as a dorsal nasal /ng/, since this segment appears before V-initial stems (i.e. /meng+ubah/ →[mengubah] 'change') (cf. Farid, 1980).

In the rule-based approach, nasal assimilation in (4) basically involves two general procedures. First, the nasal segment loses its specified [Place] node by delinking, and subsequently it obtains a new [Place] node from the following consonant through

spreading. The delinking of place node is captured in OT by a formal constraint IDENT-IO[Place] in (9).

9. IDENT-IO[Place]
    The correspondent of the input segment specified as [Place] must be [Place].

It is apparent that CODA COND and IDENT-IO[Place] are in conflict, and therefore, they have to be ranked with respect to each other. The relevant ranking has to be CODA COND >> IDENT-IO in order for the assimilated form to emerge as the optimal output, as the following tableau demonstrates.

10. Nasal assimilation at the prefix-stem juncture

/meng+balas/	CODA COND	IDENT-IO[Place]
a. meng.ba.las	*!	
b. ☞ mem.ba.las		*

The failed candidate (10a) violates CODA COND since the cluster is not homorganic. By contrast, the optimal candidate (10b) satisfies CODA COND at the expense of violating IDENT-IO[Place]. It must be noted that cross-junctural multiple linking at the prefix boundary has a significant effect on an alignment constraint of the prosody-morphology interface, which requires that the edge of some grammatical category coincides with the corresponding edge of some prosodic categories. The relevant constraint at play here is ALIGN-PREF, which belongs to a family of constraints, called generalized alignment (McCarthy & Prince 1993b).

ALIGN-PREF can be formally defined as follows:

11. ALIGN-PREF
    Align (Prefix, Right, σ, Right)

Constraint (11) states that the right edge of a prefix must coincide with the right edge of a syllable. Following Ito and Mester (1994), ALIGN-PREF is construed in this paper as a 'crisp' alignment constraint, requiring a single linking representation.

12. Nasal assimilation with multiple linking - ALIGN-PREF violation

[dorsal] [labial]
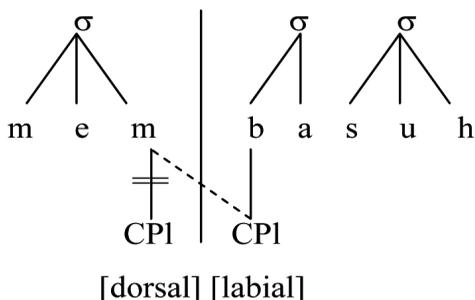
13. Unhomorganic nasal with a single linking - ALIGN PREF satisfaction

[dorsal] [labial]
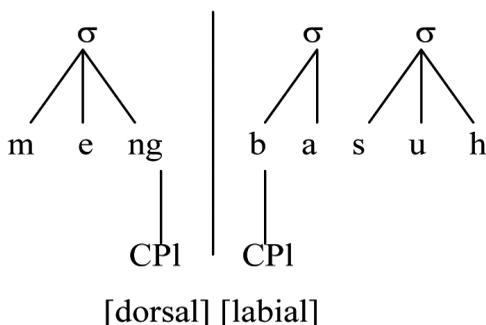
The relevant prefix-edge is marked by a vertical line '|'. As can be seen in (12), the right edge of the prefix coincides with two syllable edges, one on the left and the other on the right. As McCarhty and Prince (1993a, p. 39) state, "ALIGN requires sharply defined morpheme edges, but linking [as in (12)], undoes the desired relation between the morphological and prosodic constituency of a form." Accordingly, multiple linking in a case like (12) does violate ALIGN-PREF.

Although the representation in (13) satisfies ALIGN-PREF, it is not the optimal output in the language. This suggests that ALIGN-PREF must be dominated by CODA COND in the hierarchy, as illustrated in the tableau below.

14. Nasal assimilation: CODA COND >>ALIGN- PREF >>IDENT-IO[Place]

/meng+balas/	CODA COND	ALIGN-PREF	IDENT-IO[Place]
a.　meng.ba.las	*!		
b. ☞mem.ba.las		*	*

Other possibilities of eschewing the CODA COND violation are by C-deletion and V-epenthesis. Both strategies involve violations of faithfulness constraints MAX-IO and DEP-IO, respectively. MAX-IO demands that all the input segments must appear on the surface regardless of whether the form has an illicit syllable structure, for instance a syllable with unhomorganic coda. This is to ensure that all underlying segments are parsed. DEP-IO requires that every segment of the output must have a correspondent in the input, and this is to avoid the occurrence of epenthetic element in the output.

It must be pointed out that insertion and deletion of a consonant is permissible

in the language but not a vowel[4]. The generalization that can be deduced from this is that the deletion/insertion of a vowel and the deletion/insertion of a consonant have a very different status in Malay. In OT, this distinction is captured by positing two different and related constraints of MAX-IO and DEP-IO, namely, MAX-IO$_{VOW}$/ MAX-IO$_{CONS}$ and DEP-IO$_{VOW}$ /DEP-IO$_{CONS}$. Constraints of these two types are distinct, and therefore, they are separately rankable in the hierarchy. Given the facts of Malay, it is evident that the vowel faithfulness constraints, namely, MAX-IO$_{VOW}$/ DEP-IO$_{VOW}$ are ranked higher than the consonant faithfulness constraints MAX-IO$_{CONS}$/ DEP-IO$_{CONS}$.

With respect to ALIGN-PREF constraint, if epenthesis were to apply, the presence of V-epenthetic segment which is not part of the prefix will shift the syllable edge away from the prefix edge. This causes a misalignment of the leading edges of the syllable and the prefix, an obvious violation of ALIGN-PREF. Equivalently, deleting the final consonant, a MAX-IO$_{CONS}$ violation, as a way to avert a CODA COND violation, can never bring a form into agreement with the syllable-prefix edges alignment. In short, obedience to ALIGN-PREF can only be achieved, if the prefix-final nasal occupies the syllable coda position, as in (13). Putting all the constraints together yields the following set of ranking hierarchy: DEP-IO$_{VOW}$ >> CODA COND >> ALIGN-PREF >> MAX- IO$_{CONS}$ >> IDENT-IO[Place].

15. Nasal assimilation across the prefix-stem juncture

/meng+balas/	DEP-IO$_{VOW}$	CODA COND	ALIGN-PREF	MAX-IO$_{CONS}$	IDENT-IO[Place]
a. meng.ba.las		*!			
b. me.nge.ba.las	*!		*		
c. me.ba.las			*	*!	
d. ☞ mem.ba.las			*		*

As can be seen, the ruled out candidate (15a) preserves the underlying nasal, and therefore, it fatally violates CODA COND. Candidate (15b) spares CODA COND because the nasal segment is now syllabified as an onset of the second syllable. It is also ruled out because it is violating a more dominant constraint DEP-IO$_{VOW}$. Candidates (15c) and (15d) are both violating ALIGN-PREF and satisfying CODA COND equally. Thus, they tie with each other; the next available constraint MAX-IO$_{CONS}$, which plays a decisive role here, selecting (15d) as the optimal output.

Now, let us move to a process called nasal coalescence, in which the manner of C-final prefix (i.e. [+nasal] feature) and the place of articulation of C-initial stem are both maintained in the output. Traditionally, nasal coalescence is commonly referred to as nasal substitution, which is defined as a process of replacing the initial voiceless obstruent of the stem by a homorganic nasal. This process is common to many Western Austronesian languages (Dempwolff, 1934-1938), as well as in many African languages (Rosenthall, 1989, p. 50).

In Farid (1980) and Teoh (1994), nasal coalescence is treated as two separate, but related rules, which are extrinsically ordered, namely, nasal assimilation (see 3

and 4) and voiceless obstruent deletion (see 16 and 17 below). The rule of voiceless obstruent deletion only applies at the prefix-stem juncture, and not in any other word positions. To prevent voiceless obstruents word-internally and in the suffixed forms from being deleted, the structural description of the rule has to be conditioned by the prefix or stem boundary, as represented in the following rules.

16. Voiceless Obstruent Deletion (Farid, 1980, p. 53)

$$\begin{array}{ccc} C & \rightarrow & \varnothing \ / \ N \ - \ \underline{\quad} \\ [\text{- voice}] & & [\alpha \ F] \quad [\alpha \ F] \end{array}$$

   Where '-' denotes a prefix boundary

17. Voiceless Obstruent Deletion (Teoh, 1994, p. 98)

Voiceless Obstruent Deletion (Teoh, 1994, p. 98)
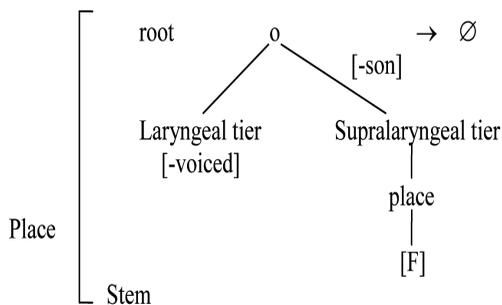
The autosegmental rule in (17) says that a voiceless obstruent stem-initially with its place node multiply linked to a preceding segment as a result of nasal assimilation will be deleted at the root node. Theoretically, the formalization in this rule poses a serious analytical problem. Treating assimilation as a partly linked structure (Teoh, 1994,

p. 104) crucially violates the inalterability and integrity conditions (Hayes 1986), which disallow any segment forming half of a linked structure from undergoing a phonological rule.

Pater (2004) argues that the postulation of the voiceless obstruent deletion rule is not phonologically motivated because there is no attested case, where this rule exists without nasal assimilation. Furthermore, the two-ordered rule analysis also fails to account for other related homorganic cluster phenomena attested in many other languages. Therefore, this phonological alternation is better analyzed as a single process called nasal coalescence, construed as fusion or merger of the nasal and voiceless obstruent driven by a universal and violable constraint *NC (see Pater, 2004), which can be formally defined as in (18).

18. *NC
   No nasal/voiceless obstruent sequences

Within the framework of Correspondence Theory (McCarthy & Prince, 1995), the process of merging both the nasal and the voiceless obstruent can be interpreted as a two-to-one mapping from input to output - two input segments stand in correspondence with a single output segment. The correspondence relationship between the input and the output, which is indicated by subscript letters, can be illustrated as below.

19. The representation of nasal coalescence:
    e.g. /ng+p/ →[m]

Input		Output
X_1 X_2		X_{12}
ng p		ng p
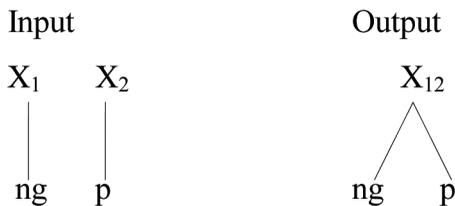
The [m] in the output is composed of the features of the two elements of the input, the nasal feature of the /ng/ and the place feature of the /p/. Nasal coalescence cannot be considered to be a MAX-IO$_{CONS}$ violation because pieces of every element of the input are maintained in the output (cf. Lamontagne & Rice, 1995). Although nasal coalescence spares MAX-IO$_{CONS}$ since every input segment has a correspondent in the output, it does incur violations of other constraints. Nasal coalescence violates UNIFORMITY[5], which prohibits two or more input segments from sharing an output correspondent (McCarthy & Prince, 1995; Lamontagne & Rice, 1995; Pater, 2004).

20. UNIFORMITY 'No Coalescence'
    No element of the output has multiple correspondents in the input.

The process of nasal coalescence can never bring the right edge of the prefix in coincidence with the right edge of a syllable, an instance violation of ALIGN-PREF. *NC conflicts with ALIGN-PREF and UNIFORMITY, and therefore, they have to be ranked with respect to each other. The relevant ranking to the process of nasal coalescence must be *NC >> ALIGN-PREF >> UNIFORMITY, in order for a coalesced candidate to emerge as an optimal output.

21. Nasal coalescence: *NC >> ALIGN-PREF >> UNIFORMITY

/meng+pasang/	*NC	ALIGN-PREF	UNIFORMITY
a. mem.pa.sang	*!	*	
b.☞me.ma.sang		*	*

Another possibility as a means of achieving structural well-formedness is by C-deletion. This option gives another potential candidate, *[mepasang]. This candidate spares *NC and UNIFORMITY, at the expense of violating MAX-IO$_{CONS}$. In order to rule out *[mepasang], MAX-IO$_{CONS}$ must be ranked higher than UNIFORMITY in the hierarchy. Resolving *NC by V-epenthesis can never be a better option, since DEP-IO$_{VOW}$ is highly ranked in the language. Considering all the constraints mentioned above, the relevant ranking is as follows: DEP-IO$_{VOW}$ >> *NC >> ALIGN-PREF >> MAX-IO$_{CONS}$ >> UNIFORMITY.

22. Nasal coalescence at the prefix-stem boundary

/meng+pasang/	DEP-IO$_{VOW}$	*NC	ALIGN-PREF	MAX-IO$_{CONS}$	UNIFORMITY
a. mem.pa.sang		*!	*		
b. me.pa.sang			*	*!	
c. me.nge.pa.sang	*!		*		
d.☞me.ma.sang			*		*

The failed candidates (22a) and (22c) are ruled out, as they incur fatal violations of high ranked constraints *NC and DEP-IO$_{VOW}$ respectively. Candidates (22b) and (22d) are spared from this violation, but they both violate ALIGN-PREF resulting

in a tie. However, the next available constraint, MAX-IO_{CONS}, rules out (22b) and pronounces (22d) as the winning candidate. A violation of UNIFORMITY is not significant because the victor has already been determined.

OPACITY OF NASAL ASSIMILATION AND COALESCENCE AT THE SUFFIX BOUNDARY

As shown in (2), the final nasal segment of the stem fails to assimilate with the initial obstruent of the suffix /-kan/. Given the formalism formulated in the rule-based analysis, the opacity of nasal assimilation in this particular environment is very difficult, if not impossible to account for. Arguably, this is the main reason why this well-observed phonological fact has been overlooked in Teoh (1994) and treated as an exception in Farid (1980, p. 13).

Given an OT account, the inapplicability of nasal assimilation at the suffix juncture is not merely exceptional but is an explainable phenomenon. Nasal assimilation is blocked as a consequence of a candidate output best satisfying the constraint hierarchy, in accord with the theoretical assumptions of OT. It is apparent that the relevant constraint that plays a central role in deriving the basic generalization at the suffix boundary is a prosody-morphology interface constraint called ALIGN-SUF, which can be formally defined as follows:

23. ALIGN-SUF
    Align (Suffix, Left, σ, Left)

ALIGN-SUF requires that the left edge of a suffix coincides with the left edge of a syllable. In order for ALIGN-SUF to be fully satisfied, all the feature contents of the input of the C-initial suffix, as well as the root node, must have a correspondent in the output (cf. McCarthy, 1993b; Lombardi 1995). Similarly to ALIGN-PREF, ALIGN-SUF is construed in this paper as a 'crisp' alignment constraint, requiring a single linking representation as proposed by Ito and Mester (1994)[vi].

24. Nasal assimilation with multiple lingking - ALIGN-SUF violation
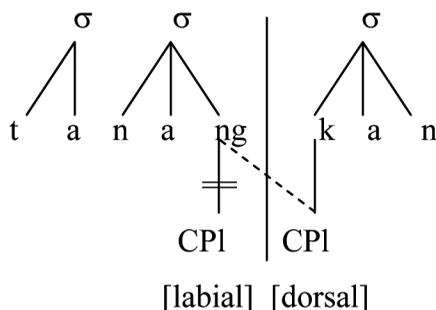
25. Single linking in unhomorganic nasal – ALIGN-SUF satisfaction
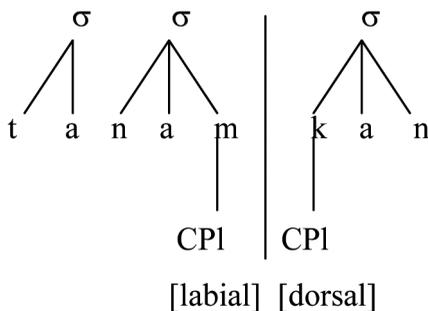
Notice that in (24), if nasal assimilation were to be applied, this would involve delinking and spreading. Delinking of the

[Place] node of the C-final stem incurs a violation of IDENT-IO[Place]. Feature spreading creates multiple linking structure, and as can be seen the left edge of the suffix coincides with two syllable edges, one on the left and the other on the right, an instance violation of ALIGN-SUF. Similar to ALIGN-PREF, ALIGN-SUF requires sharply defined edges, a crisp alignment in Ito and Mester's terms.

The concatenation of nasal-final stems with the suffix /-kan/ forces the alignment constraint ALIGN-SUF to interact with the syllable structure constraint CODA COND. Since nasal assimilation never applies across a stem-suffix boundary, CODA COND has to be violated in this environment as a consequence of respecting a more dominant constraint ALIGN-SUF. If in prefixation CODA COND dominates ALIGN-PREF, inevitably in the case of suffixation ALIGN-SUF must dominate CODA COND. The violation of CODA COND is compelled in order to secure the satisfaction of the high ranked ALIGN-SUF. The following tableau illustrates the points I just made.

26. Nasal assimilation is blocked at the stem-suffix juncture

/tanam+kan/	ALIGN-SUF	CODA COND	IDENT-IO[Place]
a. ta.nang.kan	*!		*
b.☞ta.nam.kan		*	

Other possibilities for eschewing the CODA COND violation without violating the ALIGN SUF constraint are by deleting the final nasal of the stem (i.e. *[ta.na.kan]) and by inserting an epenthetic vowel to

the stem (i.e. *[ta.na.me.kan]). Deleting an input consonant violates MAX-IO$_{CONS}$, and inserting epenthetic vowel violates DEP-IO$_{VOW}$. Given the schematic ranking established earlier where MAX-IO$_{CONS}$ is a lower ranked constraint, the grammar would predict the form with deletion as more harmonic than the actual surface form, as illustrated in the tableau below.

27. C-deletion at the stem-suffix juncture – incorrect result

/tanam+kan/	DEP-IO$_{VOW}$	ALIGN-SUF	CODA COND	MAX-IO$_{CONS}$	IDENT-IO[Place]
a. ta.nang.kan		*!			*
b. ta.na.me.kan	*!				
c. ☞*ta.na.kan				*	
d. ☺ta.nam.kan		*!			

As can be seen, ALIGN-SUF becomes irrelevant when C-deletion or V-epenthesis applies at the stem edge. The candidate (27c) is chosen as the optimal output, as it minimally violates the lower constraint in the hierarchy. Nevertheless, the correct surface form is (27d), which is the candidate marked by '☺'. This suggests that the suboptimal candidate must be violating some other dominant constraints in the language, which brings about its elimination.

Recall the alignment constraint called ALIGN-PREF (11) and ALIGN-SUF (23), which require that a designated edge (i.e. left or right) of a syllable coincide with a designated edge (i.e. left or right) of a morphological constituent (i.e. suffix or prefix). Both constraints prohibit epenthesis or deletion at the edges. To account for the prohibition of stem final epenthesis and deletion, another formal constraint

which closely resembles ALIGN-PREF and ALIGN-SUF is needed, namely, ALIGN-STEM, as formally defined as in (28).

28. ALIGN-STEM
    Align (Stem, Right, σ, Right)

Constraint (28) states that the right edge of a stem must coincide with the right edge of a syllable. In order for ALIGN-STEM to be fully satisfied, the final segment of the input stem cannot be deleted (i.e. underparsed) or syllabified with an epenthetic vowel (i.e. overparsed). Deletion and epenthesis will cause a misalignment of the leading edges of the syllable and the stem. Considering the case under discussion, ALIGN-STEM must be ranked above CODA COND in the hierarchy, so that its satisfaction takes priority whenever a conflict arises. The relevant ranking of all the constraints mentioned is as follows: DEP-IO$_{VOW}$ >> ALIGN-SUF >> ALIGN-STEM >> CODA COND >> MAX- IO$_{CONS}$ >> IDENT-IO[Place].

29. Opacity of nasal assimilation at the stem-suffix juncture

/tanam+kan/	DEP-IO$_{VOW}$	ALIGN-SUF	ALIGN-STEM	CODA COND	MAX-IO$_{CONS}$	IDENT-IO[Place]
a. ta.nang.kan		*!				*
b. ta.na.me.kan	*!		*			
c. ta.na.kan			*!		*	
d. ☞ ta.nam.kan				*		

As shown, by imposing the constraint ranking in (29), the interaction straightforwardly explains why nasal assimilation is opaque at the stem-suffix boundary. The evaluation reveals that the assimilated candidate is not the one best satisfying the constraint hierarchy. In candidate (29a), the underlying nasal /m/ surfaces as [ng] due to nasal assimilation, which involves delinking and spreading of the Place node. Delinking violates the featural faithfulness constraint IDENT-IO[Place]. A more serious effect of delinking is a fatal violation of ALIGN-SUF. The optimal candidate (25d) is featurally faithful to the input, and thus, it obeys ALIGN-SUF and ALIGN-STEM at the expense of disobeying the CODA COND constraint.

Another significant aspect of the behaviour of the nasal clusters at the suffix boundary that has not been addressed in the literature is the opacity of nasal coalescence. As mentioned, nasal coalescence is construed in this paper as a process of merging a nasal and a voiceless obstruent driven by a universal and violable constraint *NC, which prohibits nasal/voiceless obstruent sequences. Similarly to CODA COND, *NC has to be dominated by ALIGN-STEM and ALIGN-SUF in the hierarchy. As noted earlier, the satisfaction of *NC compels a violation of UNIFORMITY, and the ranking suggests that the latter is dominated by the former in the hierarchy (see 21 & 22). However, a serious consequence of nasal coalescence is that it fatally violates ALIGN-STEM and ALIGN-SUF, respectively.

30. Opacity of nasal coalescence at the stem-suffix juncture

/pasang+kan/	DEP-IO$_{VOW}$	ALIGN-SUF	ALIGN-STEM	*NC	MAX-IO$_{CONS}$	UNIFORMITY
a. pa.sa.kan.			*!		*	
b. pa.sa.nge.kan.	*!		*			
c. pa.sa.ngan.		*!	*			*
d. ☞ pa.sang.kan.				*		

The failed candidate (30c) undergoes nasal coalescence, that is, the cluster /ngk/ is fused together and becomes a velar nasal /ng/. As can be seen, the consequence of this is that the stem-edge and the suffix-edge do not coincide with a syllable boundary, a fatal violation of ALIGN-STEM and ALIGN-SUF, respectively. In short, the opacity effect of certain regular phonological processes at the suffix boundary is not an irregular phenomenon. The visibly active processes are inapplicable as a consequence of a candidate output to best satisfy the constraint hierarchy.

CONCLUSION

Morpheme boundaries in Malay behave differently with respect to the phonological processes of the language. The prefix-stem boundary allows nasal assimilation and nasal coalescence, but not at the stem-suffix boundary. This asymmetry arises due to the alignment constraints of the prosody-morphology interface, which require that the edge of some grammatical categories coincide with the edge of some prosodic category. The prefix-stem boundary is controlled by ALIGN-PREF, requiring that the right edge of a prefix coincide with the right edge of a syllable, where as the stem-suffix boundary is governed by ALIGN-SUF, requiring that the left edge of a suffix coincides with the left edge of a syllable, and ALIGN-STEM, requiring that the right edge of a stem coincides with the right edge of a syllable.

ALIGN-STEM, ALIGN-SUF and ALIGN-PREF are distinct constraints, and

therefore, they are separately ranked in the hierarchy. In their interaction with CODA COND and *NC, the sub-ranking goes as follows: ALIGN-STEM, ALIGN-SUF >> CODA COND, *NC >> ALIGN-PREF. This schematic ranking straightforwardly explains why cross-junctural nasal assimilation and nasal coalescence are transparent in the domain of prefixation, but they are opaque in the domain of suffixation.

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ENDNOTES

[1]/meng-/ and /-kan/ are verb-forming affixes which can be either category-maintaining or category-changing. The former is an active voice marker, where as the latter is a transitive marker.

[2]Nasal assimilation involving voiceless stops occur in a few lexical exceptions (i.e. [menternak] 'rear' and [mengkaji] 'study'), and in borrowed lexical items (i.e. [mempopularkan] 'popular' and [mengkatalog] 'catalogue').

[3]The behaviour of /s/ in connection with nasal coalescence is quite puzzling. The alveolar fricative /s/ is replaced by a palatal /ny/ instead of /n/. Farid (1980:5) regards that /s/ is underlyingly alveorpalatal voiceless fricative, where as Kroeger (1988) suggests that /s/ is better analyzed as a palatal stop /k'/. It is not the purposes of this paper to give an account for this issue.

[4]It must be mentioned that Malay loan phonology demonstrates that borrowed lexical items containing clusters are generally

resolved by schwa epenthesis. For example, English words like *stamp, glass, class, club,* are represented as /setem/, /gelas/, /kelas/ and /kelab/ respectively.

[5]In his analysis, Pater (2004) employs a LINEARITY constraint instead of UNIFORMITY. According to McCarthy and Prince (1995), the former is adopted to rule out metathesis, whereas the latter bans coalescence. In Lamontagne and Rice's (1995) analysis of Navajo Coalescence, they use a constraint called *MULTIPLE CORRESPONDENCE (*MC).

[6]Delilkan (2002, 2005) offers an account which utilizes both a theory of representations and the theory of constraint interaction to account for the distribution of fusion and no-fusion at prefix and suffix junctures. Her analysis suggests that the asymmetry discussed above would fall out as a direct consequence of the prosodic word structure of the language.

Using Computer Games to Improve Secondary School Students' Vocabulary Acquisition in English

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ABSTRACT

This exploratory study aims to investigate if computer games can expand learners' vocabulary and improve their writing performance. In testing the research instruments and procedure of a larger project, this pilot study employed only ten Form Four students who had voluntarily taken part in this study, and they were exposed to two different methods of acquiring vocabulary over a period of fourteen weeks. The two methods of vocabulary acquisition were computer games and traditional vocabulary strategies. The first method involved the subjects playing computer vocabulary games from the Internet for seven weeks. In the second method they employed traditional vocabulary strategies such as using a dictionary, contextual clues and semantic mapping for the next seven weeks. The extent of the subjects' vocabulary acquisition in the two methods was measured by using the pre and post vocabulary tests and two written essays. Results indicate a significant difference between the pre and post vocabulary tests. However, no significant difference was found between the two essays in terms of vocabulary richness. Such results might be attributable to the short duration of the treatment.

Keywords: Vocabulary acquisition, computer games, traditional strategies, lexical frequency

INTRODUCTION

"Without grammar very little can be conveyed, without vocabulary nothing can be conveyed" (Wilkins, 1972). This effectively sums up the important role of vocabulary in a language. Vocabulary knowledge is also considered a prerequisite for successful communication (Nation, 2001). It is the realization of the centrality of the role of

vocabulary in second language acquisition that is leading to greater emphasis being placed on vocabulary in the L2 context (Lewis, 1993, 2001).

Different strategies and methods are required to create an interest among ESL learners to successfully acquire and extend vocabulary successfully. Classroom tasks that involve extensive reading materials and instructional materials that interest students have actively involved learners in acquiring and expanding new word knowledge effectively (Horst, 2005). In Malaysia's ESL context, the learners are exposed to the first 1000 high frequency words during their primary school years (Standards 1 – 6). When learners move on to the secondary school, they are again exposed to the first 1000 high frequency words as well as the next 2000 high frequency words. Studies have shown that it is essential for learners to master the first 3000 high frequency words in order to understand at least 95% of a text (Liu & Nation, 1985; Nation, 2001).

Vocabulary is an aspect of language that has not, until recently, been given much emphasis at the early stages of second language instruction as more attention is given to structural patterns of the language than on vocabulary (Croft, 1980). When vocabulary building is given to learners together with structural items such as word forms, function words and word order at the intermediate level, it becomes an added burden to learners. It is at the intermediate level when massive vocabulary expansion begins, but the learners' vocabulary resources are found

to be inadequate. The delay in vocabulary acquisition often imposes a handicap on ESL learners' language development (Hajar Abdul Rahman & Abdul Ghani, 1996).

Traditionally, learners learn vocabulary by memorizing long lists of the target words (Read, 2000), and when the learners encountered an unknown word, they quickly got help from a bilingual dictionary. Locating the required word could be quite a disruptive and tedious experience. Learners were also exposed to pictures, realia and gestures to guess the meaning of a word. The onset of the digital revolution in 1982 introduced the use of computers and telecommunication devices which made a dramatic change towards a new way of communicating and learning. The nature of L2 learning has also changed because of technology (Oxford, 2008). With the advent of computer and advances of communication technology, more learning is happening through the medium of ICT. Computer games, for example, are gaining popularity in schools and it is now possible for learners to play language games and learn new words without realizing they are extending their vocabulary. Game softwares are available with built-in dictionary at L2 learners' disposal. With a mere click on the icon selected, the meanings of words appear on the screen. Therefore, in seeking to extend learners' vocabulary acquisition, it is imperative that learners are exposed to the latest way of language learning through ICT. This is indeed a creative and imaginative as well as innovative means in language learning. Research has shown that

the learners are no longer mere receivers of information but they have the capability to create new information using networked computer systems (Dede, 1996).

The adoption of ICT in foreign language learning known also as "new humanism" (Garrett, 1989) has increased access to information and knowledge. Numerous resources are available from the Internet and for this reason it is important for schools to fully utilize computer technology (Condie *et al.*, 2002; Prior & Hall, 2004). Technology has the advantage of creating a nonthreatening learning environment, as second language learners feel safe to practice the target language and self-assess work without undue embarrassment and anxiety. The non-judgmental nature of the computer gives learners the autonomy to review any part of the lesson as frequently as they wish and to receive immediate feedback and additional assistance. This reduces the learners' stress and anxiety level (Pascoe & Wibur, 2003).

In Malaysia, the Ministry of Education initiated the Smart School Project in 2003 and a total of 8000 schools were equipped with computer facilities. By 2010, it is projected that about 10000 primary and secondary schools will be fully equipped with computer facilities (MOE, 1997). This move will ensure the use of ICT in the language classroom and ensure wider usage of ICT especially in rural schools. ICT is also aimed at producing students with knowledge, creative and thinking skills, which eventually will contribute to the knowledge-based economy (Economic Planning Unit, 2001). Although the Malaysian government is spending huge amounts of money to ensure the use of ICT in schools, it is important for educators to make ICT an essential part of the learning environment. When schools are equipped with computers and Internet connections, language learning resources from the Internet can be identified and used effectively. This study is timely and important as it addresses the issue of using ICT, namely computer games that can be downloaded for free and used in the language classroom to extend vocabulary acquisition. The study seeks to verify if engagement in computer games enhances the ESL learners' writing performance.

OBJECTIVES AND RESEARCH QUESTIONS

The main objective of this study is to investigate if computer games can expand students' vocabulary. The study also investigates if computer games improve students' writing performance and determines if there is a discernable learner preference for computer games in vocabulary building as opposed to the traditional vocabulary strategies. The vocabulary density of learners' essays is be analyzed to see if they use words from different frequency levels, that is, beyond the 2000 words based on the General Service List by West (1953). In guiding the research, the following research questions are posed:

1. Does the integration of computer games expand ESL learners' vocabulary?

2. What is the range of students' vocabulary based on their essays?

3. What is the improvement in the vocabulary size between the learners' first and second essay?

4. What is the preferred strategy for acquiring vocabulary among the learners?

5. What are the reasons for students' strategy preferences in acquiring vocabulary?

REVIEW OF RELATED STUDIES ON COMPUTER GAMES

In general, using games in a language classroom is beneficial, as they are interesting, enjoyable, fun-filled, effective, engaging, interactive and motivating (Nguyen & Khuat, 2003; Uberman, 1998). Various games can be used in the language classroom to enhance learning such as board games, role-playing games and pen-and-paper games. The benefits of these games range from the cognitive aspects of language learning to the more co-operative group dynamics (Lengeling & Malarcher, 1997). These benefits have been categorized into four main categories. Firstly, language games lower learners' affective filter, encourage creative use of language, and motivate learning as games are filled with fun. Secondly, language games cognitively reinforce what is learnt. Thirdly, the games are learner-centred, and help to build class cohesion. Finally, the games are easily adapted by all age groups regardless of proficiency level and interest.

Computer games are gaining popularity and have captured the interest of training professionals for several reasons. Firstly, there is a shift in the field of learning from a traditional model of instruction to a learner-centred model which creates a learning environment that involves students in problem solving (Garris et al., 2002). Secondly, computer games can be an effective tool for enhancing learning and understanding complex subject matter (Cordova & Lepper, 1996; Ricci et al., 1996). Thirdly, learners are greatly and intensely involved during game play, especially today's generation.com learners (Prensky, 2001). Besides that, learners prefer learning that is supported by educational games than non-game activities. Learners have been seen to perform better in learning new words if they are exposed to electronic games compared to those who learned the same vocabulary through traditional strategies (Yip & Kwan, 2006).

Computer-based learning and online learning are much appreciated and enjoyed by learners in school and at tertiary levels (Condie & Livington, 2007). The computer with its multimedia and hypermedia features is a powerful learning tool. Computers allow learners to use multisensory elements, text, sound, pictures, video and animation, which provide a meaningful context to facilitate comprehension (Pascoe & Wibur, 2003). Furthermore, computer games allow learners to connect words and sentences to pictures or animations in context of a particular setting. Computer games also permit learners to understand more complex

vocabulary and concepts with the help of animation and sound features. Moreover, learners usually play the same games many times and acquire more vocabulary untiringly through this repeated activity. This is because their focus is on the message and not the form (Krashen, 1982). Indeed, computer games can provide an alternative to daily routine classroom activities that may not entertain learners. Besides these, by using computer games, learners feel excited, motivated and engaged in learning (Hadfield, 1987).

The problems faced by many learners are that despite having learnt all the basic structures in English, they still have limited receptive and productive vocabulary. This is generally true with ESL learners as they are inclined to use their mother tongue rather than the L2 even in the English classroom. The small range of productive vocabulary limits learners in expressing themselves clearly and appropriately especially in their essay writing. Sometimes they confine themselves to a limited range of familiar vocabulary or produce expressions that sound odd or unidiomatic. As such, they are likely to hesitate to speak, or to speak more slowly and write less than the native speakers (Read, 2000). They not only have problems in understanding the meaning of words but are reluctant to use them appropriately in their writing (Laufer & Nation, 1999). Some learners choose more frequent words in their writing due to their reluctance, and this reluctance is often a result of uncertainty about the word's usage (Laufer & Nation, 1999). The lack

of confidence is a reflection of imperfect knowledge. So, if English can be learnt in an enjoyable way, then vocabulary will become readily available and learners will be able to express themselves fluently and confidently. Thus in this study, free computer games are downloaded and used to expand learners' lexicon.

METHODOLOGY

This exploratory study was conducted in a semi-urban school. The subjects were ten Form Four students who volunteered to participate in the study. They were of mixed gender, ethnicity and language proficiency. This study employed a within-subject design that allowed the same participants to be exposed to two treatment conditions to acquire vocabulary. The study was conducted for fourteen weeks. All the subjects were exposed to the traditional strategies of acquiring vocabulary that were using a dictionary, contextual clues and semantic mapping before receiving the second treatment via computer games. The subjects sat for four parallel vocabulary tests and wrote two parallel narrative essays on different topics. The vocabulary tests consisted of words from the 2000-word level and were adapted from Nation (1983). The words in both the treatments consisted words from the first 1000-word level, 2000-word level and words from the Academic Word List (AWL).

At first, the subjects took a vocabulary pre-test to identify and evaluate their vocabulary knowledge. Then, they were exposed to traditional vocabulary strategies

using a dictionary, semantic mapping and contextual clues. These three strategies were the most preferred vocabulary learning strategies chosen by learners in a research study involving Form Four students (Kanthimathi, 2005). This method of acquiring vocabulary was carried out for seven weeks. After the seventh week, a vocabulary post-test was conducted and their scores were recorded.

Besides the vocabulary test, the subjects also wrote a narrative essay. The purpose of the essay was to examine if the subjects have expanded their lexical knowledge after the first treatment. At the beginning of the eighth week, the participants were given a parallel vocabulary pre-test before they were engaged in the computer games. The subjects spent an hour weekly in the computer laboratory to play the computer games for seven weeks. Each subject was given a CD with the computer games to be played at home during their leisure time. Some of the games in the CD were Mystery Case Files, Speed Word, Letter Rip, Fowl Words, Word and Crossword Puzzle. After the fourteenth week, the participants were given a parallel vocabulary post-test and they were required to write another narrative essay with a different topic.

In addition, a questionnaire was administered at the end of the study to collect the subjects' demographic data, vocabulary learning strategies, experience with computers and opinions on the computer games. The participants were also asked to keep a journal to write their opinions of the vocabulary strategies they were exposed to throughout the fourteen weeks. The participants were also interviewed by the researchers to find out their preferences regarding the strategies in acquiring vocabulary.

RESULTS AND DISCUSSION

Students Vocabulary Expansion and Density

The discussion on the results is guided by the objectives of the study. A pre and post vocabulary test was administered to determine the subjects' expansion and density of vocabulary gained after the treatments, which are traditional strategies and computer games. Data were also collected through the essays and analyzed using VocabProfile, a computer programme which gave the percentage of words at each of the four frequency levels: the first 1000 words, second 1000 words, the AWL, and words not in the list. The mean score of the pre and post vocabulary test data shows that seven subjects have an average score of above the 12.7 mean in all the four tests (see Table 1). In the vocabulary pre-test given before the traditional strategies, four subjects achieve 85% and above score in the 2000-word level indicating that only 150 words are not available for productive use. While at the post-test, seven subjects achieve the 2000-word level. As for the pre-test of computer games, six subjects are in the category of 2000-word level, and finally for the computer games post-test, nine subjects are at the 2000-word level.

Table 1 shows *t*-test results on all the four tests. The mean pre-test score for the

traditional strategies (TS) is 12.7, and the post-test 13.7. The mean pre-test score for the computer games (CG) is 13.5 and 14.9 for the post-test. The *t*-test shows that in both strategies, the changes are statistically significant.

On the other hand, data obtained from the VocabProfile software shows that all the subjects used more high frequency words from the first 1000-word level in both essays (Table 2).

The total number of words of all the ten subjects' pre-test essays is 3006, with 2537

words from the first 1000-word frequency level. Only 221 words are from the 2000-word frequency level and 54 words from the AWL. Only 194 words are from the not-in-list low frequency words in the essays written by the ten subjects. Similarly, in the post-test essays of the ten subjects, more high frequency words from the first 1000-word frequency level are used (2390 words from a total of 2963 words). This may be because L2 writers have shown to use a high percentage of lexical repetition (Connor, 1984; Ferris, 1994). Besides, text written

		Mean	Sd	*t*-test	df	*p*
Pair 1	Vocabulary Test (TS)					
	Pre	12.7	1.56	-4.81	9	.001
	Post	13.9	1.28			
Pair 2	Vocabulary Test (CG)					
	Pre	13.5	.97	-8.57	9	.001
	Post	14.9	.99			

Fig 1: Gains in Vocabulary Test Scores for Traditional Strategies and Computer Games

TABLE 1
Vocabulary Test Scores for Traditional Strategies and Computer Games

Respondents	Scores	Traditional Strategies		Computer Games	
		Pre-test	Post-test	Pre-test	Post-test
1		14	15	15	16
2		14	14	14	15
3		14	15	14	16
4		13	14	13	15
5		13	14	14	16
6		13	15	14	15
7		14	15	14	15
8		10	11	13	14
9		12	13	12	13
10		10	13	12	14
Mean		12.7	13.7	13.5	14.9

TABLE 2
Word Frequency in Pre and Post Essays

Word List	Post-Test (TS)		Post-test (CG)	
	Word (n=10)	Percentage(n=10)	Word (n=10)	Percentage (n=10)
1000	2537	84.40	2390	80.66
2000	221	7.35	227	7.66
AWL	54	1.80	135	4.56
Not-in-List	194	6.45	211	7.12
Total	3006		2963	

TABLE 3
Percentage of Words in Four Frequency Levels in Post-Test Essays (TS)

Word List Respondents	1000	2000	AWL	Not-in-List
1	80.59%	10.20%	2.30%	6.91%
2	87.63%	5.69%	2.34%	4.35%
3	82.14%	7.47%	0.65%	9.74%
4	86.10%	8.81%	0.34%	4.75%
5	85.90%	4.59%	1.64%	7.87%
6	87.29%	6.69%	2.01%	4.01%
7	80.86%	10.23%	2.31%	6.60%
8	85.71%	6.64%	0.66%	6.98%
9	83.06%	6.64%	4.98%	5.32%
10	84.88%	6.53%	0.69%	7.90%

by L2 writers generally have less lexical variety, specificity and sophistication than those written by L1 writers (Crossley & McNamara, 2009). The results show that the subjects' vocabulary density is still on the use of words from the 1000-word level although their vocabulary test results show that they have the knowledge of 2000-word level. This shows that subjects frequently choose words from the first 1000-word level in their writing. This could be due to their unwillingness and uncertainty about the word usage (Laufer & Nation, 1999).

Besides, each subject's usage of words in the four frequency levels of the post-essays is also analyzed (see Tables 3 and 4). The score shows that more than 80% of the vocabulary used by the subjects in their essays is from the first 1000-word level. Most essays have limited words from the 2000 and the AWL-word levels. Only two subjects, i.e. R1 and R7, used 10.20% and 10.23% of words respectively from the 2000-word level in their essays. The other eight subjects used only 4.59% to 8.81% of words from the 2000-word level in their

essays. Only one subject used a minimal number of words (4.98%) from the AWL word list. The usage of words from the not-in-list level is between 4.01% and 9.74%. Thus, the score from the post-test essays written after the use of traditional strategies shows the subjects' usage of high density of words from the first 1000-word level.

Similarly, in the post-test essays written after the treatment of computer games, students' usage of words from the 1000-word level is still high. However, four students have used fewer words from the 1000-word level and have gradually increased their usage of words from the 2000-word level (Table 4).

For example, R1 used 77.63% of words from the 1000-word level, and R7 used 78.60% respectively. At the 2000-word level, both the subjects have shown a gradual increase of 9.54% and 9.59%. This shows that they have acquired and have attempted to use words from the 2000-word level in their essay writing.

As for R3 and R5, both have a percentage of 75.25% and 64.57% in the first 1000-word level. In the 2000-word level, both subjects have only used about 5% of words from this category. However, R3 and R5 have obtained scores of 9.24% and 13.25% in the AWL, and 10.56% and 17.55% from the not-in-list. It can be concluded that R3 and R5 have attempted to use words form the low frequency level even though their scores are still minimal, and R3 and R5 have also obtained scores between 80% and 90% in their vocabulary tests. This shows that these two subjects have the mastery of 2000-word knowledge (Laufer & Nation, 1999), but are still reluctant to use such words confidently in their essays.

When the comparison of results between post-test essays given immediately after each treatment (traditional versus computer games) is analyzed, three subjects have shown a decreased use of high frequency words. For example, R5 used 85.90% of words from the first 1000-word level in the

TABLE 4
Percentage of Words in Four Frequency Levels in Post-test Essays (CG)

Word List Respondents	1000	2000	AWL	Not-in-List
1	77.63%	9.54%	3.29%	9.54%
2	81.63%	6.46%	5.78%	6.12%
3	75.25%	4.95%	9.24%	10.56%
4	87.20%	7.61%	2.42%	2.77%
5	64.57%	4.64%	13.25%	17.55%
6	83.84%	7.07%	4.38%	4.71%
7	78.60%	9.59%	2.21%	9.59%
8	85.05%	9.97%	1.99%	2.99%
9	84.77%	8.94%	0.99%	5.30%
10	88.33%	8.00%	1.67%	2.00%

TS essay, and the percentage has dropped from 21% to 64.57% of words from the first 1000-word level in the CG post-test essays. This shows that after the CG treatment, R5 has acquired and used new vocabulary above the 1000-word level. Further, R5's dependency on the first 1000-word level has decreased. Similarly, R2 and R3 used 87.63% and 82.14% of words respectively from the 1000-word level for their TS essays, but the usage of the first 1000-word level dropped to 81.63% and 75.25% in their CG essays. There was a decrease of 6% of words from the first 1000-word level in the CG essays of these two subjects. Although the difference is minimal, the data shows that the CG treatment did have an effect on the subjects' vocabulary acquisition.

As for the 2000-word level, R8 and R9 used 6.64% of words from the 2000-word level in their TS essays. In the CG essays, both the subjects have shown an increase of 3.33% and 2.30% respectively to 9.97% and 8.94% in the 2000-word level. This again shows that the CG treatment has had

a minimal effect on the subjects' use of vocabulary from the 2000-word level as compared to the other subjects in this study.

In the AWL, R3 and R5 have shown an improvement of 8.59% and 11.61% respectively from their TS to CG essays. It shows that both the subjects are able to use words beyond the 2000-word level. Although there is a slight increase of word choice in their essays from the AWL category, it shows that the CG has contributed towards better vocabulary attainment.

Preferred Strategy for Vocabulary Acquisition and Reasons

Data concerning the subjects' most preferred strategy of acquiring vocabulary was obtained from the questionnaire, interviews and their journal reflections. Data from the questionnaire (Table 5) showed that 90% of the students preferred learning vocabulary through computer games. The reasons stated are that the games are fun, interesting, and the illustrations are helpful. They also remembered the words better

TABLE 5
Students' Attitudes towards Computer Games

No	Statements	Agree (n)	Disagree (n)
1	I like learning vocabulary through the computer games	9	1
2	I had fun learning vocabulary using the computer games	9	1
3	Learning words through games is more interesting	10	
4	The use of computer games has expanded my vocabulary	9	1
5	The illustration on the games were helpful in acquiring vocabulary	10	
6	The activities in the games were interesting	9	1
7	I am able to remember the words better by playing the games	9	1
8	I am confident with my vocabulary after playing the games	9	1
9	Computer games is the best technique to acquire vocabulary	8	2

and they were more confident using the acquired vocabulary. Traditionally, games are used in the language classroom for a variety of purposes, for example, as an introduction to a lesson or as time-fillers. Nevertheless, games enhance incidental acquisition of vocabulary that makes the lesson more interesting, enjoyable and fun because the games are challenging, and games encourage lower proficiency learners to participate (Uberman, 1998).

Furthermore, the subjects preferred to acquire vocabulary through computer games because 8 of them did their homework, revision, and accessed information using the computer. They also played the computer games and communicated with their friends through e-mails, and they were comfortable working with computers (see Table 6).

Their familiarity with the computer also contributed towards their preference in using computer games to learn new words.

Besides using computer games to acquire vocabulary, 8 subjects also used the dictionary to look up meanings of new words, and guessed the meanings of new words through contexts in which the word was used. All the subjects sometimes listed down the words in their notebook or read and reread the new words several times to help them remember the new lexis. However, all the subjects never resorted to semantic mapping as a way of learning new vocabulary (see Table 7).

Data from the interview transcription reveals that all the subjects preferred the computer games in acquiring vocabulary because it was interesting. The reasons for

TABLE 6
Students' Familiarity with Computer Games

No	Activity	Liked (n)	Disliked (n)
1	I use computer to do homework.	7	3
2	I use computer to do my revision.	7	3
3	I use computer to access information.	9	1
4	I use computer to communicate with friends.	9	1
5	I use computer to play games.	9	1

TABLE 7
Students' Preference for Traditional Strategies

No	Statements	n
1	I always look up the meaning of the new words in my English dictionary.	8
2	I always try to guess the meaning of the new words through the context in which it is used.	7
3	I sometimes list down the words in my notebook because writing helps me remember the words.	10
4	I sometimes read and reread the new words several times	10
5	I never do a mind-map of the new word to relate it with other words	10

their preference for computer games are the same as mentioned in their questionnaire. Learners playing online vocabulary games tend to learn better and they can also retain the learned vocabulary for a longer period (Yip & Kwan, 2006). The students also said that they learned while playing the games, and playing games was also challenging (see Table 8).

TABLE 8
Reasons for Computer Game Preference

No	Opinions	n
1	Interesting	10
2	Fun	6
3	Colourful graphic	5
4	Exciting	5
5	Easy to remember new words	5
6	Can play and learn	4
7	Challenging	4

Finally, the subjects' journal reflections also show their learning strategy preference. The themes gathered from their journals show that all the subjects preferred computer games because they were interesting and fun, and they learnt new words through games. However, some subjects gave a few negative remarks about the CG, for example, they were angry because they were unable to find the clues to solve the puzzles due to the difficulty level and the limited play time (see Table 9).

TABLE 9
Students' Journal Reflections in using Computer Games

No	Opinions	n
A	Positive Opinions	
1	Games are fun	10
2	Games are interesting	10
3	Can learn new vocabulary	10
4	Like to play the games	5
5	Games are enjoyable	6
6	Learn through playing	4
7	Games are challenging	6
8	Games has animation	6
B	Negative opinions	
1	Angry because cannot find the clues	1
2	Activities are difficult to solve	3
3	Limited time to play games	2
4	Difficult to look for hidden words	1
5	Pictures are small and tires the eyes	2

The above data indicate that subjects preferred to learn vocabulary through computer games because computer games are interesting, fun, enjoyable, challenging and colourful. Acquiring vocabulary through games is engaging, and it can become effective and having a place in learning (Van Eck, 2006).

CONCLUSION

Learners' vocabulary size plays an important role in their daily spoken and written communicative and academic tasks. This study shows that the students have the vocabulary knowledge of the 2000-word level but was unable to use the words in their writing. This supports the finding that students are not confident and are unable to use the vocabulary knowledge they have in the real context (Laufer & Nation, 1999).

Although they acquired new words through exposure to both strategies, the gained word knowledge was not used to the maximum in their essays. The number of words used was relatively high in the first 1000-word level in both the essays.

Students claimed that they preferred and enjoyed learning new words through computer games, but it did not have much implication in their essay, as they were still comfortable using the high frequency words from the first 1000-word level. The study reveals that there is not much difference in students' essays after the vocabulary input. The result could be attributable to the small number of subjects (n=10), and the short duration of treatments that was only seven weeks each. Future studies should increase the duration for treatments. L2 vocabulary learning is different from that of L1 that is learnt incidentally from contexts, and it is unrealistic to expect a similar lexical development among L2 learners (Laufer, 1994).

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Fathers' Parenting Styles in Chinese Families in Urban Malaysia

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ABSTRACT

The primary objectives of this study were to examine: 1) fathers' parenting styles, and 2) the relationships between selected variables within the family ecosystems (e.g., father's age, education, work hours, income, and psychological distress, child's age and sex, as well as family income, number of children in the family, and marital quality) and fathers' parenting styles within the Chinese families in Malaysia. One hundred fathers, with children between the ages of 7 to 10 years from two-parent Chinese families residing in three urban cities in the state of Selangor in Malaysia, participated in the current study. Respondents completed a self-administered questionnaire which consisted of the following measures: Edwards Parenting Scale, Kessler Psychological Distress Scale – K10, Kansas Marital Satisfaction Scale, and a Demographic Sheet. Descriptive analyses reveal that the proportion of the respondents practicing authoritative (37.0%) parenting styles was the highest, and this was followed by authoritarian (34.0%) and permissive (29.0%). styles. Correlation analyses indicated that fathers' level of psychological distress and the number of children in the family significantly and positively related to the authoritarian parenting style, whereas fathers' level of education and report of marital quality significantly and positively related to authoritative parenting style, with the number of children being significantly and negatively related to the authoritative parenting style. Findings are interpreted in line with the Chinese cultural expectations for fathering behaviour.

Keywords: Fathers, parenting styles, Chinese families, Malaysia

INTRODUCTION

Confucian philosophy has been very instrumental in shaping the role of the father in the Chinese culture for centuries (Ho,

1987). The notion of filial piety describes children's absolute loyalty to the family as well as parents' responsibilities in raising their children. In their parenting roles, mothers and fathers in Chinese families are expected to play sex-specific interaction styles. For example, although Confucius teaching emphasizes on the harmonious relationship between men and women, men in the ancient time were socialized to be stern and extroverted, whereas women were required to be submissive and introverted. This sex-specific interaction structure provides the fundamental guidelines for paternal behaviours in Chinese families. The father needs to be a strict educator and discipline enforcer for his children. He must also ensure that this parenting style is practiced intergenerationally within his male blood line, and the father is entrusted with responsibilities to preserve his daughters' honour and dignity. In general, Confucian practices have elevated a Chinese father to a superior status in the home which resembles him as a controlling and authoritarian parent (Ho, 1987). The current paper examined fathers' parenting styles and the relationships between selected variables within the family ecosystems and fathers' parenting styles in contemporary urban Chinese families in Malaysia.

Despite the fact that cultural beliefs have been influential in defining parental behaviors among fathers across cultural groups, much of the psychological studies (see Lamb, 2004) on fathers have been mainly based on the Western concepts of parents' interaction styles in the family.

Such trend is evident in the availability of advanced research and extensive theorizing on fathers in the Western countries whereas little research has been done on international families (see Lamb, 2004). Furthermore, there is a tendency to use the Western parenting styles as a norm to understand mothers' and fathers' involvement in the family in other cultural groups (Hulei *et al.,* 2006). Nevertheless, the lack of research on fathers in Asian families has gradually been redressed as contemporary scholars have started to contribute to the fathering literature (Endicott & Endicott, 2008; Kamo, 1994; Lu *et al.,* 2000). Yet, there is a paucity of data on fathers' parenting styles, especially in the Chinese families in Malaysia.

To date, little information is known about how Chinese fathers in the urban Malaysia differ from Western parenting ideologies, which are apparently brought by modernization and globalization. Due to the great social and economic changes in Malaysia, today's Chinese fathers face tough challenges to fulfil their roles as breadwinners and caregivers simultaneously. Furthermore, the employment of women outside of the home has considerably changed the parenting dynamics of Malaysian families. In the year 2007, the Department of Statistics, Malaysia, reported that the rate of women participation in the workforce was as high 46.4%. This large proportion of women working outside homes may demand men to stay close to their family in order to share childcare and other household responsibilities. Therefore,

information obtained from this descriptive study is significant to help us understand Malaysian Chinese fathers' parenting styles and the family ecosystem variables related to their parenting styles.

Parenting Models and Literature

The study of parenting style was pioneered by Baumrind (1967) who later differentiated it into three major styles, as follows: a) authoritarian—characterized by parents who exercise firm control over their children, emphasize confirmity, authority and order, and discourage individuality; b) authoritative – characterized by parents who control their children in appropriate manner, display democratic and negotiated interactions and warmth, and encourage independence in children; and c) permissive – characterized by parents who are non-demanding, non-controlling and display relative warmth to their children. Although Baumrind's work serves as a powerful construct in studying parenting styles, some recent studies have raised questions on whether or not Western parenting constructs are equally applicable to non-Western families. For example, scholars (e.g., Xu *et al.,* 2005; Wu *et al*., 2002; Chao, 1994) reported that Baumrind's parenting typology did not sufficiently explain parental preferences among the Asian and Asian American parenting styles. Despite this limitation, Baumrind's model has been widely used to understand parenting styles across groups. In line with this model, the present study examines the degree to which fathers in the urban Chinese families in Malaysia exhibit authoritarian, authoritative and permissive parenting styles.

One of the most influential studies that provided insights into the parenting style preferred by the Chinese and Western parents was done by Chao in 1994. The study found that Western parents viewed authoritarian parenting as very negative and almost similar to "militaristic" and "regimented" parenting. These connotations are acquired largely due to the negative outcomes associated with it. For example, authoritarian parental practices result in children's fearfulness, withdrawal, and distrust (Baumrind, 1967) and externalizing behaviours (Gaylord *et al.,* 2003). Paradoxically, Chinese parents do not hold regression towards authoritarianism like parents from other cultures (Porter *et al*., 2005; Chao, 2001; 1994), but rather they viewed it as a form of positive "training" and "teaching" to the children. Chao (2001) further argued that it was the Chinese value of "training" (also means govern) which accounted for the differences in parenting styles between the Chinese and Western parents. Consistent with these findings, other scholars (e.g., Stewart *et al.,* 1998) were surprised to observe that Chinese children reported feeling relatively high level of parental warmth and self well-being under this parental "training".

Although authoritative parenting has always been known as an optimal parenting style in the West, it may work less effectively for the Asian-heritage children. In a comparative study, Chao (2001) discovered that authoritative parenting brought better child outcomes for the European-Americans

as compared to the Asian-Americans. On the other hand, literature suggests that Chinese parents who adhere strongly to Chinese parental values are more likely to practice authoritarian and authoritative parenting styles simultaneously (Xu *et al.,* 2005; Chen & Luster, 2002; Wu *et al.,* 2002). Nonetheless, it is argued that parental scale conceptualized in the Western countries cannot fully capture the range of variation in the parenting practices employed by Chinese parents as they rarely differentiate between authoritarian and authoritative parents (e.g., Xu *et al.,* 2005; Chao, 1994). The present study was designed to examine the extent to which Chinese fathers exhibit both authoritarian and authoritative parenting styles.

Meanwhile, a large amount of literature has been documented for authoritarian and authoritative parenting, and there is a dearth of research on permissive parenting except some findings on Aka fathers' permissive parenting styles in Africa (see Hewlett, 2004). With reference to parenting, Chinese parents believe that "to spare the rod is to spoil the child" which means that maintaining an indulgent parent-child relationship can be destructive to child's outcomes (Gray, 2003). These sentiments have been documented in the famous "*Three-Character Classic*", "It is the father's fault if a child is not adequately educated" (Mo, 1996, as cited in Chen *et al.,* 2000, p. 404). This particular statement underscores the great responsibilities of the father to discipline and guide his children's behaviour. In other words, Chinese

literature does not seem to encourage permissive parenting style among fathers.

Furthermore, following Belsky's (1984) determinants of parenting model, the present study explored the relationships between fathers' personal characteristics, child's characteristics, and family social contexts with different parenting styles (authoritarian, authoritative, and permissive) among fathers in Malaysian Chinese families. The inclusion of the demographic variables in the present correlation model was guided by the following research assertions, i.e. older parent has greater psychological and parenting resources, and thus, they are less likely to adopt harsh and autocratic disciplinary measures as compared to their young counterpart (Chen & Luster, 2002). Higher education attainment promotes authoritative parenting (Zervides & Knowles, 2007; Xu *et al.*, 2005; Chen & Luster, 2002), whereas hectic working characteristics, lower economic standing and high psychological distress level (Foster *et al.*, 2008; Bayer *et al.,* 2006) would lead to authoritarian parenting.

Other than the personal characteristics of the father, this present study underscores the importance of investigating the relationships between child's characteristics and fathering style. During the transition period of children into adolescents, Chen *et al.* (2000) noted a significant declination of parental control and warmth on their children. The evidence suggested that fathers would be less autocratic and more lenient as their children grow up. Inconsistent with the above findings, Chen and Luster (2002)

found that Chinese parents engaged in a more authoritarian parenting when the child aged. They explained that Chinese parents believe in the concept of "age of understanding". Parents could only engage in a stricter parenting style after the child has attained this age of understanding, which is approximately at the age of 6 years (Wolf, 1970, as cited in, Chen & Luster, 2002). Thus, Chinese parents are relatively lenient and warm with their younger children. Child's gender is another popular research variable in parenting studies. Studies by Someya *et al.* (2000) and Chen *et al.* (2000) found that fathers generally treated their daughters warmer than the son and exerted lesser control on the daughters. Somayeh and Baharudin (2009) noted that Chinese parents are generally stricter with their sons, whereas Indian fathers are stricter with their daughters; perhaps, different cultural emphasis gives rise to distinct fathering behaviour. As a summary, findings on child's gender and parenting styles have never been conclusive, and thus, the present study had attempted to examine the extent to which parenting styles among Chinese fathers is influenced by the sex of the child.

Other family contexts included were the number of children in the family, family income, and perceived marital quality. Our assumption is that having more children will suppress father's ability to exhibit authoritative parenting style. In fact, fathers who reported more number of children found themselves giving low quality of emotional support, basic care, physical play and evocations to their children (Paquette *et al.,* 2000). This seems to explain that good parenting resources could deplete when fathers need to cater needs of many children. Additionally, dual earner families are emerging rapidly in Malaysia, and this behooves researchers to look into men's parenting style with regard to the consequences of achieving a better economic standing. Besides, a plausible number of studies (e.g. Chen *et al.,* 2008; Bradford & Hawkins, 2006; Benzies *et al.,* 2004; Tamis-LeMonda *et al.,* 2004; Muhammad & Rumaya, 2002; NICHD Early Child Care Research Network, 2000) noted a link between marital quality and fathering behaviour. There seems to be an integrative learning process along the marital courtship which helps to explain that men who maintained sensitive and warm relationships with spouse would also perform such characteristics with the children. Thus, another logical assumption is that men, who experience distress in their marriage, may be reluctant to perform positive and constructive parenting.

In short, the primary objectives of the present study were to: (i) identify fathers' parenting styles, and (ii) explore the relationships between fathers' parenting styles and selected family background characteristics among Chinese fathers in urban Malaysia.

MATERIALS AND METHODS

Participants

The participants of this study consisted of 100 fathers from two-parent Chinese families residing in Puchong, Subang Jaya,

and Klang residential areas in the state of Selangor, Malaysia. Fathers from two-parent families were recruited if they had a child between the ages of 7 to 12 years old. This age range was selected because the literature has shown that fathering behaviour during this period plays an influential role in the child development (see Lamb, 2004). The mean age of the fathers was 42.90 (SD = 4.62). Other socio-demographic data show that the participant fathers in the present study represent those with moderate to high level of social economic characteristics. On average, fathers have completed 13.37 (SD = 4.18) years of formal education. About 72% of them were white collar workers (e.g., businessman, teacher, management executive, programmer, engineer, dentist, and accountant) and 28% fathers were blue collar workers (e.g., trainer, varnisher, welder, carpenter, mechanic, storekeeper, driver, plumber and construction worker). Meanwhile, the median family income was RM5,000 per month, and the median income for the fathers was RM4,000 (US$1 = 3.50 RM - Malaysian Ringgit). In particular, 53 of the target children were males and 47 were females. The mean age of the children was 9.74 (SD = 1.69) years. The average number of children per family was 2.66 (SD = 1.09). All the participant fathers are the biological parents of their children.

Procedures

A total of 210 questionnaires were distributed in a purposive sampling manner in the three urban residential areas. With high level of economic opportunities, these three areas (i.e., Puchong, Subang Jaya, and Klang) are the fastest growing urban districts located in the Klang Valley region of the state of Selangor. Two trained native Chinese females, who were college educated and spoke fluent Mandarin and English, approached the potential respondents directly or indirectly (e.g., through the wives or the children) in the residential areas after making a brief assessment on the families' eligibility (e.g., married, employed, and had a child between the ages of 7 to 12) for participating in the study. Informed consent form and a set of questionnaire were given once the families had agreed to take part in the study. The participant fathers were advised to fill out the questionnaires and were informed that the completed questionnaires would be collected three days later. The final sample consisted of 36 fathers from Puchong, 32 from Subang Jaya, and 32 from Klang resulting in the response rate of 48%.

Measures

Kessler Psychological Distress Scales

The psychological distress level of the fathers was measured using the Kessler Psychological Distress Scale K10 (Kessler *et al*., 2002). The scale has 10 items. The fathers were asked to rate each statement on a 5-point Likert scale ranging from 1 *(none of the time)* to 5 *(all of the time)* to describe the extent to which they experienced symptoms of anxiety and depression in the most recent 4-week period. The items were scored by summing up the number attached on the K10 scale. K10 was a moderately reliable

instrument with the internal consistency reported at 0.90 (Donker, van Straten, Marks, & Cujipers, 2010). In the present study, the reliability assessment of the scale was high (i.e., $\alpha = 0.88$).

Kansas Marital Satisfaction Scale (KMS)

Marital quality perceived by the participant fathers was measured by Kansas Marital Satisfaction Scale (KMS) (Schumm *et al.*, 1986). The original scale was a 3-item wife-report questionnaire regarding the satisfaction level on marriage and husband. In two items, we used the word "husband" instead of "wife" since the participants in the current study are fathers or husbands. Responses were in a 7-point Likert scale ranging from 1 (extremely dissatisfied) to 7 (extremely satisfied). The total scores ranged from 3 to 21 with higher scores showing higher level of marital satisfaction. The reliability assessment on KMS for this study yielded a 0.96 of alpha coefficient.

Edwards Parenting Checklist

Edwards (2000) Parenting Checklist was used to assess fathers' report of authoritarian, authoritative and permissive parenting with their target child. The scale was built based on three general parental behaviour classifications (i.e., authoritative, authoritarian, and permissive) introduced by Baumrind (1967). It is a 21-item scale based on the scoring of 1 (usually yes) and 0 (usually no). The checklist was scored by summing up the responses for each parenting style (e.g., authoritarian, authoritative and permissive), and the subscale with the highest score was the respondents' dominant parenting style. The items have been reviewed by a parenting expert for content validity. Items 13, 20, 21 (authoritarian), 7, 10, 19 (authoritative), and 9, 11 and 16 (permissive) were dropped prior to calculating the reliability coefficient as these items showed low inter-item correlation with the rest of the items in the respective subscales. They may also measure more than one type of parenting style.

In the authoritarian subscale, item 13 "I make most of my child's decisions, even though that would be developmentally appropriate for my child to make" could measure the responsive behaviour of a Chinese father towards his child. In fact, the Confucius teaching has portrayed a father who makes decisions for his child as a responsive and caring father (Ho, 1987). Similarly, item 20 in the authoritarian subscale "Many of my rules are general rather than specific; My child knows what I really mean" could measure both authoritarian and authoritative parenting. According to Baumrind (1966), authoritative parents set standards or rules for their children, but they also share with the child the reasoning behind the policy, thus children are likely to conform to the rules without feeling restricted. Lastly, it was less appropriate to use item 21, i.e. "I spend little time with my child" to indicate authoritarian parenting among the Chinese parents. Culturally, authoritarian parenting in the

mother tongue, the primary language of the respondents in the study. The translation procedure was conducted several times whereby any inconsistency between the original and the back-translation was identified and until an agreement was reached for the final Chinese version. Meanwhile, the Chinese version of the Kessler Psychological Distress Scale was obtained from the K10 team, the Edwards' Parenting Checklist and the Kansas Marital Scale were translated from English to Chinese.

RESULTS

Parenting Styles

In order to take into account the differences in the value of means and standard deviations obtained from the three parenting subscales (i.e., authoritarian, authoritative, and permissive), raw scores were computed into a standard score (i.e., z-score). The parenting style which had the highest standard or z-score was considered as the dominant parenting style. Descriptive analyses showed that authoritative style was reported by most (37.0%) of the fathers compared to other styles. A slightly lesser proportion (34.0%) of the fathers practiced authoritarian parenting, whereas 29% were found to have practiced permissive parenting style.

Relationships between Family Ecosystem Variables and Parenting Styles

Given the fact that the data for the present study came from a purposive sample, a non-parametric statistic, i.e., Spearman

Rho correlation analysis (Morgan *et al.,* 2007) was conducted between the selected family ecosystem variables (e.g., father's age, education, work hour, income, level of psychological distress, child's age, child's gender, number of children in the family, family income, and marital quality) and the three parenting styles. Table 1 presents the results of the analyses (Morgan *et al.,* 2007). The findings indicated that the fathers' level of psychological distress and the number of children in the family significantly and positively related to the authoritarian parenting style, but the number of children in the family is significantly and negatively related to the authoritative parenting style. Meanwhile, fathers' level of education and report of marital quality are significantly positively related to authoritative parenting style.

DISCUSSION

Conceptualizing within Baumrind's (1967) parenting typologies and Belsky's (1984) determinants of parenting model, the main objectives of this study were to examine fathers' parenting styles and the relationships between selected variables within the family ecosystems and fathers' parenting styles amongst Chinese families in this study. Although Baumrind's parenting typologies are based on the Western family context, this paradigm has been widely used across cultural groups. The notion of family ecosystem variables from Belsky's determinants of parenting model has encouraged us to examine whether selected family ecological variables are related to

TABLE 1
Relationships between Selected Family Ecosystem Variables and Father's Parenting Styles

	Authoritarian n=34	Authoritative n=37	Permissive n=29
FATHER'S PERSONAL CHARACTERISTICS			
Age	.07	-.01	-.003
Education	.06	.18*	-.01
Working hour	-.02	.01	-.05
Income	.01	-.06	.02
Psychological distress	.23*	-.15	.15
CHILD CHARACTERISTICS			
Age	.03	.12	.02
Gender (1, 0)	-.03	.06	.04
FAMILY SOCIAL CONTEXTS			
Number of child	.20*	-.26**	-.04
Total family income	-.01	-.04	-.01
Marital quality	-.21*	.26**	-.01

Gender was dummy coded as 0 = male, 1 = female, * p<.05, ** p<.01

fathers' parenting styles in the Chinese families in urban Malaysia.

The results from this study revealed that the authoritative parenting was the most reported form of parenting style among the Chinese fathers in the current sample, followed by authoritarian and permissive styles. It should be noted that the Chinese parental values, largely founded in Confucian philosophy, may encourage fathers to exhibit both the authoritative and authoritarian parenting styles. Findings from other studies (e.g., Xu *et al.,* 2005) showed that the Chinese values of "collectivism" and "conformity to norms" were correlated with authoritarian and authoritative parenting styles. This means that Chinese parents are not only strict and emphasize on children's discipline, but they also value parental responsiveness

and acceptance of their children. In fact, earlier studies showed that Chinese parents who adhered strictly to Chinese cultural values scored high on both the authoritative and authoritarian parenting styles (Chen & Luster, 2002; Wu *et al.,* 2002). Our findings lend support to this claim as it was observed in this study that on average, 75% of the Chinese fathers in our sample reported to practice both the authoritarian and authoritative parenting styles.

In contrast to the Western interpretation of authoritarian parenting, Chinese parents regard authoritarian parenting as a form of positive "training" that is associated with the notion of "educating" and "teaching" (Chao, 1994). These authoritarian fathers show warmth and affection in their unique ways that underscore the context of Chinese saying "Da shi teng, ma shi ai", which means

"beating someone is caring for someone and scolding someone is an expression of love." Culturally, the Chinese parents seem to have unconditioned disposition for controlling and autocratic parenting behaviours compared to the Western parents. For example, in a comparative study between Chinese and Euro-American parents, Porter *et al*. (2005) noted that the Chinese parents were more controlling and authoritarian with their children than their American counterparts. Furthermore, Chao (1994) noted that when the level of education was controlled, Chinese mothers scored significantly higher on authoritarian subscale compared to Euro-American mothers. Findings from the present study also show that a moderate number of Chinese fathers practicing this parenting style.

Only 29.0% of the fathers in the current sample reported practicing permissive parenting style. Permissive parents are also known as indulgent parents who are often viewed negatively in the Western psychological literature. Although these fathers can be nurturing and responsive to children, may impose lesser control on children's behaviour, and promote good parent-child relationship (see Crockett *et al*., 2007; Hewlett, 2004), the present study has shown that permissiveness is the least practiced parenting behaviour among the Chinese fathers. Permissive parenting may be viewed as a less effective parenting style, and therefore, fathers appear to be unwilling to embrace this style when raising their children. As an authority figure, a Chinese father is expected to be strict and place requirements on his children (Ho, 1987). If a father does not meet these social expectations, the society tends to blame the father for not adequately raising and educating his children (Gray, 2003; Mo, 1996, as cited in Chen *et al.,* 2000, p. 404). In other words, Chinese fathers tend to parent with the belief that permissive interaction style may harm the harmonious relationship between a father and a child. Furthermore, a child who is not properly trained by the father might not learn skills that are essential in everyday lives. In view of these Chinese cultural accents, most fathers in our sample appear not to practice permissive parenting as Chinese fathers consider it an unreliable construct not compatible with the Chinese cultural values (Wu *et al*., 2002).

With reference to correlational analyses, the current study finds positive relationship between fathers' perceived marital quality and authoritative fathering, as well as a negative relationship between fathers' perceived marital quality and authoritarian fathering. According to Bradford and Howkins (2006), a good marriage equips men with the essential components in developing supportive and caring fatherhood. This suggests that men who have learned elements like rational control, care, and support from an intimate relationship are more likely to implement appropriate control and warmth in interacting with their children. Thus, fathers who enjoy high marital quality are more oriented toward authoritative fathering, whereas a low marital quality may lead to a more

autocratic and controlling parenting style. Father's level of education was another family ecosystem variable significantly correlated with authoritative fathering. This finding is consistent with the reports from other scholars (see Xu *et al.*, 2005; Zervides & Knowles, 2007) who observed that well-educated Chinese parents tended to adopt flexible and reasoned approaches rather than restrictive and power-assertive methods with children. The finding may imply that educated fathers have greater exposure to parenting literature and consequently are more likely to be authoritative in the way they interact with their children (Xu *et al*., 2005; Zervides & Knowles, 2007).

The level of psychological distress was positively correlated with authoritarian parenting styles of the Chinese fathers included in the current study. It can be argued that distressed fathers tend to be over-controlling (authoritarian). A similar pattern of association between psychological distress and authoritarian parenting was also noted by other scholars (e.g., Bayer *et al.,* 2006; Chen & Luster, 2002). These studies provided evidence that punitive, directive, over-involved, and protective parenting practices were outcomes of parental anxiety and depression. Papp *et al*. (2005) noted that when a father is troubled with depressive symptoms, he is not able to perform sufficient level of acceptance, psychological autonomy, and firm control over children. Findings from the current study extend support to the findings from other research on the relationship between psychological distress and parenting

styles. Future studies may explore the way (clinically diagnosed) distressed fathers interact with their children.

The findings from the present study also reveal that there are significant relationships between the number of children in the family and authoritarian and authoritative parenting styles. It appears that when there are more children in the household, these Chinese fathers are more likely to take various autocratic measures such as set rules and expectations to sustain control over the children. Moreover, when the number of children increases, fathers may have limited resources to effectively respond to each child's need (Paquette *et al.,* 2000). Therefore, fathers in the current sample tend to adopt the authoritarian parenting style to handle more children in the family. At the same time, more children they have, the less authoritative they become when interacting with their children. More importantly, within the Chinese cultural expectations, fathers' strict and controlling behaviours (i.e., authoritarian) are often compensated by their warm and affectionate interactions (i.e., authoritative) with their children. The co-existence of these supposedly opposite parenting behaviours among Chinese fathers in the current sample not only highlights the influence of cultural expectations of fathering behaviours, it also supports the influence of the family ecological context of parent-child interactions. In sum, these Chinese fathers are strict yet loving and caring in their parental practices.

CONCLUSION

We observed that Chinese fathers in our sample still exhibit both authoritative and authoritarian parenting styles that are in line with their cultural expectations of parenting role. Fathers' education, number of child in the family, and marital quality were significantly related to their authoritative parenting style. In more specific, fathers with high educational attainment and high marital quality but, with low level of psychological distress and fewer children in the family were more likely to be authoritative. Meanwhile, a high level of psychological distress and more children in the family are related to authoritarian parenting, whereas high level of psychological distress is related to permissive parenting style.

The current findings should be interpreted with several limitations in mind. First, purposive sampling technique was employed to identify the respondents, and therefore, findings cannot be generalized across Chinese families in Malaysia. Second, this study uses self-report data from fathers who might have provided socially desirable answers. Third, the cultural interpretation of our data is tentative since we did not use any measures to uncover the influence of cultural values on fathering behaviour. Future research can employ random sampling and multi-method assessment techniques to collect the data. Notwithstanding these limitations, the present findings have important implications for understanding fathering behaviours in contemporary Chinese families in urban Malaysia. The current study is one of the very few projects that systematically document fathers' parenting styles in Chinese families. Therefore, these findings can be used as a baseline empirical data to conduct future research on fathers' parenting behaviours within Chinese families.

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SOCIAL SCIENCES & HUMANITIES

Revitalizing the Maori Language: A Focus on Educational Reform

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ABSTRACT

By the beginning of the last quarter of the twentieth century, it had become clear that the Maori language, the natural vehicle of Maori culture, was in danger of dying out. From the 1980s onwards, the Government of New Zealand, in collaboration with Maori community leaders, has invested substantial resources in an effort to revitalize the language. As a means of learning from the success of this project, the present study focuses on New Zealand's language-in-education policy. It presents a descriptive review of historical factors and of educational programs and policies devised in response to the indigenous people's call to save the Maori language and culture from extinction. Problems with the reform programmes are also addressed, taking into account economic, social, cultural and attitudinal factors prevailing in New Zealand society at the time.

Keywords: Maori, language revitalization, language planning, history of Maori, Kohanga reo (language nursery programs, tomorrow's schools)

INTRODUCTION

Since the age of imperialism and colonization, indigenous people in lands permanently occupied by settlers – whether in Africa, the Americas and Australasia - have struggled against racism, inequality and legal discrimination. These problems are well-known and widely documented; but a lesser-known problem is one resulting from assimilation policies devised by dominant cultures and governments with the aim of transforming the indigenous people into citizens who conform to the norms of the alien colonial culture. Among aboriginal peoples who have faced such struggles are Africans, Native American Indians, Australian Aborigines, the Saami of Scandinavia, and the Maori of New Zealand. Education and language preservation are issues at the heart of such struggles. For

example, education has often been offered in the colonizers' language, while other efforts to assimilate and control the indigenes include urbanization and the division of traditionally united communities (Fleras, 1990; Douglas, 1991).

The position of the Maori language, with regard to policies implemented by the Maori community and the New Zealand government, makes for interesting scrutiny. Writing in 1976, Marie Clay lamented that the Maori people were passing through a crisis in their history, and that there was a danger that their language, the real basis of their culture, would be lost. In response to this threat, significant investments in time and resources were made with a view to restoring the rightful status of the language. As Paulston and McLaughlin (1993, 1994) noted, some of the most liberal planning in modern times for language in education has taken place in New Zealand and in direct response to persistent demands by Maori elders anxious about the survival of their language and culture (Benton, 1989, 1991; May, 1998). Thus, there has been a huge effort to reverse linguistic decline – an effort probably unmatched by any other project elsewhere to save an indigenous language under threat from an imposed immigrant tongue. This, a major attempt at reversing language shift (Paulston, 1994; Paulston & McLaughlin, 1993-1994), has been made by both the Maori people and the government, and progress is such that the Maori language is no longer threatened with extinction (Spolsky, 2008; Liu *et al.,* 1999). An examination of the context of

this success can provide valuable insights for language policy and planning in other nations, especially those who are bilingual or multilingual.

This paper, therefore, presents a descriptive review of research on the topic covering such matters as historical factors, educational inequality, and programmes and policies specifically devised to answer indigenous calls for linguistic and cultural help. Problems with the programmes are also addressed, taking into account economic, social, cultural and attitudinal conditions prevailing in New Zealand society at the time.

THE MAORI PEOPLE: HISTORY AND PRESENCE

"I come where a new land is under my foot,
Where a new sky is over my head;
Here on this new Land I stand,
O spirit of the Earth! The stranger offers his heart to thee.

(Chant of the Maori Voyagers; cited in Soljak, 1946)

The Maori people are Polynesians who sailed from islands near Tahiti to make New Zealand their home more than a thousand years ago (Liu *et al*., 1999; Soljak, 1946). They called their new land Aotearoa, which means, in some translations, "the land of the long white cloud" and in others "the long bright land." The Polynesian people adopted the name Maori (which means *normal*) to distinguish themselves from the Pakeha or

people of European descent (ibid). It is also the name used for their language. Spolsky (2009, p. 3) describes it as "one of some 1200 Austronesian languages spoken in an area ranging from Madagascar off the coast of Africa to Easter Island (Rupanui) some 3600 km west of Chile." It was the Dutch (under Abel Tasman), the first Europeans to discover the islands after the Maori, who named them New Zealand (Benton, 1986). The British explorer James Cook and his expedition, landed there in 1769 (Liu *et al.*, 1999), and in 1814 missionaries arrived to spread Christianity among a polytheistic people whose highly functional educational system was based on orality (Smith, 1989).

The missionaries sought to evangelize through the Maori language (Mackenzie, 1987; Benton, 1986; May, 1998), believing this would hasten conversions. It was also feared that English would provide a window onto the worst aspects of European life. Mackenzie writes, "By containing them culturally within their own language, they [the missionaries] hoped to keep them innocent of imported evils" (Mackenzie, 1987, p. 164).

An alphabet, however, was needed and in 1815 Kendall, the first missionary permanently stationed in New Zealand, began reducing the Maori speech to alphabetic form. By 1830, an alphabet was created consisting of five vowels and nine consonants. However, two forms were left unsettled, namely, the frictionless continuants *h* and *w*. Today, the five vowels remain and the consonants amount to ten: *h, k, m, n, p, r, t, w, ng,* and *wh* (pronounced

like *f*). The first major book printed in Maori was Colenso's *Maori New Testament* and the people were so enthusiastic about the acquisition of literacy that the practice was reported to have spread rapidly and widely (Mackenzie, 1987; May, 1998).

However, seeking to keep the Maori population innocent of imported evil, the missionaries restricted their reading to biblical texts, thus, confining their literary repertoire within an ancient middle-eastern culture. This also made Maoris dependent morally and politically on the missionaries as interpretive guides to European realities. Nor did it adequately prepare them for the new wave of British and European settlers soon to arrive (ibid).

A POLICY OF ASSIMILATION

The British explorer James Cook arrived in New Zealand in 1769, a time when the Maori people numbered 25,000 (Paulston, 1994). After the proclamation of British sovereignty in 1840, with the signing of the Treaty of Waitangi, British and continental Europeans began arriving in large numbers, bringing, *inter alia*, all types of disease to which the Maori had no immunity. Also introduced were firearms and alcohol, the latter eventually causing serious problems of drunkenness hitherto quite unknown in Maori experience (Holmes, 1992; see web page: http://landow.stg.brown.edu).

Although the Treaty of Waitangi promised to protect the Maoris and their language, and assumed a kind of Maori-Pakeha partnership, this was not translated into practice (Douglas, 1991). Only a decade

after its signing, European settlers already outnumbered Maori people in the country as a whole. A hundred years later, those of Maori descent constituted only 5% of the entire population (Benton, 1986) and were concentrated in the north, central, and eastern parts of the north island. Just before the end of the twentieth century, only 12 or 13% of the New Zealand population was deemed to be of Maori descent (see Paulston, 1994; Statistics New Zealand, 1994).

Before the 1970s, a Maori assimilation policy was overtly pursued by the government (Malgan, 1989) though, according to May (1998), this had been implied in the state education system that began in the 1860s and 1870s. "The teaching of English was considered to be a central task of the school, and the Maori language was often regarded as the prime obstacle to the progress of Maori children" (May, 1998, p. 284). Thus, the perception of the Maori language as a problem and the Maori communities as backward led to the introduction of special boarding schools and to children being taken from their homes for adoption - a procedure running counter to Maori belief in the importance of close community and family ties (Jones *et al.,* 1990).

Schools were seen as essential for promoting assimilation into the immigrants' mainstream European culture, for taming those "uncivilized" Maori people, and for forging a nation similar to Britain's (May, 1998). English was the language of instruction and Maori was banned from school precincts - a prohibition often enforced by corporal punishment up to the 1950s (ibid). Thus, the Pakeha, largely succeeding in replacing Maori with English, relegated Maori culture to an almost obsolete status. This was seriously disruptive for a people cherishing a strong belief that their language and culture were inseparable and vital for their ethnic pride and identity.

Urbanization was another facet of the assimilation policy. This began especially after World War II, when many Maori people left their rural communities seeking economic advantages and incentives in the growing towns (see http://www.nzhistory. net.nz/culture/maori-language-week/ history-of-the-maori-language). They not only assimilated but even became advocates of assimilation themselves, encouraging an English-only policy among their children (ibid; http://www.tetaurawhiri.govt.nz). Exogamy, which became common after contact with urban Europeans, was another agent that fostered assimilation, with the result that now most people of Maori descent (perhaps all according to some sources), have some Pakeha blood (Benton, 1986; Malgan, 1989; May, 1998). However, it is left for individuals to classify themselves. A declining Maori birthrate became another problem. Statistics showed a particular decline after 1963. For example, while 6.3% in that year, the rate further declined to 2.3% by 1993.

Some sources suggested that before 1960 no primary school in New Zealand offered an officially organized Maori language programme and that the handful

which included piecemeal aspects of the language contented themselves with only a few minutes of daily instruction in it. On the other hand, Spolsky (2009, p. 5) contended that before the 1960s "There was some encouragement of Maori Arts and crafts in the schools and Maori was taught as a high school subject." He also mentioned that another important development was "the opening of courses in Maori in the Universities" (ibid., p. 5). The first-ever Maori course at the tertiary level was offered by the University of Auckland in 1951. Despite those efforts, the speaking of Maori continued to decline until the 1980s (ibid.).

By the 1960s, it became clear that the Maori language was dying and estimates were made that within 25 years, or after just one generation, it would be extinct. Sensing the dangerous consequences of this, community elders began voicing their concerns (Paulston, 1994). Benton (1986) suggested, however, that the influx of Maori people into the cities led to a demand for the language there and for it to be taught as a second language.

While an English-only policy was not perceived as threatening when it was initiated (and, as mentioned above, even received some Maori support), this no longer held true after the 1960s (May, 1998; Malgan, 1989). In fact, Malgan (1989) asserted that integration into Pakeha society was rejected, and that assimilation, a process felt to be worse than integration, was seen as totally illegitimate and a prelude to destruction of the entire Maori culture. Malgan (1989) indicated that the Maori

people eventually asked the government to honour the Waitangi Treaty, which promised to protect the Maori language and culture. The government responded positively, and in 1967 the Maori people were given political representation in parliament and full integration into the school system (Paulston, 1994). In the same year, New Zealand's education policy shifted from perceiving Maori culture in a deficit light and its language and children as problems in the school system to a positive acknowledgment of cultural difference. Indeed, the schools and educational system as a whole assumed some responsibilities for the under-achievement of Maori children. When a survey carried out by Benton in 1973 revealed that speaking Maori was common practice in only one or two small communities, increased attention was given to the problem (Spolsky, 2009). Consequently, bicultural education policies were developed during the 1970s and Maori language and culture were to be included in the curriculum at all stages (Holmes, 1992). Unfortunately, timing and methods were left to individual schools and principals (Benton, 1986). *Taha Maori* (the Maori perspective) was to be integrated into the curriculum too though, without a clear policy on details and chronology, the attempt became but one extra curricular element that produced little effect in terms of Maori language acquisition. Holmes (1992) asserted that the failure of government policies to meet legitimate demands led to the Maori people themselves asking for autonomous control over their educational development.

Community elders pressed for bilingual education and, between 1976 and 1980, the first four Maori/English schools were approved by the Minister of Education, the first of which, Ruatoki School, opened in 1978 (http://www.tetaurawhiri.govt.nz/english/issues_e/hist/index.shtml). These schools were established in predominantly Maori-speaking communities. However, Benton (1986) argues that this measure was also ineffective because English, a ubiquitous presence, still threatened the survival of Maori. If the overwhelming effect of English was to be countered, says Benton, it would have to be countered everywhere. Bilingual education suffered from other drawbacks too, such as a lack of teacher training, funds and resources, strong support from the dominant European group, and opportunities to hear Maori used in the community since the mass media were predominantly English-based (ibid).

The year 1977 saw the start of a movement called Tu Tangata, which sought to revive Maori through programmes developed throughout the country (Spolsky, 2009) and, between 1979 and 1980, the Te Ataarangi movement was established to teach the language to Maori adults (http://www.tetaurawhiri.govt.nz/english/issues_e/hist/index.shtml) using what was called the Silent Way (ibid). Te Ataarangi became, and remains, largely an informal endeavour, supported mainly by Maori extended families rather than by external sources (Spolsky, 2008).

Nonetheless, there was still a feeling that more had to be done to keep the language alive. Hence in 1982, a pre-school programme called *kohanga reo* or language nests (a species of language nursery program) was devised, in which the entire communities collaborated in providing not only language instruction but care and nurture for the children. In 1985, an initiative called Kura Kuapapa Maori began to offer education in Maori to students who had studied in the Kohanga reo schools. The government also supported other projects, such as the Tomorrow's School programme, which aimed at establishing a contractual arrangement in which parents, government and schools could equally devise ways of providing bilingual education. The following section discusses the programmes that both Maori authority and the New Zealand government employed to help revitalize the language.

"TOMORROW'S SCHOOL" PROGRAMME

Benton (1991) describes the programme launched by the New Zealand government to restructure education throughout its schools. As mentioned above, the programme sought to establish a contractual arrangement in which parents, schools and government would be equal partners in decisions relating to children's education. However, the word *equal* is inappropriate since the policy stated that the minister of education would have the final say in approving the charters

under which the schools would operate. In addition, he/she would have the right to include non-negotiable terms or clauses which every charter had to incorporate. There was no provision for second opinions.

Because of the presumed new partnership, the Department of Education and the education boards were abolished and boards of trustees for each school elected. The old Department of Education was replaced by a smaller Ministry of Education. Individual schools were given their funds with the freedom to decide what services to acquire. In view of this, one would expect a competition for funds between the English-medium schools and the bilingual education programmes, to the detriment of the latter. Funding was calculated according to a formula which considered the number of pupils and other factors, including the number of children of Maori descent. A child of Maori descent brought annually an additional $75 (US$45) to the school to assist bilingual education and Maori-related activities. No additional funds were allotted to bilingual schools or programmes, even if the majority of children were Maori. In most cases, however, the money granted for Maori children's presence was inadequate to cater for the resources needed to educate pupils effectively in both English and Maori (Benton, 1991).

The Maori people found one element of the new system encouraging. This was a provision that when a local school could not meet the children's legitimate educational needs, parents could set up their own schools within the state system.

However, this included built-in hurdles, just in case many Maori parents might opt for it, since this was exactly what they had asked for previously. Hence, for example, a condition that parents could not set up their own school unless they had exhausted every means of having their children's needs met through the existing school system. In that case, they were required to provide proof of such inadequacies. However, the Minister of Education was also empowered to block the establishment of such schools, even if the specified conditions were fulfilled (Benton, 1991).

As a result of the legislation, existing state schools retained their previous status which could not be changed without ministerial approval. Thus, the officially bilingual schools remained without provision to be considered as special types of school. In Benton's (1991) view, these schools became educational fossils and their future development would depend on parental pressure and the way the state schools wrote their charter (ibid).

A major problem with many governmental bilingual policies was their lack of precision. In other words, they lacked clear procedures for all the elements of the bilingual education process. Much was left to the will and interpretation of the principals and schools. This resulted in a wide variation in policy, which in turn created variations in standards, inputs and educational outcomes. It also made evaluation hard since there could be no standardized instruments to accommodate diversity. Furthermore, no clear statement

existed of even the rationale for supporting Maori revitalization (Benton, 1991; Paulston & McLaughlin, 1993, 1994), an obvious essential for guiding national policy implementation.

1995: A YEAR FOR CELEBRATING THE MAORI LANGUAGE

Chrisp (1997) reported another attempt to support Maori, which came as an initiative from the Maori Language Commission of New Zealand when it promoted 1995 as a year for the celebration of the Maori language. This programme was targeted at the whole population, Maori and Pakeha, and had the following goals:

1. To encourage the Maori people to learn and use their language;

2. To celebrate the place of the language in New Zealand history and modern society;

3. To generate goodwill among the general population towards the Maori language.

This initiative was based on the premise that a "theme year" would facilitate a concerted promotional effort to raise the status of the Maori tongue across the population in general and among the Maori people in particular. However, there was no evaluation for the participants and so the degree of gain during this year could not be measured with any degree of certainty. Chrisp (1997), however, mentioned some of the year's accomplishments. One was that the promotion of Maori (He Taonga Te Reo) made it possible for the commission to distribute financial and other resources to communities in the hope of creating social environments and motivation for Maori use.

During the year, stamps and coins were produced for the first time in Maori as part of He Taonga Te Reo. Also, the Minister of Education, citing the theme year as a shaping factor, approved a plan to oversee programs and expenditure in different sectors, including Maori language education, broadcasting, inter-generational language, and religion. Given the year's general goodwill objective, a research exercise to gauge the attitudes of New Zealanders toward the Maori language found that many considered Maori essential to both Maori people and the country as a whole. This suggested a significant achievement.

This finding is fairly similar to that of Nicholson and Garland (1991), who, in a mail survey of 225 New Zealand adults, sought their opinions about the role of the Maori language in contemporary New Zealand society and their support for it. Two thirds of the respondents felt there was a place for the language in New Zealand society, but only a quarter thought that it should be more widely used.

Among other efforts to promote the use of Maori in both schools and the society, the most important was the declaration of Maori as a New Zealand official language in 1987. Then came supports through other initiatives, such as the Maori Week and Maori broadcasting in the media, which climaxed in 2004 with the beginning of the Maori Television Service (see http://www.nzhistory.net.nz/culture/maori-language-week/history-of-the-maori-language).

KOHANGA REO

At the beginning of the 1980, it had been clear to the Maori community that the governments' initiatives were not producing the desired effects because their language teetered on the brink of extinction and their children were failing at school. Therefore, they decided to tackle the problem as a community by helping to help teach Maori to young children whose parents could not speak the language. Hence, the opening of the Kohanga Reo centres to immerse preschoolers in the Maori language and culture before starting regular school at the age of five. This was immersion to the extent that Maori was the only language allowed at the centres, at least in the presence of children. Butterworth and Young (1990) claim that the programme began as an experiment in 1981 in Wainviomata and was successful enough to receive support from the Department of Education. The first Language Nest was opened in 1982, with some help from the Department of Maori Affairs, though it was largely built without government support. The centres were run by Maori volunteers, most of whom were community elders. The programme was then, by and large, successful (Butterworth & Young, 1990; Paulston & McLaughlin, 1993-94) and grew so rapidly that by 1992 its centres numbered 719 (Statistics, New Zealand, 1994). Holmes (1993) provided
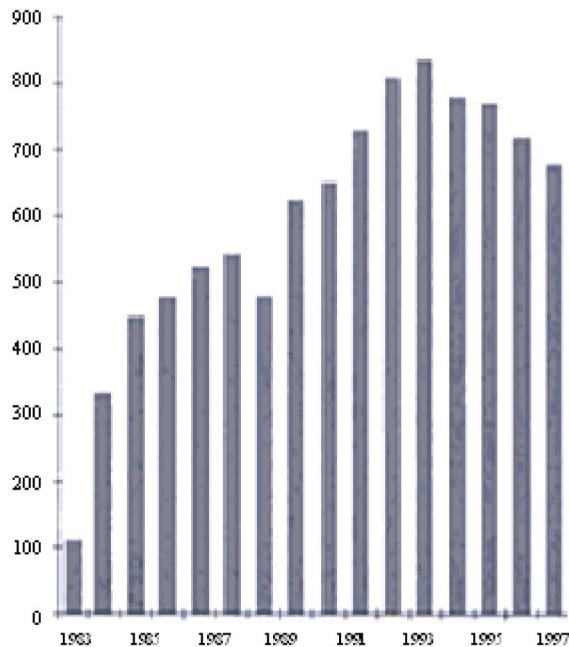
Fig.1: Number of Kohanga Reo Centers

(Source: Introduction to the Maori Language by Ken Hale, in The Green Book of Language Revitalization in Practice, p.115)

a figure of about 10,000 children enrolled in the Language Nests by 1992, compared with 70-80,000 in all other early-childhood projects. According to Hale (2001), the number of Kohanga Reo centers plateaued after 1993, suggesting that they had reached a stabilization point, after which both the number of the centres and even the number of children began to decrease.

From 1996 to 1998, their number decreased from 767 to 646, while the number of children enrolled decreased from 14,000 to 12,000, as shown in Fig.1 above. In a more recent assessment, Ringold (2005) provided a count of 526 Kohanga Reo pre-schools, which represented a continued decline from 1998. Nevertheless, even in their years of decline, after they peaked in 1993, the number of the Kohanga Reo centres always exceeded the 100 centres in operation after the first year of operation. It was no surprise, then, that Ringold (2005) reported that participation in Maori immersion schools escalated in 2003 (after 10 years of continuous decline).

One problem facing this project, from its inception until after 1985, was that retaining the Maori acquired in the language nests during the first five years of a child's life could not be guaranteed because only a small minority of the children left the programmes to attend bilingual schools. Most went on to attend schools that only taught Maori as a second language. According to Benton (1986, 1991), the proportion of the Maori children who had attended schools where Maori had the same status as English was a mere 5%. Only that miniscule percentage

stood a good chance of retaining their native language. In effect, the other 95% were disadvantaged from the start and had little or no prospect of maintaining their proficiency in Maori in the long term (ibid).

Moreover, even though government acknowledged the success of these language nests, it was feared that the Maori community's ability to sustain its own programmes might lead to demands to leave the teaching of Maori exclusively to Maoris themselves. Thus, the centres became government-supported (ibid).

Another threat to the nests' long-term success was the aim to develop a spoken language which was not present for the most part within the community, and, when actually present, was usually overwhelmed by the ubiquity of English and bombardment by its media. Most job opportunities required English, and this had a dampening influence on motivation, leading to some degree of language loss among children graduating from the language nests (ibid; May, 1998). This calls to mind Paulston's (1994) remark that group bilingualism is unusual since the norm in prolonged-contact situations within one nation is for the subordinate group to shift to the dominant group's language. Despite these fears, the centres continued to proliferate until they plateaued in 1993 and then increased once more in 2003.

KURA KAUPAPA MAORI

Maori dissatisfaction with New Zealand's bilingual education policies produced two reactions. First came a request for a separate

education authority parallel to that of the state system, extending from pre-school all the way up to the tertiary level. This, however, was not included as government policy in the reform process following 1989. Second, the Maori community developed what are called *Maori Agenda Schools* (Kura Kaupapa Maori). These schools aimed at subordinating the entire educational system to Maori aspirations and needs by using the Maori language as the main medium of instruction and allotting only a small amount of time to the teaching of English to older children. Eight schools were established between 1987 (following the declaration of Maori as an official New Zealand language) and 1990 and all were in cities. This was appropriate, given that most bilingual schools supposedly providing equal education in Maori and English were located in predominantly Maori districts. An Internet article (on the website http://www.nzmb.org/backgrounder/faqs/edsystem.htm) provides statistics which, however, seems to contradict official figures. According to the article, in 1990, there were six officially designated Kura Kaupapa Maori (or Maori Agenda Schools), but, by 1994, there were 1,667 students in 28 schools. These figures suggest an increase in the number of Maori-medium schools. In 2006, there were 71 separate Kura Kaupapa schools and in 2008, 68 of them, enrolling 6104 students (Spolsky, 2009). Spolsky (2009) cited Bishop (2003) who had described the Kura Kaupapa project as:

"a powerful mechanism for addressing the imbalances that have discriminated against Maori. They support self-determination and Maori cultural aspirations, and also present a collective vision that promotes home-school relations and wahanau [family] values" (Spolsky, 2009, p. 12).

However, Spolsky (2009) noted that most Maori children are enrolled in mainstream schools and that "only 15% of Maori learners are in Maori medium education" (ibid, p. 13). Reflecting on the overall situation of the Maori education in New Zealand, one can assert that there has been a steady growth in its status. The fact that Maori is now an official language in New Zealand suggests undeniable support for it and its speakers. In the Language Strategic Plan written by the Maori Language Commission, the vision statement says:

"By the year 2011, the Maori language will have been significantly revitalized as a dynamic feature of everyday life. This will involve sustained increases in both the number of people who speak Maori, and its level of use" (quoted in Spolsky, 2009, p. 16).

The government now seeks to foster positive attitudes towards Maori so that it will become a valued presence in the society (ibid.). In addition, Maori is now offered by many universities and higher education institutions, and immersion courses are

available to whatever Maori communities or tribes (iwi) need them to counteract language loss.

CONCLUSION

Paulston wrote in 1986 that "language mirrors social conditions, mirrors man's relationship to man" (p. 119) and that is how it is in New Zealand. What is happening to the Maori language is a reflection of the social and economic forces at work in New Zealand society and in the relationship between the advantaged and disadvantaged groups. Maori people have made justifiable demands for school reform, and some of these have been met by the government. Moreover, they themselves sprang into action to protect their language and thus started many grass root movements which, along with government initiatives, succeeded in rescuing the Maori language. Spolsky (2009, p. 24) contends that "There is good reason to believe that the grass root activities - the continuation of Te Ataarangi, the beginnings of pre-school and school movements - have been even more influential than the institutionalized and government-conducted activities." While government support was essential, community activities played the major role in changing attitudes and succeeded in transmitting the language to the younger generations (ibid.).

Maori, thanks to the joint efforts of the community and government officials, is now alive and well. It is one of New Zealand's official languages and the number of its speakers is continually increasing. In 1999, Liu *et al*. reported that a substantial number of Maori students were enrolled in universities and that 35% of them were "majoring in Maori studies" (p. 1025). Maori revitalization initiatives have borne fruit and have demonstrated that people's will power and governmental support can work wonders in revitalizing an endangered language. Many languages across the world would face extinction if their native speakers and national governments do not act quickly and jointly to work for their revival and preservation. Languages and cultures are intertwined and the loss of a language marks the loss of a rich historical and cultural heritage, a treasure that humanity cannot afford to see disappear.

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Scaling up Rural Micro Enterprises: Profiles of Owners in Peninsular Malaysia

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ABSTRACT

The role of economic generating activities, through entrepreneurship development to combat poverty and increase the well being of rural areas for living, is very clear. Indeed, when the enterprises are running as a family business. Focusing on the development of the enterprise to increase the multiple impacts on the well being of the surrounding society and the family of the entrepreneur seems essential for every country. Therefore, to understand the dynamics of family business through profiling the family entrepreneurs is crucial. This paper explores the profile of Malaysian rural entrepreneurs in the Malaysian family business producing processed food, and suggests profile related issues in the development of family business from the perspective of entrepreneurs. Data were collected through interviewing entrepreneurs who were members of Women Extension Group (*KPW*) from 11 states in Peninsular Malaysia in 2008 with the assistance of the Department of Agriculture (DOA). Structured questionnaires were administered to 735 respondents. The findings of this paper contribute to both policy development and the understanding of the dynamics of rural family business.

Keywords: Rural development, micro enterprise, poverty, gender and entrepreneurship

INTRODUCTION

Family business revolves around the issues of ownership, management and leadership transfer or succession among

family members (Degadt, 2003). Therefore, micro enterprises (ME) in rural Malaysia are also considered as micro family businesses (MFB) because of the involvement of family members in the operation of the business, especially as free labour (Maimunah, 2001; Jariah & Laily, 1995). Micro family business helps in poverty alleviation as well as improves the economic status

of rural families. In addition, they are able to empower women socially and economically (Baruah, 2004; Maimunah, 2001). Thus, it is not surprising that most developing countries are actively supporting the development of micro enterprises, or micro family businesses.

Efforts to promote rural economic development through micro enterprise activities in Malaysia started in 1953 through Malaysian Industrial Development Authority – MIDA (HAWA, 1995). However, after 53 years, and in 2010, there was still little information about the profiles of the entrepreneurs to properly address the issue of scaling up such business activities. In other words, little is known about the reasons behind the failure or success of rural family business, especially those run by women (Still & Timms, 2000). Malaysian rural enterprises are always micro in size (Maimunah, 2001, Jariah & Laily, 1995), with less than five workers (Maimunah, 2001). Rural areas are defined as areas with a population of less than 10,000 and are located outside the governance of the local government (Department of Agriculture, 2005).

However, little is known about the entrepreneurs who own rural micro enterprises in order to assist them prosper and to scale up that few questions persist. For example, is it true that the majority of rural enterprises are owned by women? By gender disaggregation, what are the general profiles and levels of entrepreneurship experience of rural entrepreneurs? As such, the main objective of this paper were to identify the general profiles of the rural entrepreneurs by gender disaggregation, so as to measure the levels of their entrepreneurship experiences and also the development indicator of ME to help them scale up their businesses, especially by examining the entrepreneurs' profiles.

LITERATURE REVIEW

In addition to age, race, age of entry into enterprise, sex of entrepreneurs, and marital status, which is usually measured in many studies (Haynes, Walker, Rowe and Hong, 1999), the academic background is the key developmental indicator of an entrepreneur. Haynes *et al*. (1999) detected a positive implication in one's personal development through high academic background. Malaysia also faced with the issue of poor academic background among rural entrepreneurs, which resulted in low performance in scaling up businesses (Maimunah, 2001; Jariah & Laily, 1995). Santiago (2000), explained that ethnic culture has a greater influence on business performance because of the values of each family member towards life.

Almost all experiences associated with invention, management, failure to achieve objectives, paid-job and leadership are components of an entrepreneurship experience. Entrepreneurship experience is essential for business development (Box, White, & Barr, 1993; Brush & Hisrich, 1991). Experience in a salaried job, as well as in a previous business, assists entrepreneurs to develop an identity and prepare for a wide range of problems

that may confront their businesses in the future (Lansberg & Astrachan, 1994). However, Miskin and Rose (1990) found that previous ownership experience is not significantly related to the profitability of female entrepreneurs but is significant to male entrepreneurs. Belcourt, Burke and Lee-Gosselin, (1991) ascertained that low performance among females is due to not having worked in a related field prior to venture creation.

For rural women, some of them were venturing into enterprising by simply following the footstep of other people without having their own need and desire to be an entrepreneur. Some did so to just socialise with other members in the society or as a hobby in their free time (Maimunah, 2001; Jariah & Laily, 1995). Women with a potential to develop their enterprises are those who possess a high level of motivation and entrepreneurial traits of a businessman (Still & Timms, 2000). Furthermore, women value family more than wealth (DeMartino & Barbato, 2003), and women are less concerned with financial rewards than male owners (Brush, 1992). In addition, Drucker (2003) concluded that business vision is a developmental indicator. For micro enterprises, the vision of a business organization is actually the vision of the entrepreneurs or their families. High potential female entrepreneurs have good vision concerning the development of their enterprises (Sandberg, 2003). It is important for an enterprise to scale-up and become a formal business because personal goals appear to have a more dominant influence than business goals (Still & Timms, 2000),

and these goals are also personal to rural entrepreneurs.

In micro enterprises, the competencies of business organizations are actually those of the entrepreneurs themselves. If there is involvement from family members or workers, their competencies add value to the enterprise competencies. Women run the enterprises by themselves; however, their low educational background, the absence of related competencies and prior working experience are seen as obstacles to succeed (Jariah & Laily, 1995; Laily & Jariah, 1996; Bowen & Hisrich, 1986). Competencies of an organization or entrepreneur can be divided into eight business management fields: management, production, marketing, financial, human resource management, industrial relations, corporate communication and risk management (Skinner & Ivancevich, 1992). For micro businesses, the initial focus could be reduced to five, namely, management, production, marketing, financial management and social network (Bradley & Sauders, 1987). Other simpler categories are production and non-production. Most micro entrepreneurs have production skills but not those of management and marketing (Dhaliwal, 2000). Chrisman, Chua and Sharma (1998) examined financial, marketing, strategic planning, technical, decision-making and interpersonal skills. In general, women perceive that they have good communication skills and facilities for interpersonal relations (Brush & Hisrich, 2000; Brush, 1992), but female entrepreneurs always underestimate their skills (Fox, 2000).

RESEARCH METHOD

The data used were parts of the primary data gathered for other research. A questionnaire comprising of three main parts – the entrepreneurs, their families and their enterprises – was developed. This paper used the data from the first part of the questionnaire. The data were collected from the population of the Women's Extension Group (popularly known as KPW in the Malay language) in Peninsular Malaysia. The KPW entrepreneurs are involved in income generating activities in agriculture-based products to improve their family well-being. The population of KPW entrepreneurs totalled at 2,093 persons (Malaysian Department of Agriculture, 2005) and are governed by the Malaysian Department of Agriculture (DOA). The DOA was selected because it is one of the agencies governing entrepreneurs in rural areas in Malaysia. In total, 2,500 questionnaires were distributed through the DOA's offices at the state level. A total of 1,154 completed ones were returned at the end of the data collection period. The data were keyed in into SPSS and after a screening process was done, a total of 735 enterprises in the processed food industry were selected for further analysis. Descriptive statistics were used as well as Chi Square, *t*-test, One-way ANOVA and Binary Logistic Regression in analysing the findings.

Two categories of variables were selected for the study. First, the general backgrounds of the entrepreneurs, which included age, age entry into the enterprise venture, marital status, academic background and location. The second group was entrepreneurship experience, which consisted history, vision and business management skills and competencies. History in entrepreneurship experience refers to the salaried working experience of entrepreneurs, previous failure(s) in business and the reasons for venturing into the business. In order to highlight the development of the rural enterprises by gender, one variable on the type of business ownership was used.

Skills perceived by the respondents were measured using a ten-point *Likert* scale statements (Cronbach's Alpha = 0.88), in relation to the skills in production, interpersonal relation, quality control, business management, communication, human resource management, marketing, financial management, accounting and business law. These were solely based on the respondents' perception of their own business management skills and competencies in response to the listed statements.

FINDINGS AND DISCUSSION

Out of 2,500 distributed questionnaires, a total of 735 responses were deemed as usable for this study. These respondents are rural entrepreneurs involved in the processed food industry, under the supervision of the DOA. They are also members of KPW. The processed food industry was chosen for this study due to the fact that the indigenous knowledge of the rural folks such as in home cooking can be commercialised and used as a

way to eradicate poverty. All the enterprises were initially run by female entrepreneurs when the size was small (micro). Profiles of the respondents include age, marital status, academic background, location of the enterprise, the age at which they started to involve in enterprising operations and the years of experience in enterprise venture. All the respondents are Malays. The data were disaggregated by gender. Although all the enterprises were initially owned by the females, the respondents in this study comprised of 101 (14%) male and 634 (86%) female entrepreneurs. Table 1 shows that the majority of the respondents were sole proprietors and of the KPW types of business ownership. As there were more female than male respondents in this study, percentage was used to explore the distribution disaggregated by gender in all variables.

The Malaysian rural areas are populated mainly by the Malays. This dated back to the periods before independence as a result of the 'Divide and Rule' policy implemented by the British during the Colonial era (Mohamad Idris *et al*., 1994). Unfortunately, a high percentage of the rural Malays remained in poverty even after more than five decades of independency. In 2007, there was a 7.1% incidence of poverty in the rural areas of Malaysia and only 2.0% occurred in urban areas. Generally, low Gini Coefficient value indicates a high equality of income distribution. The Gini Coefficient value was found to be the highest among the Malays, i.e. at 0.452, as compared to about 0.446 for Chinese and 0.425 for Indians (Mid-Term Review of Ninth Malaysia Plan, 2008). Hence, within-group income inequality was worst among the Malays. As such, not only are Malays being the poorest, they also have the widest household income gap as compared to other ethnic groups in Malaysia (Mid-Term Review of Ninth Malaysia Plan, 2008).

Initially, all the enterprises were in the KPW's group, and thus, any change in the type ownership to a formal one indicated that business development had occurred. Table 1 shows that 29% of the entrepreneurs remained in the KPW business ownership and 71% had scaled up. As for the males who had taken over female enterprises, 21% remained in the KPW business ownership and 79% developed into other type of business ownership, whereas 31% of female-owned enterprises remained

TABLE 1
Types of business ownership by gender of the respondents

Types of business ownership	All		Male		Female	
	N	Percent	N	Percent	N	Percent
Company	10	1.4	5	5	5	0.8
Partnership	59	8.0	14	14	45	7.1
Sole proprietor	450	61.2	61	60	389	61.4
KPW group	216	29.4	21	21	195	30.7
Total	735	100	101	100	634	100

as KPW business ownership, and only 69% had scaled up. In short, female-owned enterprises were less developed than male-owned enterprises. Thus, the association between the type of business ownership by gender of entrepreneurs was significant ($p<0.05$; $\chi^2_{3,0.05}=19.013$). Although only a small percentage of the male-owned enterprises were involved in this study, the percentage that still remained in the KPW type of business ownership was smaller than that of the female- owned enterprises. This finding may means that an important indicator of development in scaling up rural family business was when male's family members took over the female enterprises.

According to Hovorka (2005) and Curimbaba (2002), gender matters because men and women enter into agriculture-based production on unequal terms associated with socio economic status, location and interaction with the environment. The majority of respondents in this study were females and operated their enterprises as sole propriety and KPW group types of business ownership. The KPW-typed business was not treated as 'sole propriety' in this study since the nature of its operation is more towards a social group entity than as a business entity. In addition, these businesses are not registered as formal business entities. Similar trends have been found in many studies that most of the rural enterprises are women-run and are sole proprietors (Maimunah, 2001; Heck & Trent, 1999; Haynes *et al*., 1999).

From the gender perspective, Brunii *et al*. (2004) stated that entrepreneurship encompasses masculine activities. Therefore, women entrepreneurs need help from family members, especially men for masculine input to help them developed besides their feminine input, except if they are androgynous (Dewi *et al.,* 2009). At the early stage of micro enterprises, women are capable of running the enterprises themselves because the management and decision-making processes are much simpler (Lee, 1996). However, their capabilities are challenged when the enterprises expand or scale up. Furthermore, many activities in agriculture-based enterprises involve decision-making (Bokemeier & Gorkovich, 1987), and in the Malay society, it is the men who decide, i.e. the husband makes the decision for the wife who in turn has to oblige (Md. Nor & Loo, 2001). As such, generally, women have no control over their resources and no power to change the situation (Jaffery, 1989). Therefore, majority of rural female entrepreneurs have low potential to scale up their enterprises. In addition, as these women live in a patriarchal society, it is almost impossible for rural female entrepreneurs to mastermind the development of their enterprises on their own. Thus, some enterprises were taken over by men.

The mean age of the respondents was 48 years old (S.D=9.9), with the youngest aged 23 and the oldest aged 74 years old. Meanwhile, the mean age of the male and female respondents was 45 (S.D=10.8) and 49 (S.D=9.7) years old, respectively (Table 2). That is, the females in this study were slightly older than the males.

Apart from the husbands, the males who took over the enterprise from women were probably the respondents' sons or younger brothers. Therefore, on average, the male respondents were much younger than the female respondents, of whom the majority were the founders as well as their mothers. The *t*-test showed that the age difference was significant ($p<0.05$; $t=-3.417$). Another possible explanation is that the men who took over women enterprises might simply be their husbands who happen to be younger than their wives who were actually the initial founders.

TABLE 2
Age, age enter and experience in enterprise by gender

Variables	Overall	Sex (%)	
	N	Male	Female
Age:			
Mean	48	45	49
S.D.	9.9	10.8	9.7
n	675	98	623
Age enter:			
Mean	35	34.7	34.9
S.D.	9.7	10.8	9.6
N	675	98	582
Experience:			
Mean	13	10	13.6
S.D.	8.7	6.6	8.9
N	667	91	576

Table 3 shows that most of the respondents were married (90%) and only 10% were either bachelors or divorcees/widowers. Even though there was a small number of male respondents in this study, a slightly smaller percentage of them were married than their female counterparts. This is deviated from the norms especially

in the rural Malaysia, where men are more easily to have found spouses as compared to women, in which there were supposedly more male than female respondents should be married. However, the percentage of the single males was higher (almost triple) than single females but the percentage of divorced or widowed females was more than double than the male respondents.

In the divorced and widowed group, there were only three males and 40 females. Therefore, it is clear that the majority in this group were single mothers. In fact, the mean age of the respondents within this group was the highest among all types of marital status. Thus, it can be concluded that this group consisted of old single mothers. Losing a life partner due to a divorce or death at old age may have reduced the confidence level of the females, thus, it prevented them from scaling up their enterprises. In addition, enterprises owned by elderly single mothers with no support from husbands may be an indicative of a lower potential for scaling up in the future, especially if the assistance from other family members was absent.

A high percentage of the married female respondents was for the housewives as they have scored less or equal to one for the 'history' variable (Table 4). This implies that they have had no salaried working experience and never experienced failure in enterprising. Most of the female entrepreneurs in this study indicated that they have reasons for venturing into business enterprises, but that is it.

A significant percentage was shown for single mothers in the divorced or widowed

TABLE 3
General profiles of the respondents by gender

General Profiles	All		Sex (Percent)	
	N	Percentage	Male	Female
Marital status:	730	100	14	86
Not married	28	4	8.9	3.0
Married	659	90	88.1	90.6
Divorced/widowed	43	6	3.0	6.4
Academic Background:	722	100	14	86
No schooling	102	14	5.9	15.5
Primary	139	19	10.9	20.6
Secondary	437	60	71.3	58.8
Certificate and higher	44	7	11.9	5.1
Enterprise location:	735	100	14	86
North	269	36.6	25	39
East	181	24.6	17	26
Central	129	17.6	30	15
South	156	21.2	28	20

TABLE 4
Entrepreneurship experience by gender

	Overall		Sex (%)	
	N	Percentage	Male	Female
History Score:	735	100	14	86
0	68	9.3	10	9.1
1	324	44.1	39	45.0
2	272	37.0	44	35.8
3	71	9.7	7	10.1
Vision:	735	100	14	86
Yes	499	68	14.4	85.6
No	236	32	12.3	87.7
Skill perceived	N	707	98	609
	mean	27.1	27.5	27.0
	S.D.	4.9	5.6	4.7

group. Thus, it could be concluded that the majority of the rural female entrepreneurs comprised of housewives and single mothers. These findings are in line with that of the findings by Maimunah (2001), Jariah and Laily (1995) and Chee (1986).

Based on the Population Census 2000, there were 650,000 divorcees or widows or separated in the rural areas (MoWFCD, 2004). However, only 40 (5%) single mothers, out of 735 respondents, participated in this study. Hence, it is expected that there

should be a lot more single mothers joining the KPW programme under the governance of the DOA, as it was especially designed to eradicate poverty in rural areas, including poor single mothers. According to Aspaas (1998), single mother households were an increasing phenomenon throughout the world, and they were marginalized from resources and capital, especially the illiterate and the poor. In addition, they had a lack of networking and skills in business management, which worsen the situation (Dewi *et al.*, 2009). Helping women in enterprises not only would assist female-headed households in generating income, but it could also directly and indirectly help all their dependents, including those who were vulnerable such as children, elderly parents, bedridden patients and disabled siblings or husbands.

Sixty percent of the respondents indicated that secondary school were their highest educational level. The remaining 40% reported to have obtained only primary school educational level, while others (including 7%) indicated that they possess certificates or higher educational level (Table 3). A high percentage (36%) of the female respondents only obtained primary school education or dropped out from schools. On the contrary, a high percentage of the male respondents had secondary school education or obtained certificate or higher level of education (Table 3). In other words, despite the small number, the male respondents were found to be more educated than the female respondents. Consequently, the males have better knowledge, exposure and

awareness about the potential of scaling up micro enterprises than their wives, sisters or mothers. Therefore, there is a tendency for the male respondents to take over businesses initiated by these women. Furthermore, the academic background has been found to be significantly associated with the gender of entrepreneurs ($p<0.05$; $\chi^2_{3,0.05}$=18.534). This finding indicates that enterprises owned by the respondents with higher academic background will have a greater potential to be scaled up in the future.

Only 7% of all the respondents in this study hold a certificate or have higher academic background. Meanwhile, one third of the respondents in this study were school dropouts or received only primary school education. The academic background strongly influences one's ability and involvement in decision-making (Greaves *et al.,* 1995; Peng, 1991). On the contrary, this study revealed that the academic background of Malaysian rural entrepreneurs had increased in comparison to the findings by Chamhuri and Hamid (1990), in which 57% of the rural entrepreneurs only had primary school or low-level academic background. In this study, the male entrepreneurs were found to be more educated than the females. This may account for the reason why the female respondents perceive themselves as having lower business management skills and competencies than their male counterparts. In other words, this is a reflection of low confidence in decision-making among the female entrepreneurs. Additionally, women were found to have always underestimated

their skills and competencies (Fox, 2000), which explains why they later gave away the enterprises to men.

The top four states with the highest numbers of respondents were Perak (36%), Johore (21%), Selangor (14%) and Kelantan (12.5%), which represented about 83.5% of the total respondents in this study. The remaining percentage (16.5%) consisted of the respondents from Negeri Sembilan, Terengganu, Penang and Pahang. All these states were then grouped into four regions. The Northern region was represented by Penang and Perak; the Central region was represented by Negeri Sembilan and Selangor; the Eastern region was represented by Kelantan, Terengganu and Pahang; and the Southern region was represented by Johore (Table 3). The highest percentage of the female respondents came from the Northern and Eastern regions, and the top two highest percentages of the male respondents originated from the Central and Southern regions.

The majority of the respondents were from the Northern and Eastern regions, followed by those from the Southern and Central regions. The states in the Central and Southern regions were more developed than those in the Northern and Eastern regions (UNDP, 2005). In short, the regional distributions of entrepreneurs were closely linked to gender, the type of business ownership and academic background. This finding is consistent with those of Hovorka (2005) and Curimbaba (2002), who concluded that other matters such as the location of the entrepreneurs

and geographical locations reflected the differences in the business culture. In additions, the factors that are also important attributes to business organizations are the presence of infrastructure, potential market as well as good quality workers and other business environments (Drucker, 2003). As such, entrepreneurs operating in more developed areas have a greater potential to scale up their businesses due to the conducive business environment that they are in.

Age being involved in the business during their childhood years is termed as 'age-enter'. The mean age of entering business was found to be 35 years old (S.D=9.7), with the youngest started at the age of 10 and the oldest at the age of 65. The mean age of entering businesses among the male and female respondents were almost similar at 34.9 (S.D=10.1) and 34.7 (S.D=9.7) years old, respectively (see Table 2). The respondents' experience in enterprising, later termed as "experience", was calculated by deducting the variable "age enter" from the age. On average, the respondents have been in enterprise for 13 years (S.D=9.7). The mean years of experience for the male and female respondents was 10 (S.D=6.6) and 13.6 years (S.D=8.9), respectively. Thus, it can be concluded that the females have more experience in business than the male respondents.

The variable "history" was calculated by summing three dichotomous variables: formal employment/salaried working experience (had experience=1), reasons

of entering enterprising (had reason enter into the enterprise venture=1) and experienced failure in enterprising (use to fail = 1). A minimum history score=0 (no entrepreneurship experience at all) and maximum history score=3 (used to work, had reasons to enter into enterprise and used to fail in enterprise). Ninety one percent of the respondents had a history score≥1 (Table 4). It can be concluded that the majority of the respondents scored more than one for history. A high percentage of the females had history score=1, and a high percentage of the males had history score=2. It seemed that the females had less history than the male respondents but the association of these two variables was not significant ($p>0.05$; $\chi^2_{1,0.05}$=0.059).

Table 4 shows that the mean for variable of "skills perceived" was 27.09 (S.D=4.9) for all the respondents. The male respondents perceived themselves as being slightly more skilful than the female respondents perceived themselves with regards to their skills (m= 27.5, S.D=5.6), as compared to the females (m=27.0; S.D=4.7). However, the difference was not significant ($p>0.05$; t=0.813). Out of 735 respondents, 68% (499) stated their vision, and these were categorized as the 'had vision' group. Table 4 shows that there were a slightly higher percentage of the male respondents with a vision than without one, and a slightly lower percentage of the female respondents with a vision than without one. It seemed that the male respondents were more visionary than the female respondents but the association between 'had vision group' variable and

the gender of entrepreneurs was found to be not significant ($p>0.05$; $\chi^2_{1,0.05}$=0.616). In conclusion, the majority of respondents had a "history" in this study. The male respondents had slightly higher scores for history. They were more visionary as well as perceiving themselves as slightly more skilful in business management as the females did for themselves.

This was probably because the males in this study were more educated than the females. Furthermore, individual knowledge, and academic background were indicatives of individual skills, receptivity to innovation and ability to solve problems (Fiegener *et al.,* 1994). As concluded by Drucker (2003), vision and skills in business management are essential for a business. A high level of knowledge could promote a high level of confidence in someone, apart from being helpful in generating many other related skills in developing a business. An entrepreneur has to continually learn and practice the knowledge in order to gain experience. All these are aids for good decisions because managing an enterprise involves taking risk through decision-making processes. Thus, knowledge, skills and experience are guides to the right path for entrepreneurs to ensure gains from taking risks.

According to Cooper, Gimeno-Gascon and Woo (1994), the value of human capital through education may reflect the extent to which entrepreneurs have the opportunity to develop relevant skills and contacts (networking) for them to expand their markets (Aspaas, 1998)

and to motivate women to venture into businesses (Maimunah, 1998). However, the female entrepreneurs in this study have low academic background and low entrepreneurship experiences, which are similar to what has been found in many earlier studies (see Maimunah, 1998; Jariah & Laily 1995).

The four types of business ownership used in this study were grouped into developed (from the social activity of KPW group or micro enterprise to formal business entity) and not developed (those remain in KPW as social group) as dichotomous dependent variable (those developed=1). Binary Logistic Regression was used to measure which independent variable of entrepreneurs profile predicted the development of micro enterprises. The Omnibus test of model coefficient yielded $p<0.05$, indicating that the model is significant to predict the dependent variable. Hosmer and Lemeshow goodness of fit obtained $p>0.05$, suggesting indicated the independent variables have significant liner relationship with the log odds of dependent variable.

Table 5 shows the Wald Chi Square statistics of salaried working experience, age, not schooling of academic background and business management skills and competencies perceived as being significant to predict the likelihood of one entrepreneur to scale up her/his micro enterprise. It was found that entrepreneurs with salaried working experience had 78% (odds=1.78) likelihood to scale up their micro enterprises than those without salaried working experience. The entrepreneurs who were older had less than 4% (odds=0.96) likelihood to scale up their micro enterprises than those who were one year younger. Meanwhile, the entrepreneurs who had no experience in formal schooling had less 75% (odds=0.25) likelihood to scale up their micro enterprise than those who had formal academic background. The skills and competencies perceived in business management had increased about 8.2% (odds=1.082) likelihood of entrepreneurs to scale up their micro enterprises. The entrepreneurs who perceived themselves as skilful had more potential to scale up their micro enterprises.

The entrepreneurship experience always relates to the level of academic background. This is because in Malaysia, the type of job is always associated with the academic background. With only primary school education or no education at all, it is hard for someone to obtain a well-paid salaried job in Malaysia, especially if they are women. In addition, a higher academic background usually depicts a higher level of confidence. Thus, one perceives that he/she has better skills and competencies in business management. For rural areas, however, those with first degree qualifications also find it hard to find suitable jobs because there are fewer job opportunities in the rural areas requiring high academic qualifications (Porterfield, 2001). The solution is more complex in the rural areas, and thus, enterprising may be the best answer and capacity to scale up is imperative. This study concludes that

TABLE 5
Wald Chi Square statistics of the entrepreneurs' profiles and micro enterprise development (Developed from micro enterprise=1)

	B	S.E.	Wald	df	Sig.	Exp(B)
South			1.546	3	.672	
North	-.228	.329	.479	1	.489	.796
East	-.340	.349	.948	1	.330	.712
Central	-.423	.362	1.366	1	.242	.655
Salaried Working Experience	.577	.240	5.766	1	.016	1.781
Gender	.448	.371	1.454	1	.228	1.565
Age	-.043	.015	8.409	1	.004	.958
Business Failure Experience	.230	.249	.857	1	.355	1.259
Tertiary			5.446	3	.142	
Not Schooling	-1.370	.692	3.924	1	.048	.254
Primary	-1.214	.676	3.225	1	.073	.297
Secondary	-.812	.647	1.578	1	.209	.444
Reason enter	-.166	.409	.164	1	.686	.847
Skill perceived	.079	.024	10.556	1	.001	1.082
Vision	.309	.264	1.367	1	.242	1.362
Constant	1.686	1.235	1.865	1	.172	5.399

entrepreneurs with high quality of human capital in terms of academic background, entrepreneurship experience and younger age have more potential to scale up their micro enterprises. Consequently, this conclusion supports the findings of this study, i.e., male entrepreneurs in this study were younger, with a high percentage of them working in different entities before and were more educated than the female entrepreneurs. Therefore, male-owned enterprises have more potential to be scaled up. However, all the male entrepreneurs in this study were not the micro enterprises' founders.

CONCLUSION

The majority of the entrepreneurs in rural Malaysia family business are females. The average age of these rural entrepreneurs is 48 years old, with the majority of them are married, possess secondary school as their highest academic qualification, and are from the Northern region of Malaysia. They became involved in enterprising at the age of 35, and have 13 years experience in this field. There are a small number of the male entrepreneurs but they are younger and more educated than their female counterparts; however, fewer are married and they have less experience in enterprising. Male entrepreneurs became involved in the enterprise at the same age of that of the female respondents. The majority of them are from the Central region of Malaysia. Gender and academic background are reflected in the location of the enterprises. High percentages of

the males with secondary school or higher academic qualification could be found in the central and southern regions. In addition to these two variables, region was found to determine the supportive infrastructure and external environment for rural enterprise development.

Even though the majority was the female entrepreneurs in this study, they were found to have low academic qualifications and limited entrepreneurship experience. Thus, they perceived themselves as not being skilful in business management in comparison to their male counterparts. These female entrepreneurs are also less visionary than their male counterparts. The male entrepreneurs in this study are the husbands or the sons of the enterprises' founders, even though initially all the enterprises were owned by the females. The enterprises that were taken over by the males were found to be more developed than those which are still handled by female entrepreneurs. Entrepreneurship revolves around masculine activities, and therefore, when the enterprises are really operating in a form of family business with masculine and feminine inputs of family members, they seem to have more capacity to scale up.

ACKNOWLEDGEMENTS

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SOCIAL SCIENCES & HUMANITIES

Financial Practices and Problems amongst Elderly in Malaysia

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ABSTRACT

Being old is often associated with poverty, as a result of limited access to financial resources due to retirement or deterioration in health. The high incidence of poverty among the elderly is a global concern. How much the elderly have is important but how they use what they have is equally important. This paper focuses on financial practice and problems of the elderly in Malaysia. Data used in the analysis were collected in 2004 from among 2,327 elderly aged between 55 and 75 years. Samples were selected using multi stage systematic sampling. Financial practice was measured using 12 statements representing four dimensions, namely, planning, cash management, credit and investment. Financial problems were measured using seven items with two dimensions, namely, daily problems and credit management. In general, the elderly in the study performed basic financial practice (planning and cash management) but a lower percentage of these elderly performed credit and investment plans. About one third of elderly had experienced at least one of the seven financial problems listed. Multiple regression analysis conducted to explore the factors explaining variation in financial practice revealed that the model explained 20.7% variation in the financial practice score. The variable significantly explained the variations in the financial practice score were gender, age, region, ethnicity, education, home ownership, health perception, and income. A further research is needed to better understand the dynamic of financial practice among the elderly.

Keywords: Elderly, financial behaviour

INTRODUCTION

Malaysia is one of the developing countries projected to become an aged nation by 2035. In the country's effort to achieve high income and developed nation status by 2020, Malaysia is also facing challenges of being an aged nation. Increased longevity

means the elderly have to have more resources, particularly financial resources to meet the needs during old age. The lack of comprehensive social security system in most developing countries including Malaysia increases vulnerability of the elderly to poverty especially among older women and the self employed (Caraher, 2003). Meanwhile, limited financial resources, coupled with inability to manage financial resource, can lead to financial problems. Mandatory retirement, lack of saving during younger years and declining social support will influence the financial resources accessible to elderly. The financial resources, particularly money accessible to the elderly, will directly influence their purchasing power and well-being. Perry and Morris (2005) asserted that the way in which people manage their financial management behaviour might vary, depending on culturally contextual issues.

In an aging society that is also facing a decline in fertility, the financial security of an elderly person is a critical factor (Suwanrada, 2009). As a medium of exchange, money is undeniably important in today's life. For elderly living in country with mandatory retirement, retirement mean no more earned income flowing into the family, except for those with pension. In the case of Malaysia, among those with pension scheme, the maximum amount received is only 60% of the last basic pay. In addition to how much they have, how the elderly behave financially may have impacts on their well-being. Increased cost of living becomes another factor for

the need to have good financial practices. Good financial practices during younger years can be a factor to ensure financial independence or security in old age since one of the recommended financial goals is savings for old age (Garmen and Fougue, 2004; Kapoor, Dlabay, & Huges, 2004). The financial practices of elderly can also be a reflection of their financial behaviour during younger age. In other words, those with good financial practices when they were young can be expected to continue with the good practices during younger years, the elderly are expected to experience less financial problems. Hence, good financial practices can lead to financial well-being in old age. This paper attempted to answer three main questions: what are the financial practices of the elderly in Malaysia, and to what extent do they experience selected financial problem? In specific, the objectives of the paper were to identify the financial practices of the elderly in Malaysia, determine financial problems experienced by the elderly and explore factors explaining financial practices of the elderly. The results of this study would provide a better understanding of the financial practices and problems experienced by the elderly and to a certain extent, enable us to understand the behaviour of the elderly in efforts to enhance their well-being.

Much of discussions has focused on the poverty and economic status of the elderly (Barrientos, Gorma, & Helsop, 2003) using national dataset and the financial practices of younger groups (Grable, Park, & Joo, 2009). Unfortunately, literature on the

financial practices the elderly particularly in developing countries is rather limited (Hilgert & Hogart, 2003). The results of this study would provide a better understanding of the financial practices and problems experienced elderly as an input to understanding the financial well-being of older persons as well as poverty among the elderly.

REVIEW OF LITERATURE

Population Ageing in Malaysia

Malaysia gained independency from Great Britain in 1959. With an estimated population of 27 millions, Malaysia is on its way of achieving the high income and developed nation status by 2020 (Government of Malaysia, 2010). The development which took place since independence has changed the socio demographic make-up of the nation. Among other, improved infrastructure, increased educational attainment and better living conditions have resulted in an improved quality of life of the population (EPU, 2002). An estimate made by the Department of Statistics (DOSM) revealed that the average life expectancy at birth for Malaysia in 2008 was 71.6 for males and 76.4 for females and this was an increase of 8.4 years for males and 10.4 years for females respectively as compared those in 2003 (Department of Statistics, 2010). On the other hand, the total fertility rates in 2000 were reduced to 2.8 among the Malays and Bumiputera group, 1.9 for Chinese, 2.0 for Indians and 1.3 for other groups in 2005 (DOSM, 2001, 2003, 2008). Malaysia is experiencing a demographic transition due to the changes in the fertility and mortality rates and thus, will achieve the aged nation status by 2035, where more than 15% of its population will comprise of people aged 60 years and over.

Poverty amongst the elderly has been a global concern, as stipulated in the Madrid International Plan of Action on Ageing 2002 (UN, 2002). In the case of Malaysia, poverty eradication efforts have been instituted since independence and to date, Malaysia has successfully lowered the poverty rate from 7.5 in 1999 to 5.1 in 2002 (UNDP, 2005), and this further declined to merely 3.8% in 2009 (The Government of Malaysia, 2010). The elderly was identified as one of the poverty-prone groups besides women and children (Alecxih & Kennel, 1994; HelpAge International, 1999). In Malaysia, the 22.7% households headed by the elderly (aged 65 years and above) had the highest incidence of poverty (Sharifah et al., 2010). In particular, the lack of access to financial resources due to mandatory retirement, the lack of social security coverage and the lack of planning for old age often limit the access to financial resources to support old age among the elderly. A study among the elderly in Peninsular Malaysia revealed that they received income from various sources, mainly from informal sources where the frequency as well as amount are not guaranteed (Masud et al., 2008). As such, the elderly in Malaysia appear to be quite vulnerable to poverty and how these limited resources are managed is the key focus of this paper. A study conducted in 2003 among 2427 respondents aged

55 years and older who had more than RM10,000 Employee Providence Fund savings revealed that the majority of the respondents received money from their children (University Malaya, 2003). The study also examined the financial and investment status but did not cover the financial practice of the respondents. The same study also discovered that more than half of the respondents exhausted their Employee Providence Fund money after three years.

Money is an essential resource for daily survival mechanism acknowledged globally. The absence of an income could be misery to anyone including the elderly. Increased cost of living adds up to the negative impacts among those with fixed income including pensioners. Money received must to be spent wisely to ensure that present and future needs are taken care off. In the case of Malaysia, the 2005 Household Expenditure Survey indicated that the mean monthly household expenditure for the households headed by 65 years and older was RM1669 (USD477), while the mean monthly expenditure for the households headed by 45-64 years old head was RM2143 (USD612) (Department of Statistics, 2006). Meanwhile, the mean expenditure of the 65 years and older households was 78% of those in the non-elderly households. This could be explained using the life-cycle hypothesis as proposed by Franco Modigliani, Alberto Ando and Richard Brumberg in the 1950's (Modgilini, 1988). They proposed that consumption spending would be smooth throughout the life-cycle despite income changes. In the absence of mandatory retirement and availability of limited coverage of social security system in the country, the elderly have to depend on whatever financial resources they can get to support their old age living. The number of recipients of older person welfare support increased from 25,524 in 2006 to 124,916 in 2010. The increase in the number of elderly receiving the welfare support reflected the fact that the number of those who are in need of welfare support can be expected to increase as the country's population is ageing (Department of Welfare, 2010).

The increasing number of older persons depending on welfare support can be associated with several factors, such as the small amount of money available to them is small (below the poverty level), no other sources of money or the lack of financial literacy and the failure of the elderly to manage their money wisely. Low financial literacy among the elderly has been acknowledged globally. Lusardi and Mitchell (2006) carried out a study among the American and concluded that older Americans are not particularly and financially literate even though globally they are the group expected to be the most financially literate. Meanwhile, Lusardi and Mitchell (2007a) discovered that the early Baby Boomers displayed not only low numeracy, but also a lack of knowledge of fundamental economic concepts such as interest rate compounding. Those with low level of financial literacy are less likely to plan for retirement. In addition,

minorities and those with low education and low income are more likely to display low levels of financial knowledge (Lusardi & Mitchell, 2007b; Lusardi, 2007b; Smith & Stewart, 2008). Such scenario can also be expected among the elderly in Malaysia who have low education level. Since financial aspect is a major dimension of subjective well being (Hsieh, 2001), good financial practices can contribute to financial well-being and lower chances of encountering financial problems. Financial resources accessible to the elderly will determine how much money available to be spent. Studies conducted in the Asian region revealed that a higher proportion of the elderly depend on their children to support their livelihood (Lee, 1999; Kumar, 2003; Chu *et al.,* 2006; Suwanrada, 2009). Limited access to financial resources will influence the financial behaviour and also increase the risk of falling into poverty in old age, one of the barriers to successful and positive ageing.

Financial Practices

Financial practices refer to the process which people use in managing their financial resources to achieve financial success in the areas of retirement plans, financial planning, as well as credit and money management (Garman & Forgue, 2004). A previous study has shown that financial practices are positively associated with financial status (Weber & Davis, 1986). The study also showed that financial practices are positively associated with financial well-being. Nonetheless, how financial practices are measured varies. For instance, Davis

and Weber (1990) investigated the use of four recommended financial practices, namely, budgeting, cash flow management (record-keeping), comparing the income/ expense statement to the budget, and estimating net worth. Meanwhile, Porter and Garman (1993) identified six domains of financial practices: cash management, credit management, capital accumulation, risk management, retirement/estate plan, and general management, using a random sample of Virginian citizens. Both studies showed that those practicing good financial practices have positive net worth are with higher education levels. Those with positive net-worth can be expected to have better financial well-being in old age.

Beutler and Mason (1987) studied the factors associated with financial practices. They found that young, married, and well-educated households with high demand on available resources were more likely to adopt good financial practices. They also discovered that income did not significantly affect financial practices and families who budget their money, compared to families who did not budget, have a higher satisfaction in their personal finance. Good financial practices during younger years enable a person to save for old age and this will contribute to financial security in old age. Meanwhile, the ability to manage finance effectively depends on one's knowledge of financial management or financial literacy.

Lamb (2002), Grace and Haupert (2003), Jackson (2003), Kim (2003) and Tossaint-Comeau (2003) in the United

States and Burgess (2003) in the United Kingdom have expressed concerns over the level of financial literacy with the growing gap between people's long-term needs and their savings. Financial illiteracy can contribute to inefficient management of financial resources. Well-informed, financially educated or financially literate consumers are better able to make good decisions for their families and are thus in the position to increase their economic security and well-being (Hilgert & Hogarth, 2003). Those who score higher on financial literacy tests are more likely to follow the recommended financial practices. Consequently, financially savvy consumers are more likely to save their money, compare financial products and services, and discuss money matters with their children (Miller *et al.,* 2009) and can be expected to experience less financial problems throughout their life. Grable *et al.* (2009) concluded that financial knowledge plays an important role in shaping responsible financial management behaviour among Koreans living in the United States.

Anderson *et al*. (2004) concluded that education, occupational type and income are related to planning and financial security in later life. Financial planning commenced by those in middle age and older age categories would generally determine that they are more likely to be involved in financial planning. Research on financial practice among the elderly is rather scarce. Much of the research (for example, Noone *et al*., 2009) has focused on retirement planning as an effort to ensure that people have sufficient resources in later life. An equal important to ensuring the well-being of the elderly is how the money accumulated earlier being used in the later life so as to minimize financial problems and insecurity in old age.

The literatures reviewed revealed that financial behaviour varies by gender, age, education, employment, perceived health, region, family size and income. Financial literacy plays a critical role in equipping consumers to behave responsibly. Studies done in the United States have also showed that financial behaviour also differ by culture. Grable *et al.* (2009) found that the Korean living in the Unites States exhibited more responsible financial management behaviour than the Americans after controlling for the locus of control, financial knowledge, and income interactions. As in the case of Malaysia, it also projected that the three main ethnic groups, namely, Malays, Chinese and Indian, behave differently in their financial behaviour. Weber and Hsee (1998) hypothesized that the Chinese in the United States are more risk takers compared to the Americans as a result of the cultural bias in favour of collectivist action and support helps that cushion the Chinese against outcomes associated with loss. Malaysia, which aims of becoming high income country, needs to a have better understanding of the financial behaviour of the population, particularly the older persons to ensure that the high income will result in improved financial well-being and quality of life.

Financial Problems

Financial problem is also an indicator in measuring financial well-being as financial problems will decrease an individual's financial well-being (Kim, Bagwel, & Garmen 1998). Peirce and Hanna (1996) divided financial problems into two categories: chronic financial problems and acute financial problems. Chronic financial problems were measured by how often the respondents did not have enough money to afford food, medical care, clothing, and family leisure activities, and how the respondents' finances usually worked out at the end of the month. Acute financial problems were measured by financial life events taken from the Psychiatric Epidemiologic Research Inventory Life Events Scale. Five specific events were included: have less money than usual; have to borrow money; going on welfare; experiencing a foreclosure on a loan or mortgage; and reporting a miscellaneous event. Financial events can cause financial stress.

Sporakowski (1979) discussed financial stress events as related to one's stage in the life cycle. At the beginning family stage, expenditures on schooling, the wedding, and establishing a home are potential financial stressors. Having a child is a big financial stressor. Having children includes the expenses of food, clothing, transportation, education, college, wedding, and helping out with gifts or loans. For the middle years of the life cycle, preparing for retirement can be a financial stressor. In the aging stage, adjusting to reduced retirement income,

changing living arrangements, and death of spouse are major financial stress events. In his study, Joo (1998) categorized financial problem into four items, namely, life cycle events, job-related events, unexpected changes and unfavourable financial situations. Joo (1998) also found financial illiteracy, lack of consumer competency, and lack of management skills as well as inadequate education as some causes of financial stress. Meanwhile, previous research generally concerned with financial problems and their impacts on alcohol consumption and marital quality (Conger *et al.,* 1990).

Not having access to resources can be one of the major financial problems facing the elderly especially in the developing countries. Much has been discussed on this issue within the context of poverty (see Barrientos *et al*., 2003); unfortunately, there is still very limited literature on the financial behaviour and financial practices of older persons (De Vaney, 2008). Knowledge on the financial practices among older persons and the factors associated with such behaviour can help educators and policy makers to develop appropriate programmes to promote a more effective behavior to be adopted by these older persons in light of their efforts to improve their well-being. With the assumption that the older persons' behaviours are spill over of their behaviours during younger ages, knowing the financial behaviour of the elderly can provide us with an overview of their behaviour during their younger years. As such, appropriate behavioural change

intervention programmes can be introduced during younger ages as to minimize financial problems in the old age.

METHODOLOGY

The population of the study was individuals age 55 to 75 in Malaysia. This age group was selected to capture the retirees and those potentially productive. The multi stage sample selection was utilized in this study. For the first stage of sample selection, the researcher had obtained the absolute number of older persons by age group (55-75) in each of the 1,173 sub-divisions/*mukim* (sub district) from the Department of Statistics, Malaysia. With a target covering 6% of the total *mukims* in Malaysia as the sampling frame, a total of 75 out of 1,173 *mukims* were selected. The total population of the 55-75 groups (N = 2,020,344) was divided by 75 to have the sampling interval number (i= 26,000) and K^{th}=26,938. The first *mukim* was selected from the range of interval number and then every K^{th} *mukim* of the list was selected for the sample. As for the second stage of selection, four Enumeration Blocks with the highest number of older persons age 55-75 were selected from each *mukim*. From each Enumeration Block, ten households were selected and this resulted in 40 households selected from each Mukim.

The questionnaire that had been pre-tested was used in the data collection in 2004-2005. The data collection through personal interview was carried out by trained enumerators using a set of questionnaire comprising of demographic backgrounds, income and expenditure pattern, assets and liabilities, employment history, saving and investment behaviour and financial aspects of the respondents. This paper utilized one of the sections in the questionnaire involving questions on financial behaviour and financial problems. Financial behaviour was measured using 12 statements covering financial planning, cash, investment and credit management. The Cronbach Alpha for the instrument was 0.63. The statements used were adapted from a study by Fitzsimmons *et al.* (1993).

Using the framework proposed by Pierce and Hanna (1996) on chronic and acute financial problems, financial problems were measured using a list of seven financial problems representing two domains, namely, daily finances and credit problems experienced by the elderly during the previous year. Three problems were related to daily finances: (1) no emergency fund, (2) borrowed money from others for living cost and (3) cannot afford to pay bill on time. Meanwhile, the four credit problems were: (1) borrowed money from "along" (local label for loan sharks), (2) have been cheated by pyramid scheme, (3) have bad debts, and (4) asset repossess. The Cronbach Alpha for the two scales was 0.526 and 0.508, respectively. The respondents were asked to indicate whether they had ever experienced the problems listed in the past year. A descriptive analysis was used to highlight the financial problems and the multiple regression analysis was utilized to explore the factors that significantly explained the variation in the financial behaviour scores of the respondents. The factors

explored included gender, age, education, ethnicity, working/not working, perceived health, region, family size, income, home ownership, financial problems and financial literacy score. These were the factors identified by Joo and Grable (2004) as the predictors included in the model explaining financial well-being.

FINDINGS AND DISCUSSIONS

Characteristics of the Respondents

A total of 2327 elderly aged 55-75 were successfully interviewed in the study. They comprised of almost equal proportions of the male and female elderly, with a mean age of 64 years old. The profile of the respondents is shown in Table 1. The majority of the elderly were co-residing with their children with a household size of 4.4 persons. The respondents' ethnic distribution is similar to that of the national ethnic composition, with the majority of the respondents were of Malays and Bumiputera groups (including Sabah and Sarawak), followed by Chinese and Indians. About two-third of the respondents were married and a very small portion were single. About one thirds were widowers or divorcees and the majority of them are women. The elderly in this study are those born prior to independent day (1957) and their level of educational attainment was relatively low. More than 80% had primary or no formal education and only one fourth of them are still working.

With low level of education and the lack of comprehensive social protection in the country, majority of the elderly in this study, especially the women, have to rely on non-formal financial resources, such as children remittance to support their old age living. More than half of the respondents reported receiving money from either son or daughter and the proportion who received pension and other sources income was much lower. These show the importance of children as a reliable source of income in the old age, particularly among the elderly in Malaysia, a scenario which is similar to that of other countries in the region (Chou *et al.,* 2006; Chou, 2010; Suwanrada, 2009). Female elderly tend to have fewer sources of income compared to their male counterparts. The data revealed that men received twice the mean amount of income compared to women (males; mean = 9,038 (US2739); sd = 12,804 (US3880) (females: mean = 4,383 (US1328); sd = 6,036 (US1829).

TABLE 1
Distribution of respondents by demographic characteristics (n=2 327)

Characteristics	Frequency	(%)
Age		
55-64	1321	(56.8)
≥65	1006	(43.2)
Mean± SD: 63.47± 5.73 years		
Sex		
Male	1178	(50.6)
Female	1149	(49.4)
Household size		
1-3	954	(41.0)
4-6	914	(39.3)
7-9	459	(19.7)
Mean ± SD: 4.39± 2.22 persons		
Ethnic		
Malay	1642	(70.6)
Chinese	523	(22.5)
Indian	162	(7.0)

Table 1 (*continued*)

Marital status		
Never married	48	(2.1)
Married	1486	(63.9)
Separated/Widow	793	(34.1)
Education		
No formal education	806	(34.6)
Primary education	1085	(46.6)
Secondary and higher education	436	(18.8)
Living arrangements		
Living alone	107	(4.6)
Living with spouse	323	(13.9)
Living with children	1861	(80.0)
Living with others	36	(1.5)
Work status		
Still working	599	(25.7)
Retiree	1250	(53.7)
Never worked	478	(20.5)

SD: Standard Deviation

Financial Practices

This paper focuses on the financial practices of the elderly in Malaysia and explores the financial problems among them. The data showed that the majority of the respondents did perform the basic financial planning behaviour. More than half of the respondents often compare prices and budget their expenses. Comparing prices is practiced by 64% of the respondents (see Table 2). Less than 10% of the respondents in this study indicated they never compared prices. In general, the study showed that most of the respondents in this study spent their money carefully. More than half of the respondents indicated that they prepared a budget. About one third of the respondents had a plan to reach their financial goals although almost one fourth never had a plan to achieve their financial goals. Lack of financial planning during younger days definitely has impacts on one's financial

security in old age since how much money one has upon retirement depends on how much one can accumulate prior to his retirement. Table 2 also shows that a much higher proportion of the respondents never made attempts to maximize returns from their savings. Meanwhile, the inability to manage accumulated savings limits the ability of the elderly to gain benefits from the compounded return of their savings and the time value of money.

The skill in managing limited cash assessable to the elderly is critical to ensure that they are able to meet their old age needs. More than half of the respondents indicated that they always spent more than what they earned while only 17% stated that they never spent more than they earned. The majority of the respondents paid their bills late and as a result they were charged interests, while 71% of the respondents reached the maximum limit on their credit. Though all the respondents passed the retirement age, 42% are still working hard to get extra money. Only one fourth of the respondents indicated they have never had to work hard to get extra money and the rest may have to do extra work to support their living.

As for ethnic groups, a lower percentage of Indians set aside money for investment and compared prices at two or more stores for a product. However, the Indian respondents reported that they always spent more than they earned and paid their bills late with extra charges. In line with the general observation that the Chinese are good at investing, those in this study reported that they always looked for investment

opportunities and set money aside for their savings. In term of financial planning, the Chinese always make their budget and have plans to reach their financial goals. They also calculate the cost of credit to decide on the lowest loan package. For the Malay respondents, a higher proportion of them indicated they reached the maximum limit on their credit. Looking at the age group of the respondents, the younger age group generally tended to perform better financial practices compared to the older group. In contrast, older group always paid bills late and worked overtime to get extra money. Lower health status, coupled with lower income, may have forced to these elderly

people to work harder to get extra money to meet their needs.

In order to grasp the overall financial practices, the score for all the items were computed. In this study, the financial practice scores ranged from 12 to 36, with the mean score of 21.5 (SD=3.4) points. The majority of the respondents (45%) scored between 20-23 (moderate level), 20% scored below 18 (the median score), and only 18% scored between 25-36 (high level). The mean is slightly higher than the median figure of 18 and in general, the data showed that the respondents were performing moderate financial practice. The analysis of variance comparing the mean financial

TABLE 2
Financial Practices of the Respondents (n=2327)

No	Financial practices	Never		Sometimes		Always	
		n	%	n	%	n	%
Planning							
1	I compare prices at two or more stores for product.	179	7.7	709	30.5	1434	61.8
2	I budget my expenses.	193	8.3	826	35.5	1305	56.1
3	I had a plan to reach my financial goals.	551	23.7	983	42.2	791	34.0
4	I try to maximize the returns for my savings.	861	37.0	816	35.1	647	27.8
Cash Management							
5	I spend more than I earned.	387	16.7	745	32.1	1191	51.3
6	I pay my bills late with extra charges.	373	16.1	1009	43.5	940	40.5
7	I work overtime to get extra money.	553	23.8	794	34.2	973	41.9
Credit Management							
8	I make calculations to decide on the lowest loan.	1432	61.6	390	16.8	501	21.6
9	I reach the maximum limit on my credit loan.	1653	71.0	381	16.4	288	12.4
Investment							
10	I set money aside for investment purposes.	1815	78.2	398	17.1	109	4.7
11	I keep a look out for investment opportunities.	1840	79.3	397	17.1	83	3.6
12	I set money aside for savings.	934	40.2	886	38.1	504	21.7

Scale Alpha Cronbach's Value = 0.727

practice scores of different groups is given in Table 3. The table clearly shows that younger males, and those living with others and Malays have higher financial practice scores compared to the other groups. Meanwhile, the data also showed that those with higher education tended to have higher financial practice score as compared to those with primary or no formal education at all.

Meanwhile, the one-way ANOVA test showed that there was a significant difference in the financial practices based on education attainment (F = 82.258; p =0.000). The results indicated that those with higher educational attainment tended to have better financial practices as compared to those with lower levels of education. Independence t-test found a significant difference in the financial practices by gender (p = 0.000; t =

5.343), with the male respondents reported to have a higher mean score compared to the female elderly.

Financial Problems

Previous studies have shown that financial problems have negative relationships with financial status and well-being (DeVenay, 1993; Garmen *et al*., 2004). Table 4 shows the percentage of the respondents who reported experiencing the listed financial problems. A higher percentage of the elderly in this study reported experiencing daily financial problems. This means about one in every four respondents in this study revealed has no emergency fund. In addition, one out of every eight respondents indicated they had borrowed money from others for their living cost

TABLE 3
Result of the Analysis of Variance for Mean Financial Practice Score by Selected Respondents' Background

Selected background		Mean	N	Std. Deviation	F	Sig.
Sex	Male	22.05	1172	3.28	67.13	.000
	Female	20.92	1145	3.37		
Age group	<64	21.82	1316	3.42	28.79	.000
	65>	21.06	1001	3.26		
Living arrangement	Alone	20.87	126	3.38	7.17	.000
	With spouse only	20.98	316	3.46		
	With spouse and children	21.89	995	3.24		
	with children without spouse	21.27	765	3.45		
	with others	21.57	53	3.26		
Ethnic group	Malay/ Bumiputera	21.67	1633	3.27	11.63	.000
	Chinese	21.27	522	3.66		
	Indian	20.42	162	3.18		
Education	No formal/lower secondary	21.30	2049	3.31	56.36	.000
	secondary and higher	22.93	268	3.45		

and could not afford to pay bills on time. Meanwhile, 68% of all the respondents reported no daily financial problems and 20% others reported experiencing one out of the three daily financial problems listed. A further analysis revealed that 2.5% of the elderly reported to experiencing all three problems and 10% reported experiencing two out of the three problems listed. The elderly males reported more problems compared to the elderly females. This is in line with the societal expectations for the men as the breadwinners. On the other hand, the "bumiputera" from Sabah and Sarawak, a sub-group of the Malays, reported experiencing more problems compared to the other ethnic groups.

Most of the respondents (97%) reported that they had never experienced any of the credit problems. The data showed that less than one percent of the respondents reported to borrowing money from "along" (Loan shark) (n=20), cheated by pyramid scheme (n=22), bad debts (n=40) and asset repossess (n=11). A total of 76 elderly in this study reported to have serious financial problems, with 67 elderly experiencing one of the four listed problems, five experiencing two and four experiencing all the four listed problems.

The further analysis revealed that young-old group (55-64) experienced more of the financial problems compared to other age group (65 and older). There are two factors which could possibly explain higher financial problems among younger respondents, and these are inter-generational differences in money value and life-styles

and the stages in the life-cycle. Changes in life-styles are generally stronger in younger generations, who are usually better educated and open to institutional innovations in social life (Scannell, 1990). About one forth of respondents had no emergency fund. One in ten respondents had the experience of being cheated by pyramid scheme and most of them have low level of education. The lack of knowledge regarding market complexity and the Malaysian culture of thrusting people can be the reasons why the elderly are susceptible to market scams. Those who borrowed money from "along" and in bad debt were mostly those with not enough income to sustain their costs of living. Since financial institutions often require collateral and proof of fixed income, the elderly often have to seek help from informal money lenders to meet emergency needs. This is becoming an issue of concern not only with the elderly but also among the younger age groups.

Taking into account all the problems experienced by the elderly, the data revealed that 67% of them in this study have never experienced any of the listed problems, while 33% others have experienced one or more problems. About 61% of the elderly with financial problems had one and 28% had two of the problems listed. There were 85 elderly who reported to have experienced 3 or more problems.

Factors Explaining Financial Practices

The multiple regression analysis was carried out to explore the factors explaining the variation in the financial practices of the

TABLE 4
Financial Problems by Gender, Stratum and Age Group

	Male (n=1178)		Female (n=1149)		Rural (n=1001)		Urban (n=1326)		<60 (n=696)		60> (n=1631)	
	n	%	n	%	n	%	n	%	n	%	n	%
No emergency fund	293	25	254	22	234	23	313	24	176	25	371	23
Borrowed money for living expenses	160	14	126	11	118	12	168	13	94	14	192	12
Cannot pay bill on time	145	12	113	10	105	10	153	12	87	13	171	10
Borrow money from "along" (Loan shark)	15	1	5	-	9	1	11	1	8	1	12	1
Cheated by pyramid scheme	14	1	8	1	6	1	16	1	7	1	15	1
Had bad debt	28	2	12	1	8	1	32	2	13	2	27	2
Asset repossess	7	1	4	-	6	1	5	-	5	1	6	-

elderly. Prior to running the regression analysis, a test of normality was conducted and the 5% Trimmed Mean for the financial practice score was 22.7057, while the mean financial practice score was 22.7515. With such a small difference in these two means, the distribution is considered as normal to enable the researchers to conduct the multiple linear regression analysis. Eight dummy variables and five continuous variables were used in the model and the result is shown in Table 5. The model explains only 20.7% of the variation in the financial practice score; f=.46.432, *p*=0.000. Two of the dummy variables, namely, marital and work status of the respondents, did not enter the model. As for the continuous variables, only age and income entered the model and the literacy scores of other variables, family size and financial problems did not contribute significantly in explaining the variation in the financial practice scores. Table 5 clearly shows that the females' financial practice scores were significantly

lower as compared to those of the males. There was a negative relationship between age and financial practice score, and this indicated that those who are older tended to perform less of the recommended financial practices compared to younger elderly. This may also explain the reason for the lower level of educational attainment received by the older group compared to the younger groups. The table also shows that there is a negative beta coefficient for educational attainment, reflecting that those with no or primary school tended to have lower financial practice scores compared to those with secondary or higher level of education. The income of the respondents contributed significantly in explaining the financial behaviour of the elderly. The data revealed that those with higher income tended to have higher financial practice score compared to those with lower income.

Looking at the Standardized Beta Coefficient, two variables (region and education) had the highest Standardized

TABLE 5
Regression Analysis Result - Financial Practice Scores

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	28.081	.904		31.064	.000
Sex (Females)	-.661	.156	-.092	-4.240	.000
Age	-.028	.012	-.044	-2.213	.027
Region (Peninsular)	-3.410	.187	-.386	-18.259	.000
Ethnic (Malays)	.414	.154	.057	2.697	.007
Marital (Married)	-.128	.158	-.017	-.811	.417
Education (Primary)	-1.455	.191	-.158	-7.638	.000
Home Owner	.340	.150	.045	2.276	.023
Work (not working)	-.068	.168	-.008	-.402	.688
Health perception (bad)	-.426	.182	-.045	-2.346	.019
Literacy score	.023	.074	.006	.309	.757
Family size	.016	.033	.009	.492	.623
Respondent's Income	.000	.000	.081	3.922	.000
Financial Problems	.070	.080	.017	.885	.376
R	.455				
R Square	.207				
Adjusted R Square	.203				
Std. Error of the Estimate	3.20642				
F	46.432				
Sig.	.000				

Beta Coefficient. The elderly in Peninsular seemed to be having significantly lower financial practices compared to those in Sabah and Sarawak. The next key variable is education and the results revealed that those with secondary education level tended to have higher financial practice score as compared to those with primary or no formal education at all.

CONCLUSION

Despite the fact that the majority of the respondents reporting moderate to good financial practices, the data have shown that they are not managing their financial resources effectively, and this it leads to certain financial problems. It was found that one fourth of the respondents have at least one financial problem during the study period. The regression analysis revealed that the model only explains less than one fourth of the variations in the financial practice. Nevertheless, the results have provided some insights into a better understanding of the factors associated with financial behaviour among the elderly. The

respondents' gender, age, education, where they live, ethnicity and income significantly explained the variation in the financial practice scores. As such efforts to provide financial education must be targeted to ensure effective delivery of the educational programmes, financial education for older persons should focus more on addressing their immediate needs and a small group approach should also be used to ensure the effectiveness of the said programmes.

The findings of this research are useful to financial educators, counsellors, and planners. The results can be used to give direction in designing educational programmes as well as in individual counselling or planning sessions. An important caveat, however, is that the implications of this research are for the elderly families in the late stages of their family life cycle. Since the elderly financial practices can also be assumed to be continuation of financial behaviour during younger days, the behaviour portrayed in the study is also a reflection of the behaviour during younger age. As such, financial education should also be targeted to younger persons so as to prepare them for the old age.

This study revealed that the majority of the older respondents did not have enough money in their later life. Without sufficient savings accumulated for use in old age, many will find they do not have enough money to cover needs in old age. This highlights the need for people to start accumulating their financial resources early. In particular, people should accumulate wealth over their working lives to finance consumption after retirement; this means, the earlier they start

to save the larger accumulation of financial resources, it will lead to a positive net worth in their later life. This research has provided crucial information on the financial practices of older persons but much more research is still needed to better understand the dynamic of financial practices among the elderly as well as the young since financial practices during younger years will determine the financial situations in their old age.

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Assessment of Self-Rated Consumer Knowledge among Low Income Housing Residence in Malaysia

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ABSTRACT

Data from the 2008 *Consumer Empowerment in a Globalized Market* were used to examine factors associated with giving good self-rating on consumer knowledge and to identify the gap between self-rated and actual consumer knowledge among low income housing residence in Selangor and the Federal Territory of Kuala Lumpur.−Those who claimed to know their rights and responsibilities as consumers and knew about the Consumer Protection Act 1999 are more likely to have good self-rated consumer knowledge. However, those in the lowest 20% income quintile and middle 20% income quintile are less likely than the top 20% income quintile to have good self-rated consumer knowledge. A high percentage of the respondents knew about and correctly stated their rights and responsibilities as consumers. On the contrary, only a few knew about the legislation that protected consumers and redress mechanism, indicating that they were not quite well-versed with a 'higher level' of consumer knowledge which is vital for their empowerment in the marketplace.

Keywords: Consumer Economics, consumer knowledge, consumer competency, low income consumers

INTRODUCTION

The notion of *caveat venditor,* a Latin term for "sellers beware", was a warning to traders that the voice of consumers demanding for their rights in the marketplace was growing. It was the principle of consumer protection when consumer movement gathered momentum in the early days

(Fernandez, 2004). Since then, consumer protection efforts have evolved and shaped by the current needs of the nation, although the focus is still championing consumer interests.

In the face of rapid technological advancement, accelerating globalization and market liberalization, consumer protection becomes even more important. Consumers face new challenges and threats. For example, consumers are confronted with goods and services flooding the local markets as never before. It is reported that medium-size supermarkets in Malaysia in 2001 carried about 22,000 types of products as compared to about 9000 goods in 1991 (Hazurainah, 2001). In hypermarkets, however, the selection of goods is even wider as such an establishment carried at least around 70,000 types of goods (Hazurainah, 2001). Therefore, consumers' knowledge and skills are put to test everyday as decision making becomes more complicated.

Consequently, various parties, including the Malaysian government and various consumer interest groups, have joined efforts to protect consumers in the market. The protection comes in the forms of enforcement of laws and regulations and establishment of various channels for consumer redress. However, such efforts would be futile if consumers do not utilize the facilities to their advantage due to their ignorance or refusal to advocate their rights in the market. Therefore, it is important that consumers be educated so that they can play their roles and command respect from the sellers (thus, *caveat vanditor)*.

As a step towards changing consumer behaviour, there is a need to evaluate the current state of consumer knowledge. Hence, this study attempted to assess basic consumer knowledge among low income housing residence. The objectives of the study were to assess self-rated consumer knowledge, to identify factors influencing such assessment, to determine consumers' actual knowledge related to consumer rights and responsibilities, laws that protect consumers and the channel for consumer redress, and to identify the gap between self-rated and actual consumer knowledge among low income housing residence. The low income housing residence was of interest because they mostly consisted of those with limited discretionary income and low educational level and whom are frequently identified as vulnerable consumers because they are more susceptible to deception in the market (e.g. Garman, 2003; Hogg *et al.,* 2007). Hence, assessment of consumer knowledge among this particular group is especially important so that consumer education programme should be tailored to their needs.

LITERATURE REVIEW

Consumer Rights and Responsibilities

A right is an entitlement to something or to be treated in some particular ways (Garman, 2003). As such, provisions of consumer rights are vital as they empower people to protect themselves in the market. In 1962, the President of the United States, John F. Kennedy, moved a bill on consumer rights after recognizing the importance of

consumers in the American economy (Miller & Stafford, 2001). The four rights that the Congress recognized were: the right to choice, the right to information, the right to safety and the right to be heard (Fernandez, 2004; Miller & Stafford, 2001).

By 1983, the differing concerns between North and South saw the expansion of the four to eight consumer rights (Fernandez, 2004; Garman, 2003; Miller & Stafford, 2001). The additional four are: the right to basic needs, the right to redress, the right to a safe and healthy environment and the right to consumer education. Since then, consumer movement worldwide has embraced the right-based paradigm. Some countries including Malaysia have now accepted the eight rights in the definition of consumer protection and welfare (Fernandez, 2004).

Consumer rights come with responsibilities. However, lists of such responsibilities were not specifically produced. Hence, literature on the issues was not unanimous in identifying consumer responsibilities. For example, Garman (2003) stated that consumers are generally responsible to do the following: assert their consumer rights when seeking value for money in marketplace transactions, know what questions to ask and ask them, and complain when not satisfied. Miller and Stafford (2001), on the other hand, listed the following consumer responsibilities: to give correct information, to report defective goods, to report wrongs incurred in consumer dealings, to keep within the law when protesting and to accept the consequences of consumer own decisions.

Unfortunately, according to Alhabeeb *et al.* (1997), consumers generally tend to accept and fight for their rights more than to accept and be committed to their responsibilities.

Enabling Environment for Consumer Protection in Malaysia

In Malaysia, a concerted effort was carried out by various parties to ensure effective and comprehensive protection of consumers in the market. Consumer associations such as the Consumer Associations of Penang (CAP), the Muslim Consumers Association of Malaysia (PPIM) and the Federation of Malaysian Consumers Associations (FOMCA) have been actively championing the consumer interest in the market through advocacy, lobby for policy change and consumer education. In addition in the recent years, consumer protection has become a prioritized agenda of the Malaysian government. The Ministry of Domestic Trade and Consumer Affairs (MTDCA), which was later renamed as The Ministry of Domestic Trade, Cooperatives and Consumerism (MDTCC), was established in 1990 to balance the interest of both sellers and consumers. Consequently, a few new consumer-related legislations (e.g. Consumer protection Act 1999) and policies have been implemented and agencies have been established since 1990s.

Consumer-related Legislations

In an effort to establish a more consumer-friendly market, Malaysia has enforced a total of 35 consumer-related legislations even prior to 1990s. For example, the

Trade Description Act 1972 prohibits false or misleading trade descriptions and false or misleading indication regarding the prices of goods (Koh & Loke, 1977). The Sale of Food and Drug Ordinance 1952, on the other hand, provides for the specifications of general labelling - the labelling which indicates permitted preservatives and colouring additives, as well as the preparation and storage of the particular foodstuff (Koh & Loke, 1977).

Unfortunately, despite their noble efforts to protect consumers, each of these legislations suffers from various weaknesses such as inadequate coverage of consumer abuses and lack of enforcement. In addition, each of the laws falls under the jurisdiction of various government agencies, depending on the functions performed by the respective ministries. Therefore, consumers are often confused by the multiplicity of legislations under various ministries (Fernandez, 2004).

Consumer Protection Act 1999

The Consumer Protection Act (CPA) 1999 provides for the overall protection to consumers, the establishment of the National Consumer Advisory Council and the Tribunal for Consumer Claims (Legal Research Board, 2005). The provisions of this act cover areas not covered by other existing consumer-related laws, which it generally cuts across all aspects of consumer protection. This act provides simple, inexpensive redress to consumer grievances and relief of a specific nature. Under the Consumer Protection Act 1999, consumer rights granted cannot be taken away and notwithstanding conditions in any agreement that consumers have signed (Ministry of Domestic Trade and Consumer Affairs, 1999).

The Tribunal for Consumer Claims

The tribunal, which became effective beginning November 15, 1999, was established under section 85, Part XII, of the Consumer Protection Act 1999. Prior to the establishment of the Tribunal, hearings for all consumer disputes were brought before a small claim court. Nevertheless, legal process often takes time and involves high monetary costs. Consequently, consumers get discouraged to pursue their claims against businesses, especially if it involves small claims (Muhamad & Haron, 2001). The establishment of the Tribunal overcomes this problem as its objective is to facilitate (i.e. hearing and determining) consumer claims for any loss with respect to the purchase of goods and services in a speedier manner at a minimal cost possible. However, consumer claims brought before the Tribunal must not exceed RM25,000 or that it must not be accrued for more than three years (Muhamad & Haron, 2001).

The Tribunal for Homebuyer Claims

The Tribunal for homebuyer claims provides a redress channel for buyers for homes bought from a licensed developer (other than a commercial development). However, home buyers must bring upon their claims for any loss or matter concerning any interest as a homebuyer to the Tribunal not later than twelve months after the date of

issue of Certificate of Fitness for Occupation or expiry of defects liability period under the Housing Development (Control and Licensing) Act 1966 [Act 118] (National House Buyers Association, 2009). The Tribunal accepts claims for up to RM25,000. The Tribunal imposes criminal penalties for enforcement of awards. In more specific, it is an offence if developers fail to comply with the Tribunal's award within the specified period. The penalties are a fine up to RM5, 000 or an imprisonment of up to two years, or both; and a fine up to RM1,000 per day if the offence continues after conviction (National House Buyers Association, 2009).

Relationship between Socioeconomic Characteristics and Consumer Knowledge

Consumers protect themselves and try to achieve their interests in the market by securing, protecting and asserting their consumer rights. Unfortunately, while some people are efficient in ensuring that their rights as consumers are uphold, others are not. According to Kaplan (1991), the state of one's knowledge about an issue, significantly impacts upon one's decision making. In more specific, people dislike, thus tend to avoid situations where they have insufficient knowledge to guide their behaviours and where the possibility of confusion is great (Kerney & DeYoung, 1995). Thus, this explains why some people may choose not to assert their rights as consumers such as making complaints or seeking redress, when they feel that they do not know enough about their rights and the mechanics and channel of seeking redress.

In other words, consumer knowledge is a precursor to consumer actions, thus, ensuring consumer suaveness and resiliency in the market.

Previous studies (e.g. Haron & Paim, 2008; Mukhtar, 1995) found a significant association between socio-demographic characteristics and consumer knowledge and skills. According to Mukhtar (1995), consumers with higher income and education have more knowledge and skills that they more frequently file complaints compared to other groups.

In a study assessing elderly complaint behaviours, Haron and Paim (2008) found that the elderly were relatively ignorant about their rights as consumers and agencies available to help them in getting redress. Therefore, when they encountered problems in the market, a significant percentage of the elderly in the study reported to have done nothing or not knowing where to turn to in order to solve their problems. In addition, elderly consumers were more easily satisfied, thus complained less than younger consumers did [American Association of Retired Person (AARP), 1994].

Haron and Paim (2008) also found that elderly males were found to be more knowledgeable about their rights as consumers, Tribunal for Consumer Claims and Tribunal for Homebuyers Claim than elderly females. Elderly males were also found to be significantly different from their female counterparts in terms of their understanding about the Consumer Protection Act 1999. Consequently, a

higher percentage of the elderly females in the study reported to have fallen prey to injustices in the market, such as fraud, compared to their male counterparts.

RESEARCH METHODS

Data

The data were obtained from a study on "Consumer Empowerment in a Globalized Market", funded by the Ministry of Higher Education under the Fundamental Research Grant Scheme. The survey, which was conducted in the third quarter of 2008, covered the state of Selangor and the Federal Territories of Kuala Lumpur. Both places were chosen because Selangor is the most industrialised state and Kuala Lumpur is a metropolitan area in the Peninsular. Thus, residents in both areas were more likely to be greatly exposed to various consumer related programmes conducted by various organisations.

The state of Selangor consisted of nine districts; i) Petaling, ii) Gombak, iii) Ulu Langat, iv) Sabak Bernam, v) Kuala Selangor, vi) Ulu Selangor, vii) Klang, viii) Kuala Langat and ix) Sepang. The district of Kuala Selangor, a non-metropolitan city which consisted of nine subdivisions, was randomly selected to represent the state of Selangor. Within the district of Kuala Selangor, three subdivisions (namely, Kuala Selangor, Jeram, and Bukit Rotan) were randomly selected. Similarly, three zones within the Federal Territories of Kuala Lumpur (namely, North, Central and South Kuala Lumpur) were randomly selected. The list and map of the housing areas were obtained from the municipal council office in each location.

The study collected data from residents of low cost housing in both areas. The rationale was that residents of low cost housing were more likely to be low income households whom not only may have lower purchasing power compared to the average Malaysians but also lower educational background. As such, they may be more disadvantaged in the market and are vulnerable and susceptible to deception and fraud. The list of low cost housing in each area was obtained from their respective municipal councils. A total of 450 respondents in Kuala Lumpur and 350 respondents in Kuala Selangor were identified for the study. However, only 317 and 300 respondents for Kuala Lumpur and Kuala Selangor were respectively and successfully interviewed by trained enumerators using a set of questionnaires. Thus, the response rates of the study were 70.4% and 85.7% for Kuala Lumpur and Kuala Selangor, respectively. The total number of the respondents participated in this study was 617. All the questionnaires collected were usable.

Variable Measurement

The dependent variable coding was based on the respondents' answer to the question: "How do you rate your consumer knowledge?" The respondent's assessment of own consumer-related knowledge was measured using a 10-scale rating. In this study, self-rating of consumer knowledge was divided into two groups, namely, "poor"

(rating of 1 to 5) and "good" (rating of 6 to 10). "Good" self-rated consumer knowledge was coded as 1 and 0 if otherwise. The reference group was self-rating of "good" consumer knowledge.

The independent variable included a few specific questions that assessed the actual knowledge of consumers on the following: consumer rights, consumer responsibilities, consumer legislation, Consumer Protection Act 1999 (CPA), Tribunal of Consumer Claims (TCC) and Tribunal of Homebuyers Claims (THC). For the consumer right, the respondents who answered "No" to the question, "Do you know your rights as a consumer" would be coded as 1 and 0 if otherwise. A similar coding was also assigned to the questions on consumer responsibilities.

As for the questions on consumer legislation, CPA, TCC and THC, the respondents were presented with the three-option answers, namely, "No, I don't know," "I've heard of it but don't know much," and "I know." For the purpose of the study, however, those who answered "I've heard of it but don't know much" were grouped together with the "No, I don't know" group due to their very limited knowledge of the subject. Then, the "I don't know" group was coded as 0 and 1 if it was otherwise.

Education was used as proxy to measure the exposure and access to consumer related information. Since the respondents have had moderate levels of education, it was categorized as 1 if they have less than a secondary education, 2 if they have a secondary school education and 3 if they have more than secondary education level. The reference category comprised of those who have more than secondary education.

Income quintile was used in place of household income to represent measure household economic resources and to capture household economic position relative to others in the study. The income quintile was calculated based on the categories of the household income level. The household income consisted of the total amount of earning reported from the main employment and supplementary jobs of all earners in the households. Household income was measured as a monthly amount in Malaysian Ringgits (RM). There were 5 income groups representing 20% of the total respondents in each group. The income quintile was treated as categorical variable coded as 1 through 5. Meanwhile, the top 20% income quintile is the reference group.

The demographic variables in this study were age, gender, and marital status. Age was a continuous variable. Gender was coded as 1 if female, and this would be 0 if otherwise. Marital status was coded 1 if not married, and 0 for otherwise.

Empirical Model

The model dependent variable was self-rated consumer knowledge. Since the response in this model was binary in nature, logistic regression was used to estimate the effect of the independent variables on the log odds of rating their knowledge as good or bad. The logistic model was specified as:

$$\text{Log}[P/1\text{-}P] = \beta_0 + \beta_1 \text{Right} + \beta_2\text{Resp} + \beta_3\text{Laws} + \beta_4\text{CPA} + \beta_5\text{CTrib} + \beta_6\text{HTrib} + \beta_7\text{Edu} + \beta_8\text{Quintile} + \beta_9\text{NonMetro} + \beta_{10}\text{Age} + \beta_6\text{Male} + \beta_7\text{NotMarried} + e$$

Where, P was the probability that a respondent rated her/his consumer knowledge as good or bad (rating the consumer knowledge as bad was the reference group).

Variables 1 to 6 measured the following: variable "Right" measures if the respondents know their right as consumers; "Resp" measures if the respondents know their responsibilities as consumers; "Laws" measures knowledge of consumer legislation; "CPA" measures if they know about Consumer protection Act 1999; "CTrib" measures their knowledge about the Tribunal of Consumer Claims, and "HTrib" measures their knowledge about the Tribunal of Homebuyers Claims.

The variable "Edu" represented the respondents' education, "Inc" represented the level of household's economic resources, "NonMetro" represented the location, "Age" represented the respondents' reported age at the time of data collection, "Male" represented the variable on gender and the respondent's marital status was represented by non-married group ("NotMarried").

FINDINGS AND DISCUSSION

Socio-Demographic Characteristics of the Respondents

A total of 617 respondents from the ethnic Malays participated in the study. About 55% of the respondents were from the metropolitan Kuala Lumpur, while 275 respondents or about 45% lived in a non-metropolitan (Kuala Selangor) area. A total of 320 (52%) respondents consisted of adult males. The mean age of these respondents was 44 years old (s.d = 12.23), whom were mostly married (85%). The average household size was 4.74 persons (s.d=1.85), with an average number of earner of 1.58 (s.d =0.63) per households.

The majority (44%) of the respondents had secondary school education. About 36% reported to have had less than secondary education, while 20% indicated that they obtained higher than secondary education such as a diploma. The mean monthly household income for the sample was RM2,232.93 (s.d = 1668.61), with a median income of RM1,700. The mean income for this sample was significantly lower than that of the National average of about RM3,249 for Malaysia in general, and RM3,956 for urban areas in 2004 (Ninth Malaysia Plan, 2006). However, when assessed against the Poverty Line Income (PLI) of respective areas (i.e. Kuala Lumpur and Selangor), only 11% of the respondents fell below the PLI, and were thus categorized as poor households. Therefore, the majority of the respondents were consisted of low income group households.

Self-Rated Consumer Knowledge

Table 1 presents the respondents' own rating of their consumer knowledge. Almost two-third (61.7%) of the respondents rated their consumer knowledge as good, while 34.5% thought that their consumer knowledge was poor. Only a small percentage were reported at both extreme – i.e. 1.7% reported their consumer knowledge as "doing poorly" and 2.3% rated their consumer knowledge as very good. As the respondents might under- or over-estimate their self-assessment on their consumer knowledge, the study cross-checked their assessments through a series of questions presented in the following paragraph.

TABLE 1
Self-Rated Consumer knowledge

How do you rate your consumer knowledge?	Frequency (n=615)	Percentage (%)
Poor	222	36.09
Good	393	63.90

Actual Status of Consumer Knowledge

The set of actual consumer knowledge assessed included consumer rights, responsibilities, policy and legislation, CPA, Tribunal of Consumer Claims and Tribunal of Homebuyer Claims. Table 2 summarizes the actual status of consumer knowledge of the respondents. In general, majority of the respondents were not ignorant of their rights and responsibilities. In specific, almost two-third (i.e. 64.7%) reported that they know their rights as consumers. The remaining percentage (35.3%) of the respondents claimed they did not know

their rights as consumers. Interestingly, some who might have claimed to know their rights as consumers did not know what their responsibilities were. Compared to about two-third of the respondents who knew their rights as consumers, only slightly more than half (57.4%) indicated that they knew their responsibilities as a consumer, while 42.5% indicated otherwise. This finding is consistent with the comment by Alhabeeb, Mammen and Gary (1997) that consumers tend to fight for their rights more than to accept to their responsibilities.

Consumers must perform their responsibilities to secure their rights. For example, consumers have the right to redress or are entitled to swift and fair remedies for wrongs that are done. However, consumers have the responsibility to seek redress or should pursue remedies when products do not meet expectation (Lowe *et al.,* 2008). As such, there is still much to be done by consumer educators to ensure that the consumers understand that knowing their rights alone will not help them much unless they do something to claim it.

Good consumers must also be aware of the public policies and regulations that affect them. This is especially important as they have the right to have their interest be considered in the formulation of laws and policies (Lowe *et al.,* 2008). Unfortunately, about 71% of the respondents did not know about Consumer Policy in Malaysia, while 25% others reported that they had heard of it but did not know much about it. Of those who claimed to know about it were actually given answers that were contrary

TABLE 2
Respondents' actual status of their consumer knowledge

Items: DO YOU KNOW…?	Respondents' knowledge			
	TOTAL (n=617)	No, I don't know	I've heard of it but don't know much	I know
	Freq (%)	Freq (%)	Freq (%)	Freq (%)
Your rights as a consumer?	617	218 (35.3)	NA	399 (64.7)
Your responsibilities as a consumer	616	262 (42.5)	NA	354 (57.4)
Consumer Policy in Malaysia	617	436(70.7))	166 (24.9)	15 (2.4)*
Legislations that protect consumer?	614	376 (60.9)	166 (26.9)	72 (11.7)
Consumer Protection Act 1999	616	411 (66.6)	178 (28.8)	27 (4.4)
Tribunal of Consumer Claims	616	395 (64.0)	167 (27.1)	54 (8.8)
Tribunal of Homebuyer Claims	616	464 (75.2)	123 (20.0)	29 (4.7)

Note: * Out of 15 respondents who stated they knew about consumer policy in Malaysia, NONE really understood what such policy is. Thus, the respondents provided odd answers such as "Buying wisely" and "sort of some agencies".

to their claims.

Similarly, only a small percentage (11.7%) of the respondents knew about the legislations that protect consumers in Malaysia. More than half (60.9%) of the respondents reported that they were not aware of such legislation, while 27% indicated that they had heard of such legislation but not knowing much about them. Specific to Consumer Protection Act 1999 (CPA), about 2/3 of the respondents indicated that they were not aware of the Act (66.7%), while 28.8% claimed that they had heard of it but did not know much about it. This is very unfortunate since CPA was enacted more than 10 years ago and that despite rigorous efforts to familiarise consumers with the CPA, it is yet to be known widely among consumers. Even more unfortunate is that consumer educators cannot even start to discuss about legal literacy when most consumers do not even know the existence of such laws that could

protect them when they are taken advantage of in the market.

The Tribunal of Consumer Claims was established under the provision of Consumer Protection Act 1999 under the jurisdiction of the Ministry of Domestic trade, Cooperative and Consumerism. The Tribunal for Homebuyer Claims, on the other hand, was established under the Housing Development (Control and Licensing) Act 1966, and amended in 2002 under the jurisdiction of the Ministry of Housing and Local Government. The study indicated that slightly above 75% and 64% of the respondents did not know about the Tribunal for Homebuyer Claims and Tribunal of Consumer Claims, respectively. Meanwhile, a moderate percentage (between 20% and 27%) of the respondents only had a slight idea about the respective tribunals and a very small percentage of the respondents actually knew about such tribunals. Both tribunals provide cheaper, speedy and

effective redress channels for consumers who encounter problems with goods and services they purchased in the market. Hence, it is vital for the government bodies and consumer educators to ensure that information about both tribunals be widely disseminated to consumers. In addition, such tribunals must be established in areas where it can be easily accessed by both urban and rural consumers alike. For the purpose of this article, consumer knowledge on their rights, responsibilities and consumer-related legislations will be further elaborated in the subsequent paragraph.

Knowledge about Consumer Rights

Those who claimed to know their rights as consumers were asked to list all the consumer rights that they knew about and these are summarized in Table 3. The study found that the highest percentage (52.1%) of the respondents knew about the consumer right to redress, followed by the consumer right to basic needs (50.9%) and the right to information (50.4%) and the right to choose (47.7%). However, only one-fourth (25.3%) indicated that they knew about the right to safety, followed by the right to be heard/represented (16.6%), the right to consumer education (14.4%) and the right to healthy environment (14.4%).

Knowledge about Consumer Responsibilities

Consumers who indicated that they knew consumer responsibilities were required to list out such responsibilities. Unfortunately, 70 out of 399 respondents who claimed to know what the consumer responsibilities were failed to provide proper answers. Table 4 presents all the consumer responsibilities reported by the respondents who indicated that they knew what their responsibilities are as consumers. The study found that the respondents' responses on consumer responsibilities could be categorized into three groups, namely, responsibilities associated with before the purchase, after the purchase and other activities. For the "before purchase" activities, a total

TABLE 3
List of consumer rights reported by respondents

Consumer Rights	Frequency (n=399)*	Percentage (%)†
1. The rights to basic needs	203	50.9
2. The right to safety	101	25.3
3. The right to information	201	50.4
4. The right to choose	190	47.7
5. The right to be heard/representation	66	16.6
6. The right to redress	207	52.1
7. The right to consumer education	57	14.4
8. The right to healthy environment	39	9.8

Note: * For those who said that they knew what the consumer rights are. †The respondents were allowed to list all the consumer rights that they knew about. Hence, a higher percentage indicates more respondents know about that particular right.

of 62 respondents (18.8%) listed that the consumers were responsible in preparing budgets as a way to control their purchases. About 17.9% suggested that the consumers were responsible in exercising care and diligence in their selection of goods and services in the market to avoid losses and so on. Besides that, 7.6% listed that consumers should equip oneself with relevant knowledge and becoming street-

smart when buying things such as by searching for information, being aware of the current market price of product one wanted to buy, etc. The remaining 3.34% generally stated that consumers were responsible to make use of their dollar vote or power in the market.

For the "after purchase" activities, the respondents listed the following as consumer responsibilities: making complaints and/

TABLE 4
List of consumers' responsibilities reported by the respondents

Consumers' Responsibility	Frequency (n=329*)	Percentage
Before purchase:		
Prepare budget so that they are in control of what they buy (e.g. *prepare a budget*; *consider if you can afford it*)	62	18.84
Exercise care and intelligence in their selection such as through price comparison and avoidance of counterfeit goods etc (e.g. *consumer must compare price*; *get value for money product*)	59	17.93
Equipping oneself with relevant knowledge and becoming street smart when buying things such as by searching for information, being aware of the current market price of product one wants to buy etc (e.g. *study the product; read labels and learn about nutritional content*; *ensure the product you buy is safe and in good condition*)	25	7.60
Make use of consumer's dollar vote or power in the market (e.g. *refuse to buy if it is expensive*; *boycott*; *buy Malaysians*)	11	3.34
After purchase:		
Making complaints and /or reports to relevant authorities such as about price of goods (especially for controlled items), defective goods or frauds (e.g. *complaints to retailers when the product is not working*; *make police report when becomes a victim of fraud*)	126	38.30
Ensuring their problems/ issues are resolved (e.g. *make sure defective product is replaced or exchanged*; *return defective products to sellers*)	16	4.86
Others:		
Knowing and asserting consumer rights (e.g. *must know about consumer rights to avoid being deceived*)	16	4.86
Being responsible citizen (e.g. *take good care or public facilities*; *tenants must take care of their rented house*; *participate in consumer campaign*)	9	2.74
Sensitive to current events affecting consumers (e.g. *aware about current development*	5	1.52

Note: * 25 respondents who claimed to know what consumer responsibilities are had either refused to state what they thought of consumer responsibilities or that they provided unrelated statement, such as (verbatim) "*the consumers are always right*."

or reports to relevant authorities when things did not seem right in the market such as the price of goods especially for controlled items, defective goods or fraud were listed by the respondents (38.3%), and to ensure their problems/issues were resolved (4.86%). Other responses listed by the respondents regarding consumer responsibilities are: "knowing and asserting consumer rights" (4.9%); "being responsible citizens" (2.7%); and "sensitive to current events affecting consumers" (1.5%).

Knowledge about Consumer Protection Legislations

About 11.7% of the respondents who stated that they knew about such legislations were asked to list down all the consumer protection legislations that they knew of. Unfortunately, 6 respondents declined to provide any answers. Table 5 presents the legislations listed by some of the respondents. The study indicated that the most well-known laws to the respondents

were Price Control Act 1946 (53%), followed by Consumer Protection Act 1999 (30.3%). A small proportion (ranging from 1.5% to 6%) of the respondents who reported they knew about consumer protection listed the following legislations: Control of Supplies Act 1961 (Revised 1973), Food Act 1983, Trade Description Act 1972, Housing Developer Act (Control and License), 1966 (Reviewed 1973, 1972). About 7.5% of the respondents provided vague answers such as quoting Control Act, which was not identifiable.

Factors Associated with the Probability of Self-rated Consumer Knowledge

The multivariate logit result on self-rated consumer knowledge is shown in Table 6. The -2Log Likelihood (-2LL) value for the full model of the logit regression is 751.326. The Omnibus Test of Model Coefficient indicated that the logit regression model fit the data at $\alpha = 0.001$. This means that the independent variable significantly

TABLE 5
A list of consumer legislations stated by the respondents

List of laws and regulations	Frequency (n=66)	Percentage† (%)
Definite answers		
Price Control Act 1946	35	53.0
Consumer Protection 1999	20	30.3
Supplies Act 1961 (Revised 1973)	4	6.1
Food Act 1983	3	4.5
Trade Description Act 1972	3	4.5
Housing Developer Act (Control and License), 1966 (Reviewed 1973, 1972)	1	1.5
Vague answer (e.g. Control Act, Standard)	5	7.5

Note: *Six respondents who stated that they knew about the consumer-related laws and regulations refused to provide answers. †The respondents were allowed to list all the consumer protection legislations that they knew about. Hence, a higher percentage indicates that more respondents know about that particular right.

improves the ability to predict having good self-rated consumer knowledge ($\chi2 = 46.927$, df = 16, N=617, p < 0.0001). The Hosmer and Lemeshow Test with chi-square value of 10.31 was not significant ($\alpha = 0.244$). Therefore, the model does not differ significantly from the observed data. In other words, the model is predicting the real-world data fairly well.

The classification table indicated that overall, 68.63% of the participants were predicted correctly. The independent

TABLE 6
Multivariate Logit results on the self-rated consumer knowledge

Variables	β	Std Error	Wald	Sig level	Exp (β)
Respondent's Actual knowledge on the following:					
Consumer rights (Ref: Don't know)					
Know about it	0.61	0.21	8.83	0.00	1.85
Consumer responsibilities (Ref: Don't know)					
Know about it	0.41	0.20	4.29	0.04	1.50
Consumer legislation (Ref: Don't know)					
Know about it	0.01	0.31	0.00	0.97	1.01
Consumer protection Act 1999(Ref: Don't know)					
Know about it	1.51	0.62	5.96	0.01	4.51
Tribunal of Consumer Claims (Ref: Don't know)					
Know about it	-0.44	0.41	1.14	0.29	0.65
Tribunal of Homebuyers Claims (Ref: Don't know)					
Know about it	-0.01	0.52	0.00	0.98	0.99
Respondent's education (Ref: higher than secondary school)					
Less than secondary school	0.41	0.30	1.81	0.18	1.50
Secondary school	0.35	0.25	1.91	0.17	1.42
Household income Quintile (Ref: Fifth 20 percent)					
First 20 percent	-1.05	0.31	11.51	0.00	0.35
Second 20 percent	-0.49	0.31	2.50	0.11	0.61
Third 20 percent	-0.64	0.31	4.32	0.04	0.53
Fourth 20 percent	-0.42	0.30	1.91	0.17	0.66
Location (Ref: metropolitan)					
Non-metropolitan	-0.14	0.18	0.57	0.45	0.87
Age of respondent	0.00	0.01	0.03	0.87	1.00
Gender (Ref: female)					
Male	-0.21	0.19	1.23	0.27	0.81
Marital status (Ref: married)					
Not married	-0.17	0.25	0.47	0.49	0.84
Intercept	0.50	0.67	0.55	0.46	1.64
-2 Log Likelihood	751.326				

Note: R-squared =0.074 (Cox and Snell) 0.101 (Negelkerke)
Model χ^2 (16) = 46.927, p < 0.0001

variables were better at predicting those who would rate their consumer knowledge as good (90.33%) compared to those who would rate their consumer knowledge as bad (29.68).

Generally, however, the value of the R-square is fairly low. Appoximately 7% and 10% of the variations in rating one's consumer knowledge as good could be predicted by the independent variables.

Table 6 indicates that the odd for those who knew about the consumer rights to rate themselves as having good consumer knowledge was 1.85 times as high as the odd for those who did not know about consumer rights. Similarly, the odd for those who knew about the consumer responsibilities to rate themselves as having good consumer knowledge was 1.5 times as high as the odd for those who did not know about consumer responsibilities. As for Consumer Protection Act 1999 (CPA), the odd for those who knew about CPA to rate themselves as having good consumer knowledge was 4.51 times as high as the odd for those who did not know about CPA.

The negative coefficient showed that the odd for those who were in the lowest 20% income quintile to not rating their consumer knowledge as good were 0.35 time as high as the odd for those who were in the top 20% income quintile. Similarly, the odd for those who were in the middle 20% income quintile to not rating their consumer knowledge as good was 0.53 time as high as the odd for those who were in the top 20% income quintile.

CONCLUSION

Consumer rights and responsibilities can be used to protect consumers in their pursuit of satisfaction in the market. However, consumers bear the sole responsibility of knowing and utilizing their rights as well as knowing, accepting and honouring their responsibilities. In short, consumers must ensure that they have sufficient knowledge and skills to enable them to protect and advocate for themselves in the market. The study generally found that majority of the respondents rated their consumer knowledge as good. The odd of rating one's consumer knowledge as good was in fact higher among those who knew their consumer rights, consumer responsibilities, Consumer Protection Act and those who were in the top 20% income quintile.

Even though good self-rating of consumer knowledge may provide an indication that consumers are generally more well-educated in the consumption aspects and that consumer education campaign and programmes were effectively done, it may not objectively reflect the real picture of the level of consumer knowledge (much less consumer competency) among Malaysians. This is because knowledge was assessed subjectively via their perception. Hence, one may under- or over-estimate such assessment. In other words, one may think that he or she knows a lot, while in fact what one knows is only superficial or that one's consumer knowledge is rather shallow. This is especially proven in this study. As such, there exists a gap between self-rated and actual consumer knowledge

among Malaysians.

In addition, while the majority of the consumers reported to have known their rights and responsibilities as consumers, most of them still do not possess higher level of consumer knowledge such as redress channel and consumer protection legislations. In short, Malaysian consumers generally possess a very basic knowledge related to consumers but fail almost miserably on a relatively higher level of knowledge such as seeking redress. This is very unfortunate as the full benefits of the existing legislations can only be achieved when consumers are not only aware but also use their knowledge of the laws and regulations designed to protect their rights.

Therefore, the implications of such findings are two-folds. First, the government should adopt a consumer policy that does not only concern itself about ensuring protection by way of formulating consumer rules and regulations. Instead, it should be complemented with a cooperative effort by the government and consumer groups in disseminating consumer information and knowledge so that consumers are aware of the power at their hands in the market. Secondly, a specific philosophy on consumer education should be inscribed in the formulated consumer policy. That is, the content of a consumer educational program must be designed in such a way that it follows different aims of achieving a set of "ladder of consumer competency" which shares a similar spirit of the typology of consumer education, as explained by McGreagor (2005), over a period of

time. As such, at the very early state, the government may focus on providing basic knowledge or specifically teaching "consumer survival skills in the market." The content of the education programme at this level should emphasise mostly on educating consumers about their rights, responsibilities and redress any channel available. Later, as the consumer society progresses, consumer education programme should focus not only on "consumer-self" but should push for the realization of the impacts of their consumption on others such as on the environment and social justice. In short, the general aim of the national consumer education content is to push for a higher consumer competency level among its consumer society. Hence, the government and other relevant parties will be able to assess their performance in terms of achieving certain level of consumer competency in a period of time. Consequently, it helps to inform the policy makers and ensure that that they are on the right track in terms of consumer protection.

Even though the model fit the data, the R-squared which measured the associations between the predictors and the outcome (i.e. reporting one's consumer knowledge as good) is not very strong, and this indicates weaknesses in the model. Therefore, it is suggested that future research should include other variables such as exposure to consumer education and participation in consumer interest groups such as consumer association.

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The Use of Music and Movement Therapy to Modify Behaviour of Children with Autism

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ABSTRACT

Children with autism are often associated with behavioural problems such as being restless and fidgety; exhibiting tendencies to touch and hit people; being noisy (shouting or screaming); temper tantrums, being inattentive; non-compliance; spaced out; and body stiff. These behavioural patterns might be extreme and highly apparent or more subtle. Hence, music and movement therapy was developed to help improve the behaviours of children with autism. There were a total of 41 children who participated in the research, and they were divided into two groups and two sessions. Group 1 comprised of 18 children (5 girls and 13 boys). The age of the children in Group 1 ranged from 2 to 10 years old. Meanwhile, Group 2 comprised of 23 children (2 girls and 21 boys). The age of the participants in Group 2 ranged from 11 to 22 years old. The music therapy was carried out weekly and two sets of music therapy were used alternately for 10 months. The duration for each session was an hour. A Target Behaviour Checklist was also developed for the study purpose. The parents, music teachers and research assistant evaluated the child's behaviour on an average of once a month for 10 months. One-way ANOVA and T-test were used to examine whether there was a significant change or improvement in the target behaviours among the two groups of children. The findings demonstrated that music and movement therapy has positive effects on the behaviours of these children, especially in helping children with autism to improve in restlessness, fidgety, temper tantrum and inattentive behaviours.

Keywords: Children with autism, modify behaviour, music and movement therapy, target behaviour checklist

INTRODUCTION

Autism is a complex developmental disability that is typically manifested during the first three years of life and is believed to be the result of a neurological disorder

that affects the normal functioning of the brain, impacting development in the areas of social interaction and communication skills (Autism Society of America, 2008a). Parents are usually the first to notice unusual behaviours in their child. In some cases, the baby seems different from birth, unresponsive to people or focusing intently on one item for a long period of time. The first signs of autism can also appear in children who seem to have been developing normally. When an engaging, babbling toddler suddenly becomes silent, withdrawn, self-abusive, or indifferent to social overtures, something must be wrong (See, 2006).

Autism knows no racial, ethnic, social boundaries, family income, lifestyle, or educational levels and can affect any family, and any child. Although the overall incidence of autism is consistent around the globe, it is four times more prevalent in boys than in girls (Lord & Bishop, 2010; Autism Society of America, 2008b). A survey by the Office of National Statistics on the mental health of children and young people in Great Britain found a prevalence rate of 0.9 percent for autism spectrum disorders or 90 in 10,000 (Green, 2005) which includes autism, Asperger syndrome or any type of autism spectrum disorder. Baird (2006) published a report of a prevalence study which surveyed a population of children aged from 9-10 years old in the South Thames region. The results showed a prevalence rate of 38.9 in 10,000 for childhood autism, and 77.2 in 10,000 for other autism spectrum disorders, giving an overall figure of 116 in 10,000 for all autism spectrum disorders.

According to the Centers for Disease Control Prevention (2007) in Autism Society of America (2008b), one in every 150 children in United States is diagnosed with autism – that is one new diagnosis in every 20 minutes, and this number is on the rise. Based on the statistics from the United States Department of Education and other governmental agencies, autism is growing at a startling rate of 10-17 percent per year. There is no official total number of children with autism in Malaysia but statistics showed that in 2010, the total number of children aged from 0-14 in Malaysia was 9,164,470 (Department of Statistic Malaysia, 2010). Based on the United State's prevalence of autism (one autistic child in every 150 children), it is estimated that today, as many as 61,096 children in Malaysia are believed to have some form of autism spectrum disorders.

MUSIC AND MOVEMENT THERAPY

Music and movement therapy has been used to address physical, emotional, cognitive, and social needs of individuals of all ages. Music and movement interventions can be designed to promote wellness, manage stress, alleviate pain, express feelings, enhance memory, improve communication, and promote physical rehabilitation.

Music and movement therapy can be defined as a planned and prescribed use of music that is based on a careful assessment and evaluation on individuals' specific needs, through the process of interaction and

shared musical experiences to influence and motivate positive changes in individuals' condition and behaviours (Peters, 2000). According to Staum (2008), music and movement therapy is a unique application of music to promote development in social/emotional, cognitive/learning, and perceptual-motor areas by effectuating positive changes in human behaviour.

Music therapy has been effective and helpful to autistic children (Whipple, 2004), who encounter difficulties interacting with people and become agitated in noisy, changeable environments. Autistic children respond very well to music therapy, as familiar harmony can bring a sense of calmness and comfort in a stressful situation and help them to socialize more effectively. Soraci *et al*. (1982) found that music with rhythmic characteristics is effective in reducing stereotypical behaviours found in children with autism such as restlessness, fidgety, temper tantrum and inattentiveness. Thaut (1984) stated that music therapy can decrease behaviours or break stereotyped autism features. Rhythmic activities and movement to music at a tempo other than that of body rocking, for instance, can be helpful in this regard.

The child with autism can begin to exercise perceptual processes, and learn to relate tactile, visual, and auditory stimulation through manual exploration of instruments. Movement to music can also aid in the integration of tactile/kinaesthetic and auditory perception and the differentiation of self/non-self (Thaut, 1984). In addition, action songs or rhythmical music are believed to be able to help to develop auditory-motor coordination and refine the body awareness/image of autistic children (Alvin, 1975). The functional use of fingers and hands can be trained by playing musical instruments and the repeated movements in playing musical instruments help to improve their motor control and coordination (Alvin, 1976; Boxill & Chase, 2007). On a more complex level, perceptual learning sequences that combine pitch, loudness, and tempo, can teach the child to respond to percussion instruments. Orr *et al*. (1998) used music therapy to lessen head jerking and screaming from an 11 year old girl with autism. Music therapists used music at 50-60 beats per minute to increase the alpha waves, brain waves that are responsible for relaxation. Thirty days of data utilizing an ABAB design were analyzed by alternating baseline and musical intervention periods. The number child's head jerks and screaming during the first 20 minutes of the class was calculated during both periods. The average number of screams and head jerks recorded on days with music therapy was lower than that of baseline days.

The perception and development of music elements/skills appear to have similar patterns to the perception and development of speech and language skills (Donald & Janet, 1991; Lim, 2010). Music therapy is considered particularly effective in assisting children with speech language delays in the development and remediation of their speech and language skills (Donald & Janet, 1991). Music therapy encourages communicative

behaviour of autistic children through the unique non-verbal way of communication provided by music (Boxill & Chase, 2007). Music instruments, body movements, singing or improvised singing can help children to develop indirect communication. Moreover, listening to a variety of musical instruments and different vocal sounds can improve the auditory skill of autistic children (Adamek & Darrow, 2005; Donald & Janet, 1991).

In Western countries, there have been many studies conducted to identify the effectiveness of music therapy in training children with autism (Boxill & Chase, 2007; Lim, 2010; Orr, Myles, & Carlson, 1998; Whipple, 2004). These therapeutic effects of music therapy are well-documented. In Malaysia, however, there has been no specific research done to identify the effectiveness of music and movement therapy in helping children with autism to modify and change behaviour. The importance of music in the special education setting is often overlooked, and its true power is not harnessed. Therefore, a research was conducted where a protocol for music and movement therapy in the Malaysian context was developed to enable teachers, parents and counsellors to train the autistic children at home, centre or in school, so as to modify specific behavioural problems.

METHOD

A combination of qualitative and quantitative methods was used in this study. The participants were observed and evaluated over a 10-month period using a Target Behaviour Checklist. The Target Behaviour Checklist was developed for this study and the parents of the autistic children who participated in the research were trained to use the checklist. The target behaviours of the autistic children were evaluated by the parents, music teacher and research assistant once a month, at every last session of the month. The checklist used Likert scales ranging from 0 – 5 [0 = Not applicable; 1 = Not able to control self at all (with physical prompt); 2 = Poor (self control with gestural and physical prompt); 3 = Average (self control with verbal and gestural prompt); 4 = Good (self control with verbal prompt); 5 = Very good (able to control self without prompting)]. The parents, music teachers and the research assistant sat down together to discuss and agreed on the scale given to the items in the checklist for each child. From the data collected over 10 months, a descriptive analysis was done. The One-Way ANOVA and T-Test were also conducted to explore changes from the entry month, the fifth month and the tenth month of the study and to explore any significant difference within and between the two groups.

Participants

This research was conducted at an autistic centre in the north of Peninsular Malaysia. The centre has about 60 children of various races and they ranged from the age 3 to 24 years old. All the participants of this research were diagnosed with mild to severe autism spectrum disorder. The total number

of children who participated in the music and movement therapy was 41 children, whereby 34 children were boys (82.9%) and seven children were girls (17.1%). The participants were divided into two groups and two sessions. The groups were divided according to the children's age. The age of the children in Group 1 ranged from the age of 2 to 10 year-old while the age of the participants in Group 2 ranged from the age of 11 to 22 year-old. Group 1 comprised of 18 younger children (5 girls, 27.8% and 13 boys, 72.2%). Meanwhile, Group 2 comprised of 23 older children (2 girls, 8.7% and 21 boys, 91.3%).

Materials and Procedure

Two sets of music and movement therapy module (Set 1 and Set 2) were used to train the behaviour of children with autism. These (two) sets of music and movement therapy module incorporated the use of different musical media to achieve the goals. Through movements to music and dance routines, body movements may become more controlled, fluid and purposeful. It offers increased flexibility and adaptability. Musical instruments were used to work on compliance and control. In particular, the act of singing assists in the maintenance and improvement of attentiveness. In the study, there were nine sequences with nine songs for each set of music and movement therapy sets. In each set, there are greeting, hand actions, body movement, dance routine, using certain instruments such as cloth, bean bag, casternet, and ribbon wand for certain songs, and singing to achieve the goals.

Two sets of music and movement therapy were used at alternate months. Over a period of eight months, Set 1 was used every week in the odd months and Set 2 was used every week in the even months. In the last two months, Set 1 and Set 2 were used alternately each week (four sessions of Set 1 and four sessions of Set 2). The length of time of music therapy module was about 30 minutes.

Autistic children need routine and structure, so the protocol in each set of music and movement therapy module is structured so that the autistic children will not have to deal with any changes that normally upset them (American Autism Society, 2011; Autism Today, 2010; Autism United, 2011). The songs, hand actions, body movements, dance routines and the use of musical instruments were specifically designed to meet the needs of these children.

A Target Behaviour Checklist was developed in line with the research goals by the researcher of this study, two music teachers, 10 parents, and two special education teachers. Feedbacks from the parents, music teachers and special education teachers were taken into consideration. The target behaviour and skills that were assessed include: (i) behaviour (comprising of two sub-categories such as disruptive behaviour and non-compliance behaviour); (ii) social skills; (iii) speech and language skills (comprising of two sub-categories such as expressive language and receptive language); and (iv) motor and coordination skill (comprising of three sub-categories such as gross motor, fine motor and coordination).

All the parents who participated in the research were trained to use the Target Behaviour Checklist. The parents, music teacher and research assistant evaluated the child's behaviours once a month, i.e. at every last session of the month. The evaluation took place after the music and movement session. If the child displayed any or all of the target behaviour stated in the checklist, it would be noted down by the child's parents, music teacher and research assistant. The scale given to a child was confirmed by all the three individuals involved. Details of the Target Behaviour Checklist are presented in Table 1.

The Likert rating scale was used with six scales ranging from 0-5, i.e. from "not applicable" to "very good in controlling self without prompting."

RESULTS AND DISCUSSION

Descriptive Analysis

In the first section, the data were analyzed using the descriptive analysis. Every parent, music teacher and research assistant evaluated the child's behaviour once a month. Over the period of 10 months, they evaluated the child for a total of 10 times.

A comparison of the target behaviour between the two groups of children with autism (Group 1 which comprised 18 children ranging from 2 to 10 years and Group 2 which comprised of 23 children ranging from 11 to 22 years) was conducted at the beginning and at the end of the programme to identify any improvement in the target behaviour among the children after they had undergone the music and movement therapy. The eight scales showing improvement or regression in these behaviours were identified, and these were: (i) improve one scale ($\uparrow$1); (ii) improve two scales ($\uparrow$2); (iii) improve three scales ($\uparrow$3); (iv) regress one scale ($\downarrow$1); (v) regress two scales ($\downarrow$2); (vi) regress three scales ($\downarrow$3); (vii) no changes/sustain (N/C); and (viii) not applicable (N/A).

The analysis focused on the number of children who showed improvement by one

TABLE 1
Details of the Target Behaviour Checklist

Sub-Categories/Items	Rating Scales Used
I. Disruptive Behaviour: • Restlessness (moving about) • Fidgety • Touch the child beside him/her • Hitting a child beside him/her • Noisy (shouting or screaming) • Temper tantrum II. Non-Compliance: • Inattentiveness • Non-compliance • Space out • Freezing up body and not following	(a) 0 – N/A – Not applicable (b) 1 – Not able to control self at all (with physical prompt) (c) 2 – Poor (self-control with gestural and physical prompt) (d) 3 – Average (self-control with verbal and gestural prompt) (e) 4 – Good (self-control with verbal prompt) (f) 5 – Very good (able to control self without prompting)

scale, two scales and three scales; regress by one scale, two scales, and three scales; and no change/sustain. Nonetheless, some children did not display any of these specific behaviours. Therefore, they were put under the not applicable (N/A) scale, i.e. the children with appropriate behaviour before they were given the music and movement therapy. Thus, the number of children in each target behaviour might vary, while the percentage calculation of the children for each specific behaviour was based on the number of children who displayed that particular specific behaviour.

The results of the target behaviour change are presented in Table 2 and Table 3.

The target behaviour has two sub-categories, namely, disruptive behaviour and non-compliance behaviour. Table 2 shows the target behaviour change for the disruptive behaviour. Under the disruptive behaviour, there are six items, which include (a) restlessness (moving about); (b) fidgety; (c) touching the child beside him/her; (d) hitting the child beside him/her; (e) noisy (shouting or screaming); and (f) temper tantrum.

(a) Restless (moving about): Out of 16 children in Group 1, twelve (75.0%) showed a one scale improvement in the restless behaviour and only one child (6.2%) had improvement of two scales. Meanwhile, three children (18.8%) showed no change at all. In Group 2, 13 (61.9%) out of 21 children showed a one scale improvement in the restless behaviour and only one child (4.8%) showed two scales improvement. Seven children (33.3%) showed no change at all.

(b) Fidgety: Eight children (50.0%) out of 16 children in Group 1 showed a one scale improvement in the fidgety behaviour, while two children (12.5%) showed improvement of two scales, and five children (31.2%) did not change at all. Meanwhile, one child (6.3%) showed a one scale regression. In Group 2, 13 (61.9%) out of 21 children showed a one scale improvement in the fidgety behaviour and three children (14.3%) showed two scales improvement. Five children (23.8%) showed no change at all.

(c) Touching the child beside him/her: In Group 1, four (28.6%) out of 14 children showed a one scale improvement in touching the child beside him/her, while one child (7.1%) showed improvement of two scales, and nine children (64.3%) showed no change at all. Four (25.0%) out of 16 children in Group 2 showed a one scale improvement in touching the child beside him/her, and only one child (6.3%) showed improvement of two scales. Eleven children (68.7%) did not show any change.

(d) Hitting the child beside him/her: Four (33.3%) out of 12 children in Group 1 showed a one scale improvement by not hitting the child beside him/her and eight children (66.7%) showed no change. In Group 2, five (38.5%) out of 13 showed one scale of improvement by not hitting the child beside him/her and only one child (7.7%) showed two scales improvement. Meanwhile, seven children (53.8%) did not show any change at all. The small percentages of the improvement in the behaviour of touching and also hitting the child beside him/her could be due to the

TABLE 2
Target Behaviour Change (Disruptive Behaviour)

Items	Group	Scales of Change							Total
		↑1	↑2	↑3	↓1	↓2	↓3	N/C	
Restlessness (moving about)	G1	12	1					3	16
		(75.0)	(6.2)					(18.8)	(100)
	G2	13	1					7	21
		(61.9)	(4.8)					(33.3)	(100)
	Total	25	2					10	37
		(67.6)	(5.4)					(27.0)	(100)
Fidgety	G1	8	2		1			5	16
		(50.0)	(12.5)		(6.3)			(31.2)	(100)
	G2	13	3					5	21
		(61.9)	(14.3)					(23.8)	(100)
	Total	21	5		1			10	37
		(56.8)	(13.5)		(2.7)			(27.0)	(100)
Touching the child beside him/her	G1	4	1					9	14
		(28.6)	(7.1)					(64.3)	(100)
	G2	4	1					11	16
		(25.0)	(6.3)					(68.7)	(100)
	Total	8	2					20	30
		(26.7)	(6.7)					(66.6)	(100)
Hitting the child beside him/her	G1	4						8	12
		(33.3)						(66.7)	(100)
	G2	5	1					7	13
		(38.5)	(7.7)					(53.8)	(100)
	Total	9	1					15	25
		(36.0)	(4.0)					(60.0)	(100)
Noisy (shouting or screaming)	G1	6			1			8	15
		(40.0)			(6.7)			(53.3)	(100)
	G2	6		1				12	19
		(31.6)		(5.3)				(63.1)	(100)
	Total	12		1	1			20	34
		(35.4)		(2.9)	(2.9)			(58.8)	(100)
Temper tantrum	G1	12	2					3	17
		(70.6)	(11.8)					(17.6)	(100)
	G2	7	1	1				11	20
		(35.0)	(5.0)	(5.0)				(55.0)	(100)
	Total	19	3	1				14	37
		(51.4)	(8.1)	(2.7)				(37.8)	(100)

number of children in the group with limited space, and so the children were seated close to each other.

(e) Noisy (shouting or screaming): In Group 1, six (40.0%) out of 15 children showed a one scale improvement in the noisy behaviour and eight children (53.3%) showed no change at all. Meanwhile, one child (6.7%) showed a one scale regression. This was followed by six (31.6%) out of 19 children in Group 2 who showed a one scale improvement in the noisy behaviour and one child (5.3%) showed three scales improvement. Twelve children (63.1%) did not show any change.

(f) Temper tantrum: Twelve (70.6%) out of 17 children in Group 1 showed a one scale improvement in the temper tantrum behaviour and two children (11.8%) showed two scales improvement. Three children (17.6%) showed no change. In Group 2, seven children (35.0%) showed a one scale improvement in the temper tantrum behaviour, followed one child (5.0%) showed two scales improvement and one child (5.0%) showed three scales improvement. Meanwhile, 11 children (55.5%) did not show any change.

Table 3 shows the target behaviour change for the non-compliance behaviour category. Under the non-compliance behaviour, there are four items, as follows: (a) inattentiveness; (b) non-compliance; (c) space out; and (d) freezing up body and not following.

(a) Inattentiveness: Eleven (61.1%) out of 18 children in Group 1 showed a one scale improvement in the inattentive

behaviour and only one child (5.6%) showed improvement of two scales. Nonetheless, six children (33.3%) did not show any change. In Group 2, 11 (47.9%) out of 23 children showed one scale of improvement in the inattentive behaviour and this was followed by two children (8.7%) who showed two scales improvement. Ten children (43.3%) did not show any change.

(b) Non-compliance: In Group 1, seven (38.9%) out of 18 children showed a one scale improvement in the non-compliance behaviour as compared to 11 children (61.1%) who did not show any change. Eleven (50.0%) out of 22 children in Group 2 showed a one scale improvement in the non-compliance behaviour and only one child (4.5%) showed improvement of two scales. Ten children (45.5%) did not show any change.

(c) Space out: In Group 1, nine (52.9%) out of 17 children showed a one scale improvement in the space out behaviour and eight children (47.1%) did not show any change. Five (23.8%) out of 21 children in Group 2 showed a one scale improvement in the space out behaviour and only one child (4.8%) showed improvement of two scales. A majority of fifteen children (71.4%) did not show any change for this particular behaviour.

(d) Freezing up body and not following: Six (35.3%) out of 17 children in Group 1 showed a one scale improvement in the freezing up body and not following behaviour, and two children (11.8%) showed improvement of two scales. Nonetheless, nine children (52.9%) did not show any

TABLE 3
Target Behaviour Change (Non-Compliance Behaviour)

Item		↑1	↑2	↑3	↓1	↓2	↓3	N/C	Total
				Scales of Change					Total
Inattentiveness	G1	11 (61.1)	1 (5.6)					6 (33.3)	18 (100)
	G2	11 (47.9)	2 (8.7)					10 (43.3)	23 (100)
	Total	22 (53.7)	3 (7.3)					16 (39.0)	41 (100)
Non-compliance	G1	7 (38.9)						11 (61.1)	18 (100)
	G2	11 (50.0)	1 (4.5)					10 (45.5)	22 (100)
	Total	18 (45.0)	1 (2.5)					21 (52.5)	40 (100)
Space out	G1	9 (52.9)						8 (47.1)	17 (100)
	G2	5 (23.8)	1 (4.8)					15 (71.4)	21 (100)
	Total	14 (36.8)	1 (2.6)					23 (60.6)	38 (100)
Freezing up body and not following	G1	6 (35.3)	2 (11.8)					9 (52.9)	17 (100)
	G2	5 (27.7)	1 (5.6)					12 (66.7)	18 (100)
	Total	11 (31.4)	3 (8.6)					21 (60.0)	35 (100)

change. In Group 2, five (27.7%) out of 18 children showed one scale of improvement in the freezing up body and not following behaviour, while only one child (5.6%) showed two scales improvement. Twelve children (66.7%) did not show change at all.

DATA ANALYSIS

In the second section, a T-test was also conducted to examine any significant change in all the target behaviours within Group 1 and within Group 2 over time. In addition, the One-Way ANOVA was also conducted to examine any significant difference between the participants in Group 1 and Group 2 in all the target behaviours over time.

Table 4 shows the results of the T-Test in the target behaviour for Group 1 in March, October and December. The results showed significant changes within Group 1 on the target behaviour for March (t=11.457, p<.001), October (t=13.193, p<.001) and December (t=13.632, p<.001). The results also revealed an increasing mean value in Group 1's overall target behaviour from March (M=2.97778), October (M=3.47222)

TABLE 4
T-Test of the Target Behaviour Change for March, October and December (Group 1)

			Test Value = 0			
	t	do	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
March	11.457	17	.000	2.97778	2.4294	3.5261
October	13.193	17	.000	3.47222	2.9169	4.0275
December	13.632	17	.000	3.51667	2.9724	4.0610

TABLE 5
The *T*-Test of the Target Behaviour Change for Group 2 in March, October and December

			Test Value = 0			
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
March	13.364	22	.000	2.93043	2.4757	3.3852
October	14.283	22	.000	3.31304	2.8320	3.7941
December	14.522	22	.000	3.40870	2.9219	3.8955

and December (M=3.51667). This indicated that the children in Group 1 had improved in their target behaviour over the past 10 months.

Table 5 shows the results of the t-Test in the target behaviour change for Group 2 in March, October and December. The results showed significant changes within Group 2 on the behaviour for March ($t=13.364$, $p<.001$), October ($t=14.283$, $p<.001$) and December ($t=14.522$, $p<.001$). The results also revealed an increasing mean value in Group 2's overall target behaviour from March (M=2.93043), October (M=3.31304) and December (M=3.40870). This indicated that the children in Group 2 had improved in their target behaviour over the past 10 months.

Table 6 presents the results of the One-Way ANOVA on the overall target behaviour between Group 1 and Group 2 for March, October and December. However, the results revealed no statistically significant difference between Group 1 and Group 2 in all the target behaviour ($p<.05$) for the month of March (F=0.20, $p<.889$), October (F=.204, $p<.652$) and December (F=.095, $p<.759$). This finding implied that music and movement therapy is suitable and applicable for children with autism from different age ranges.

DISCUSSION

The findings in the study have indicated that music and movement therapy did help children with autism to improve in

TABLE 6
The One-Way ANOVA of the Target Behaviour Change between Group 1 and Group 2 for March, October and December

		Sum of Squares	df	Mean Square	F	Sig.
March	Between Groups	.023	1	.023	.020	.889
	Within Groups	45.000	39	1.154		
	Total	45.022	40			
October	Between Groups	.256	1	.256	.206	.652
	Within Groups	48.422	39	1.242		
	Total	48.678	40			
December	Between Groups	.118	1	.118	.095	.759
	Within Groups	48.243	39	1.237		
	Total	48.361	40			

these types of behaviour: (a) restlessness (in Group 1, 75% of the children showed a once scale improvement and 6.2% of the children revealed improvement of two scales; and in Group 2, 61.9% of the children had a one scale improvement and 4.8% of the children showed two scales improvement); (b) fidgety (in Group 1, 50.0% of the children showed a one scale improvement and 12.5% of the children showed improvement of two scales; and in Group 2, 61.9% of the children showed a one scale improvement and 14.3% of the children had two scales improvement); and (c) temper tantrum behaviour (in Group 1, 70.6% of the children obtained a one scale improvement and 11.8% of the children had two scales improvement, while in Group 2, 35.0% of the children revealed a one scale improvement, 5.0% of the children obtained two scales improvement, and 5.0% of children showed three scales improvement).

In addition, music and movement therapy helped children with autism to improve in the inattentive behaviour. In more specific, 61.1% of the children in Group 1 showed a one scale improvement while 5.6% others showed improvement of two scales. Meanwhile in Group 2, 47.9% of the children showed one scale of improvement and 8.7% others had two scales improvement.

CONCLUSION

The research findings indicated that most of the children (75.0%) in Group 1 and more than half of the children (61.9%) in Group 2 were less restless after they had undergone the music and movement therapy. Meanwhile, half of the children (50.0%) in Group 1 and 61.9% of those in Group 2 were less fidgety after they had undergone music and movement therapy. These findings imply that music and movement therapy has helped the young and older children with autism in reducing their restlessness and fidgety behaviour. Nonetheless, there were children who did not show any improvement in their behaviours. This could be due to factors such as parents not being able to

handle the child, and/or the child was not able to adapt to the environment.

The research findings also showed that 64.3% of the children in Group 1 and 68.7% of those in Group 2 continued to touch the child beside him/her. About 66.7% of the children in Group 1 and 53.8% of those in Group 2 continued to hit the child beside him/her. About 53.3% of the children in Group 1 and 63.1% of those in Group 2 continued to be noisy. This could be due to the fact that there were too many children in the music and movement sessions and the venue where the music and movement therapy was conducted was rather small. As a result, the children were seated close to each other.

About 70.6% of the children from Group 1 displayed less temper tantrum after they had undergone the music and movement therapy. This means the music and movement therapy is effective in helping younger children to reduce their temper tantrum behaviour during the sessions. This implies that early intervention is necessary to reduce temper tantrum among younger children with autism.

Meanwhile, more children in Group 1 showed improvement in the non-compliance behaviour category in terms of inattentiveness, space out, body stiffs and not following behaviour as compared to the improvement shown by the children in Group 2. Once again, these findings emphasize the importance of using music and movement therapy as an early intervention strategy to help younger children with autism reduce their non-compliance behaviour.

All in all, this research has shown that children and young adult persons with autism could attain improvement in the target behaviours after participating in the music and movement therapy, and thus, implying that behaviours can be modified.

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Relationships between Actual and Preferred Science Learning Environment at Tertiary Level and Attitudes towards Science among Pre-Service Science Teachers

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ABSTRACT

Over the last four decades, researchers in many countries have shown increasing interest in the conceptualization, assessment, and investigation of students' perceptions of psychosocial dimensions of their classroom environment. Research conducted over the past 40 years has shown the quality of the classroom environment in schools to be a significant determinant of student learning. However, not many studies, especially in the state of Sabah, Malaysia, were conducted to examine the tertiary Science learning environment and its relationship with students' attitudes towards Science. The purpose of this study was to investigate the relationships between the perceptions of actual and preferred Science learning environment at tertiary level and the attitudes towards Science among pre-service science teachers in Sabah, Malaysia. This study was also aimed to ascertain the difference in students' perceptions of Science learning environment and the attitudes towards Science based on gender. This was a non-experimental quantitative research and survey method was used to collect data. Samples were selected by using a cluster random sampling technique. The College and University Classroom Environment Inventory (CUCEI) was adopted to measure pre-service Science teachers' perceptions of Science learning environment. Seven subscales of the CUCEI measured were Personalization, Cooperation, Student Cohesiveness, Equity, Task Orientation, Innovation, and Individualization. Pre-service Science teachers' attitudes towards science were measured using the 'Test of Science-Related Attitudes' (TOSRA). The seven subscales measured in TOSRA were Social Implications of Science, Normality of Scientists, Attitude to Inquiry, Adoption of Scientific Attitudes, Enjoyment of Science Lessons, Leisure Interest in Science, and Career Interest

in Science. Independent samples *t*-test, Pearson product-moment correlation, and multiple linear regression analysis were used to test the stated null hypotheses at a predetermined significance level, alpha = .05. Correlation analysis results showed that there were low to moderate, positive and significant correlations between the actual and preferred Science learning environment and the attitudes towards science. CUCEI subscales can be used to explain appreciable amounts of variance in pre-service Science teachers' attitudes towards science.

BACKGROUND OF THE STUDY

Over the last four decades, researchers in many countries have shown increasing interest in the conceptualization, assessment, and investigation of students' perceptions of psychosocial dimensions of their classroom environment. A considerable amount of work on the assessment and investigation of classroom environment in schools has been conducted. These include studies on the associations between students' perception of interpersonal teacher behaviour and learning outcomes in primary Mathematics classrooms (Goh & Fraser, 1996) and environment-attitude associations in secondary Science classrooms (Wong & Fraser, 1996). In relation to this, the Harvard Project Physics of Walberg (Welch & Walberg, 1972) in the USA and the studies

by Fraser (1981, 1986) in Australia are educationally noteworthy. Interest in the study of learning environments becomes more prominent when there is evidence that learning outcomes and students' attitudes towards learning are closely linked to the classroom environment. Studies were conducted to determine the degree of importance of the classroom environment in the teaching and learning processes. The nature of the classroom environment and psycho-social interactions can make a difference in how the students learn and achieve their goals (McRobbie, Roth & Lucas, 1997).

As highlighted by Goodman (1988), student-teachers are guided by past events that create intuitive screens through which new information is filtered and transformed, and that student-teachers' beliefs predict, to a certain extent, their teaching behaviours, and are much more influential than knowledge in determining their future teaching approaches. Today's pre-service Science teachers experienced yesterday's Science learning in the form of text-based, didactic lessons presenting the subject/Science as an inert body of knowledge (Tobin *et al.,* 1990). Pre-service Science teachers usually experience traditional Science learning where teachers are considered as sources of knowledge that should be transmitted to students. The long history of traditional Science learning experiences in primary, secondary, and tertiary levels powerfully impact the way in which pre-service science teachers understand the nature of Science and the

way in which Science should be taught. Consequently, pre-service Science teachers' mental models about Science teaching are usually incompatible with Science teaching as a hands-on and minds-on activity.

PROBLEM STATEMENT

Research conducted over the past 40 years has shown the quality of the classroom environment in schools to be a significant determinant of student learning (Fraser, 1994; 1998). That is, students learn better when they perceive the classroom environment positively. Numerous research studies have shown that students' perception of the classroom environment accounts for appreciable amounts of variance in learning outcomes, often beyond that attributable to background students' characteristics. In the Malaysian context, despite limited efforts in other educational levels, study of learning environment in one crucial dimension of education in Malaysia, teacher education, is not yet explored.

Considerable work (e.g., Ferguson & Fraser, 1996; Rickards *et al.,* 1997; Suarez *et al.,* 1998) carried out with respect to gender and Science education showed that male and female students perceive their learning environment differently. Research on gender differences in classroom environment perceptions has also been conducted in various countries (Fisher *et al.,* 1997; Fisher *et al.,* 1997; Fraser *et al.,* 1995; Henderson *et al.,* 2000; Wong & Fraser, 1997). However, differences in the perceptions of actual and preferred tertiary Science learning environment and the

attitudes towards Science based on gender among pre-service science teachers are not yet investigated. Due to the deficient understanding of perceptions of tertiary Science learning environment and its association with attitudes towards Science, this study was aimed to investigate the association betweeen perceptions of tertiary Science learning environment and the attitudes towards Science among primary and secondary school pre-service Science teachers in the state of Sabah, Malaysia.

OBJECTIVES OF THE STUDY

This study attempted to achieve the following objectives:-

i.   to ascertain if the 'College and University Classroom Environment Inventory' (actual and preferred version of CUCEI) and the 'Test of Science-Related Attitudes' (TOSRA) are valid and reliable instruments when used in the Sabah context;

ii. to gauge the perceptions of actual and preferred tertiary Science learning environment among primary and secondary school pre-service Science teachers in Sabah;

iii. to gauge the attitudes towards science among primary and secondary school pre-service Science teachers in Sabah;

iv. to determine the difference in the perceptions of actual and preferred tertiary Science learning environment and attitudes towards Science based on gender;

v. to investigate the associations between the perceptions of actual and preferred tertiary Science learning environment and the attitudes towards Science among primary and secondary school pre-service Science teachers in Sabah.

RESEARCH HYPOTHESES

Four null hypotheses formed to be tested in this study are:

i. There is no significant difference in the perception of actual tertiary Science learning environment between male and female pre-service Science teachers in Sabah.

ii. There is no significant difference in the perception of preferred tertiary Science learning environment between male and female pre-service Science teachers in Sabah.

iii. There is no significant difference in the attitudes towards Science between male and female pre-service Science teachers in Sabah.

iv. There is no significant association between the perceptions of actual and preferred tertiary Science learning environment and attitudes towards Science among primary and secondary school pre-service Science teachers in Sabah.

DEFINITION OF TERMS

Some of the terms used in this study are defined as follows:

Learning Environment refers to a space or a place where learners and teachers interact with each other and use a variety of tools and information resources in their pursuit of learning activities (Wilson, 1996). In this study, seven essential aspects of the tertiary Science learning environment investigated are Student Cohesiveness, Individualization, Innovation, Cooperation, Personalization, Equity, and Task Orientation.

Students Cohesiveness refers to the extent to which pre-service Science teachers know, help, and are friendly towards each other.

Individualization refers to the extent to which pre-service Science teachers are allowed to make decisions and treated differently according to ability, interest, and rate of working.

Innovation refers to the extent to which the instructor (lecturer) plans new, unusual class activities, teaching techniques, and assignments.

Cooperation refers to the extent to which pre-service Science teachers cooperate rather than compete with one another on learning tasks.

Personalization refers to the emphasis on opportunities for individual pre-service Science teacher to interact with the instructor and on concern for pre-service Science teachers' personal welfare.

Equity refers to the extent to which pre-service Science teachers are treated equally by the instructor.

Task Orientation refers to the extent to which class activities are clear and well organized.

The Attitudes towards Science

Klopfer (1971) has alleviated the semantic problems associated with the multiple meanings attached to the term 'attitude to science' by providing a comprehensive classification scheme for Science education aims in which six conceptually different categories of attitudinal aims are distinguished. These six categories involve distinctions between the Attitudes to Science and Scientists (H.1), Attitude to Inquiry (H.2), Adoption of Scientific Attitudes like curiosity and open-mindedness (H.3), Enjoyment of Science Learning Experiences (H.4), Interest in Science Learning Experiences (H.5), and Interest in a Career in Science (H.6). In this study, the seven distinct science-related attitudes measured are defined as follows:

Social Implications of Science (S) scale measures one aspect of manifestation of favourable attitudes towards Science which has been afforded importance in the science education literature (Zoller & Watson, 1974; Fraser, 1977a), namely, the attitude towards the social benefits and problems which accompany scientific progress.

Normality of Scientists (N) scale measures one aspect of manitestation of favourable attitudes towards scientists given prominence in Science education, namely, an appreciation that scientists are normal people rather than the eccentrics often depicted in the mass media (Mead & Metraux, 1957; Fraser, 1977b).

*Attitude to Scientific Inquiry (I) sc*ale measures attitude to scientific experimentation and inquiry as ways of

obtaining information about the natural world.

Adoption of Scientific Attitudes (A) scale measures specific attitudes (e.g., open-mindedness, willingness to revise opinions, etc) as being of considerable importance in the work as scientists (Cohen, 1971).

Enjoyment of Science Lessons (E) refers to the enjoyment of Science learning experiences (Klopfer, 1971).

Leisure Interest in Science (L) refers to the development of interest in Science and science-related activities (Klopfer, 1971).

Career Interest in Science (C) refers to the development of interest in pursuing a career in Science (Klopfer, 1971).

RESEARCH DESIGN

This was a non-experimental quantitative research. Non-experimental research is a systematic empirical inquiry in which the researcher does not have direct control of independent variables because their manifestations have already occurred or because they are inherently not manipulable. Hence, inferences about the relations among variables are made, without direct intervention, from concomitant variation of independent and dependent variables (Johnson & Christensen, 2000). Survey method was used to collect the required data. In this study, the College and University Classroom Environment Inventory (CUCEI), developed by Fraser *et al.* (1987), was used to gauge students' perceptions of tertiary Science learning environment, such as Personalization, Cooperation, Student Cohesiveness, Equity, Task Orientation,

Innovation, and Individualization. On the other hand, students' attitude towards Science was measured using the Test of Science-Related Attitudes (TOSRA). The seven subscales measured were Social Implications of Science, Normality of Scientists, Attitude to Inquiry, Adoption of Scientific Attitudes, Enjoyment of Science Lessons, Leisure Interest in Science, and Career Interest in Science.

RESEARCH SAMPLES AND SAMPLING METHOD

A group of primary and secondary school pre-service Science teachers were selected by using cluster random sampling technique from the Teacher Education Institute - Kent Campus and School of Education and Social Development, Universiti Malaysia Sabah, respectively. Universiti Malaysia Sabah is one of the public higher education institutions, which is responsible for the training of pre-service secondary school Science teachers, whereas the Teacher Education Institute – Kent Campus is one of the teachers' education institutions which is responsible for the training of pre-service primary school Science teachers in Malaysia. The samples consisted of 23 males (47%) and 27 female (54%) pre-service Science teachers.

INSTRUMENTATION

The College and University Classroom Environment Inventory (CUCEI) and the Test of Science-Related Attitudes (TOSRA) were used to gauge pre-service Science teachers' perceptions of actual and preferred

tertiary science learning environment and attitudes towards science, respectively.

The College and University Classroom Environment Inventory (CUCEI)

In this study, students' perception of tertiary Science learning environment was measured by using the modified and personalized form of the 'College and University Classroom Environment Inventory' (CUCEI) specially developed by Fraser *et al*. (1987). CUCEI was developed to assess the perceptions of the psycho-social environment in university and college classrooms. Originally, CUCEI was developed for use with small groups of about 30 students in seminars and tutorials in higher education classrooms (Fraser & Treagust, 1986; Fraser, Treagust, & Dennis, 1986). The final form of CUCEI contains seven scales: Personalization, Cooperation, Student Cohesiveness, Equity, Task Orientation, Innovation, and Individualization. Each scale comprises seven items, making a total of 49 items in all. There are five responses provided for each item, namely, 'Almost Never', 'Seldom', 'Sometimes', 'Often', and 'Almost Always'. Validation of CUCEI conducted by Fraser and Treagust (1986) yielded scale alpha reliabilities ranging from .70 to .90. Learning environment instruments are typically produced in two forms - actual and preferred. Meanwhile, the actual form asks students to describe their actual classroom learning environment, and in the preferred form, students are asked to describe their preferred or ideal learning environment. The distribution of the CUCEI

items according to its seven subscales is shown in Table 1 below:

The Test of Science-Related Attitudes (TOSRA)

Test of Science-Related Attitudes (TOSRA) was developed by Fraser (1981), and it was designed to measure seven distinct science-related attitudes among secondary school students. These scales are called Social Implication of Science, Normality of Scientists, Attitude to Scientific Inquiry, Adoption of Scientific Attitudes, Enjoyment of Science Lessons, Lessure Interest in Science, and Career Interest in Science. The seven scales are suitable for group administration and all can be administered within the duration of a normal class lesson. Furthermore, TOSRA has been carefully developed and extensively field tested and shown to be reliable (alpha = .97). The distribution of TOSRA items according to its seven subscales is shown in Table 2:

TOSRA items involve a response format which requires students to express their degree of agreement with each statement on a five-point Likert scale consisting of the following responses: Strongly Agree (SA), Agree (A), Not Sure (N), Disagree (D), and Strongly Disagree (SD). For positive items, the responses SA, A, N, D, and SD are scored as 5, 4, 3, 2, and 1, respectively. For negative items (denoted by *), the responses SA, A, N, D, and SD are scored 1, 2, 3, 4 and 5, respectively. Omitted or invalid responses are scored 3. The seven separate scale scores are obtained by adding the scores obtained on all items within a given scale. Since each scale contains 10 items, the minimum and maximum scores possible on each scale are 10 and 50, respectively.

DATA COLLECTION

Before administering the CUCEI and TOSRA instrument, formal permission from the related authorities was sought and obtained. The CUCEI and TOSRA were personally-administered by the researchers. Students were gathered in a lecture room at respective institutions and

TABLE 1
Item Distribution of CUCEI according to its Seven Subscales

Subscales	Item No.	No. of Items
Personalization	1, 2, 3, 4, 5, 6, 7*	7
Innovation	8*, 9, 10, 11, 12*, 13, 14*	7
Student Cohesiveness	15*, 16, 17, 18*, 19*, 20, 21*	7
Task Orientation	22, 23, 24*, 25*, 26, 27*, 28	7
Cooperation	29, 30, 31, 32, 33, 34, 35	7
Individualization	36*, 37, 38, 39, 40, 41*, 42*	7
Equity	43, 44, 45, 46, 47, 48, 49	7
	Total	49

* denotes negative item

TABLE 2
Item Distribution of TOSRA according to its Seven Subscales

Subscales	Item No.	No. of Items
Social Implications of Science (S)	1, 8*, 15, 22*, 29, 36*, 43, 50*, 57, 64*	10
Normality of Scientists (N)	2*, 9, 16*, 23, 30*, 37, 44*, 51, 58*, 65	10
Attitude to Scientific Inquiry (I)	3, 10*, 17, 24*, 31, 38*, 45, 52*, 59, 66*	10
Adoption of Scientific Attitudes (A)	4, 11*, 18, 25*, 32, 39*, 46, 53*, 60, 67*	10
Enjoyment of Science Lessons (E)	5, 12*, 19, 26*, 33, 40*, 47, 54*, 61, 68*	10
Leisure Interest in Science (L)	6, 13*, 20, 27*, 34, 41*, 48, 55*, 62, 69*	10
Career Interest in Science (C)	7* 14, 21*, 28, 35*, 42, 49*, 56, 63*, 70	10
	Total	70

* denotes negative item

the the instruments were administered to the students concurrently. The students were informed about the nature of the instruments and how the instruments should be answered. The students were asked to read the statements pertaining to the attitudes towards Science and to indicate their degree of agreement or disagreement with the statement, i.e. 'Strongly Agree', 'Agree', 'Not Sure', 'Disagree' or 'Strongly Disagree'. The students were also asked to read the statements pertaining to the tertiary Science learning environment (actual and preferred) and then indicate their responses ranging from 'Almost Never', 'Seldom', 'Sometimes', 'Often', and 'Almost Always'. The instruments took about half an hour to be completed.

DATA ANALYSIS

Descriptive statistics were used to describe the perceptions of tertiary Science learning environment and the attitudes towards Science among pre-service science teachers in Sabah. Among the descriptive statistics used were mean, standard deviation, and range. On the other hand, as an effort to ensure all the quantitative, data were drawn from a normally distributed population, graphical measures such as histogram, stem-and-leaf plot, normal Q-Q plot, and detrended normal Q-Q plot were plotted for each of the variables studied. Furthermore, numerical measures such as skewness and kurtosis were used to identify any deviations from normal distributions (Hair, Anderson, Tatham, & Black, 1998; Miles & Shevlin, 2001). After the assumptions of using the parametric techniques in analyzing

quantitative data were met, independent sample *t*-test, Pearson product-moment correlation, and multiple linear regression analysis were used to test the stated null hypotheses at a predetermined significance level, alpha = .05.

Independent sample *t*-test was used to determine the difference in the perceptions of tertiary Science learning environment (actual and preferred) and the attitudes towards science between male and female pre-service Science teachers. Meanwhile, Pearson product moment correlation was used to identify possible significant linear relationships among students' perceptions of Science learning environment and their attitudes towards Science. In order to investigate the strength of the associations between students' perceptions of Science learning environment and their attitudes towards Science, simple correlation coefficients were calculated between each scale of the CUCEI and TOSRA instrument.

A stepwise multiple linear regresssion analysis was conducted to test the association of each of the CUCEI scales with each scale of TOSRA when all the other scales were held controlled. Stepwise variables selection method was used in order to get a parsimonious model which could explain most of the variance in students' attitudes towards Science by using the least number of the CUCEI scales. Assumptions (namely, normality, homoscedasticity, linearity, and independence) were also met prior to the multiple linear regression analysis. On the other hand, distance statistics (leverage measure and Cook's distance) and influence statistics (DfBeta and DfFit) were used to identify outliers and influential observations in the data. In order to detect multicollinearity among the independent variables used in this study, correlation matrices, Tolerance (T) and Variance Inflation Factor (VIF) were also used (Hair *et al*., 1998).

RESEARCH FINDINGS AND DISCUSSION

The reliability and validation of the CUCEI and TOSRA instrument are described in detail. This is followed by a description of pre-service science teachers' perceptions of actual and preferred tertiary science learning environment and attitudes towards science and its difference based on gender. The associations between the perceptions of actual and preferred tertiary science learning environment and attitudes towards science are also discussed.

Reliability and Validation of the CUCEI Instrument

The collected data were analyzed to test the internal consistency of the actual and preferred form of the CUCEI scales. For the actual form of CUCEI, it was found that the Cronbach's Alpha reliability ranged from .464 (Innovation) to .917 (Equity), except for Individualization which showed a low reliability of .288. Overall, the Cronbach's Alpha reliability of the actual form of CUCEI was found to be high (.895) (see Table 3). On the other hand, for the preferred form of CUCEI, the Cronbach's Alpha reliability ranged from .562 (Task

Orientation) to .942 (Cooperation), except for Individualization which showed a low reliability of .462. Overall, the Cronbach's Alpha reliability of the preferred form of CUCEI was found to be high, i.e. .904 (Table 3). These figures were comparable to the results reported by Fraser *et al*. (1987). Hence, these findings supported the cross-cultural validity of the classroom environment scales when used for the first time in Sabah context. Each scale in CUCEI was found to display a satisfactory internal consistency reliability.

The discriminant validity is described as the extent to which a scale measures a unique dimension not covered by the other scales in the instrument. Table 4 and Table 5 indicate that the mean correlations of the scales in the actual and preferred forms of CUCEI ranged from .193 to .357 and .322 to .480, respectively. From these figures, CUCEI appears to measure distinct although somewhat overlapping aspects of classroom environment, but maintaining distinctions

between each scale in each of the seven dimensions of the instrument.

Reliability and Validation of the TOSRA instrument

On the other hand, the collected data were also analyzed to test the internal consistency of the TOSRA scales. It was found that the Cronbach's Alpha reliability ranged from .620 (Normality of Scientists, N) to .853 (Career Interest in Science, C). Overall, the Cronbach's Alpha reliability of TOSRA was found to be high (.947) (Table 6). Hence, these findings supported the cross-cultural validity of the TOSRA scales when used in the context of Sabah. Each scale in TOSRA was found to display a satisfactory internal consistency reliability.

Table 7 indicates that the mean correlations of the scales in TOSRA ranged from .426 to .714. From these figures, TOSRA appears to measure distinct although somewhat overlapping aspects of attitudes towards Science, but maintaining

TABLE 3
Cronbach's Alpha Reliability of the Actual and Preferred Forms of CUCEI

Subscales	Item No.	Cronbach's Alpha Reliability Coefficients	
		Actual	Preferred
Personalization	1, 2, 3, 4, 5, 6, 7*	.801	.784
Innovation	8*, 9, 10, 11, 12*, 13, 14*	.464	.575
Student Cohesiveness	15*, 16, 17, 18*, 19*, 20, 21*	.806	.674
Task Orientation	22, 23, 24*, 25*, 26, 27*, 28	.511	.562
Cooperation	29, 30, 31, 32, 33, 34, 35	.875	.942
Individualization	36*, 37, 38, 39, 40, 41*, 42*	.288	.462
Equity	43, 44, 45, 46, 47, 48, 49	.917	.904
Overall		.895	.904

* denotes negative item

TABLE 4
Discriminant Validity of the Actual Form of CUCEI

	Personalization	Cooperation	Student Cohesiveness	Equity	Task Orientation	Innovation	Individualization	Mean correlation
Personalization	-	.215	.212	.457**	.375*	.362*	.460**	.347
Cooperation	.215	-	.437**	.555**	.395**	-.015	.275	.315
Student Cohesiveness	.212	.437**	-	.421**	.428**	-.075	.349*	.320
Equity	.457**	.555**	.421**	-	.369*	.208	.127	.356
Task Orientation	.375*	.395**	.428**	.369*	-	.166	.409**	.357
Innovation	.362*	-.015	-.075	.208	.166	-	.329*	.193
Individualization	.460**	.275	.349*	.127	.409**	.329*	-	.325

** Correlation is significant at 0.01 level (2-tailed)
* Correlation is significant at 0.05 level (2-tailed)
Listwise N=46

TABLE 5
Discriminant Validity of the Preferred Form of CUCEI

	Personalization	Cooperation	Student Cohesiveness	Equity	Task Orientation	Innovation	Individualization	Mean correlation
Personalization	-	.646**	.230	.626**	.448**	.574**	.294	.470
Cooperation	.646**	-	.310*	.754**	.372*	.431**	.315*	.471
Student Cohesiveness	.230	.310*	-	.246	.534**	.208	.401**	.322
Equity	.626**	.754**	.246	-	.215	.393**	.240	.412
Task Orientation	.448**	.372*	.534**	.215	-	.576**	.390**	.423
Innovation	.574**	.431**	.208	.393**	.576**	-	.696**	.480
Individualization	.294	.315*	.401**	.240	.390**	.696**	-	.389

** Correlation is significant at 0.01 level (2-tailed)
* Correlation is significant at 0.05 level (2-tailed)
Listwise N=44

TABLE 6
Cronbach's Alpha Reliability of the TOSRA Instrument

Subscales	Item No.	Cronbach's Alpha Reliability Coefficients
Social Implications of Science (S)	1, 8*, 15, 22*, 29, 36*, 43, 50*, 57, 64*	.666
Normality of Scientists (N)	2*, 9, 16*, 23, 30*, 37, 44*, 51, 58*, 65	.620
Attitude to Scientific Inquiry (I)	3, 10*, 17, 24*, 31, 38*, 45, 52*, 59, 66*	.760
Adoption of Scientific Attitudes (A)	4, 11*, 18, 25*, 32, 39*, 46, 53*, 60, 67*	.645
Enjoyment of Science Lessons (E)	5, 12*, 19, 26*, 33, 40*, 47, 54*, 61, 68*	.844
Leisure Interest in Science (L)	6, 13*, 20, 27*, 34, 41*, 48, 55*, 62, 69*	.819
Career Interest in Science (C)	7* 14, 21*, 28, 35*, 42, 49*, 56, 63*, 70	.853
Overall		.947

* denotes negative item

TABLE 7
Discriminant Validity of the TOSRA Instrument

	Social Implications of Science (S)	Normality of Scientists (N)	Attitude to Scientific Inquiry (I)	Adoption of Scientific Attitudes (A)	Enjoyment of Science Lessons (E)	Leisure Interest in Science (L)	Career Interest in Science (C)	Mean correlation
Social Implications of Science (S)	-	.498**	.254	.560**	.648**	.549**	.672**	.530
Normality of Scientists (N)	.498**	-	.280	.529**	.614**	.519**	.644**	.514
Attitude to Scientific Inquiry (I)	.254	.280	-	.499**	.529**	.461**	.530**	.426
Adoption of Scientific Attitudes (A)	.560**	.529**	.499**	-	.697**	.623**	.696**	.601
Enjoyment of Science Lessons (E)	.648**	.614**	.529**	.697**	-	.794**	.890**	.695
Leisure Interest in Science (L)	.549**	.519**	.461**	.623**	.794**	-	.854**	.633
Career Interest in Science (C)	.672**	.644**	.530**	.696**	.890**	.854**	-	.714

** Correlation is significant at 0.01 level (2-tailed).
   Listwise N=38

distinctions between each scale in each of the seven dimensions in the instrument.

Pre-Service Science Teachers' Perceptions of Actual and Preferred Tertiary Science Learning Environment

Table 8 shows the mean and standard deviation of pre-service Science teachers' perceptions of the actual and preferred tertiary Science learning environment.

As shown in Table 8, the overall mean value of the students' perceptions of the actual tertiary Science learning environment (M = 3.609, SD = .384) revealed that the students perceived the Science learning environment at tertiary level as positive. This finding implies importantly that these pre-service science teachers, having experienced positive learning environments at the university and teacher education institute, would be more inclined to establish positive learning environments in their classroom to enhance their students' learning. This would definitely reinforce the need to create a positive learning environment as emphasized in the teacher education programmes.

In relation to this, pre-service Science teachers' perceptions of the actual Science learning environment in descending order are Cooperation (M = 4.161, SD = .584), Student Cohesiveness (M = 4.159, SD = .767), Personalization (M = 3.801, SD = .596), Equity (M = 3.791, SD = .814), Task Orientation (M = 3.534, SD = .445), Individualization (M = 3.037, SD = .424), and Innovation (M = 2.780, SD = .544). Pre-service Science teachers perceived that they cooperate rather than compete with one another on Science learning tasks, as well as know, help and are friendly towards each other. They also perceived that the opportunities for individual pre-service teacher to interact with the instructor and concern for their personal welfare were taken care of. However, they perceived that the instructors were not so innovative to plan new, unusual class activities, teaching

TABLE 8
Mean and Standard Deviation of Pre-Service Science Teachers' Perceptions of Actual and Preferred Tertiary Science Learning Environment based on to the CUCEI Subscales

Subscales	No. of Items	M		SD		Range	
		Actual (n=46)	Preferred (n=44)	Actual (n=46)	Preferred (n=44)	Actual (n=46)	Preferred (n=44)
Personalization	7	3.801	4.354	.596	.513	2.143	2.286
Cooperation	7	4.161	4.671	.584	.507	1.857	2.143
Student Cohesiveness	7	4.159	4.133	.767	.758	3.143	2.857
Equity	7	3.791	4.500	.814	.603	3.571	2.429
Task Orientation	7	3.534	4.069	.445	.583	1.857	1.857
Innovation	7	2.780	3.591	.544	.636	2.286	2.571
Individualization	7	3.037	3.490	.424	.597	1.857	2.286
Overall	49	3.609	4.299	.384	.423	1.673	2.000

techniques and assignments in conducting science-related courses. They also perceived that they were not allowed to make decisions and were not treated differently according to ability, interest, and rate of working.

In constrast, pre-service Science teachers prefer and hope for a better Science learning environment (M = 4.299, SD = .423) in most of the CUCEI subscales, especially Cooperation (M = 4.671, SD = .507) and Equity (M = 4.500, SD = .603). They prefer a Science learning environment, whereby they cooperate rather than compete with one another on science learning tasks. At the same time, they are treated equally by the instructor.

Pre-Service Science Teachers' Attitudes towards Science

Table 9 shows the mean and standard deviation of pre-service Science teachers' attitudes towards Science.

As shown in Table 9, the overall mean value of the students' attitudes towards Science (M = 3.648, SD = .436) showed that they possessed positive attitudes towards

the subject. Generally, pre-service Science teachers enjoyed their Science learning experiences. They adopted specific attitudes as being of considerable importance in the work as scientists, and they also showed favourable attitudes towards the social benefits and problems which accompany scientific progress. In relation to this, pre-service Science teachers' attitudes towards Science in descending order are Enjoyment of Science Lessons (M = 3.982, SD = .547), Adoption of Scientific Attitudes (M = 3.784, SD = .456), Social Implications of Science (M = 3.745, SD = .456), Career Interest in Science (M = 3.687, SD = .607), Attitude to Scientific Inquiry (M = 3.597, SD = .574), Leisure Interest in Science (M = 3.555, SD = .645), and Normality of Scientists (M = 3.184, SD = .487).

Mean Difference in the Perceptions of Actual and Preferred Tertiary Science Learning Environment between Male and Female Pre-Service Science Teachers

The first and second null hypothesis was tested by using the Independent sample

TABLE 9
Mean and Standard Deviation of Pre-Service Science Teachers' Attitudes towards Science according to TOSRA Subscales (N = 38)

Subscales	No. of Items	M	SD	Range
Social Implications of Science (S)	10	3.745	.456	.190
Normality of Scientists (N)	10	3.184	.487	.200
Attitude to Scientific Inquiry (I)	10	3.597	.574	.240
Adoption of Scientific Attitudes (A)	10	3.784	.456	.210
Enjoyment of Science Lessons (E)	10	3.982	.547	.230
Leisure Interest in Science (L)	10	3.555	.645	.280
Career Interest in Science (C)	10	3.687	.607	.260
Overall	70	3.648	.436	1.886

t-test at a specified significance level, alpha = .05. As shown in Table 10, independent sample *t*-test results showed that there is no significant difference in the perception of the actual tertiary Science learning environment between male and female pre-service science teachers (*t* = -1.795, *p* = .080). At the same time, no significant difference in the perception of the preferred tertiary science learning environment was found between the male and female pre-service Science teachers (*t* = -1.753, *p* = .095) (Table 11). Hence, these findings failed to reject the first and second null hypotheses.

Generally, the female students perceived their tertiary Science learning environment more favourably as compared to their male counterparts. However, the mean differences were not statistically significant except for the subscales of Student Cohesiveness, Cooperation, and Equity. This means the female students perceived that they know, help, and are friendly towards each other, cooperate rather than compete with one another on Science learning tasks, and are treated equally by the instructors.

These findings were supported by previous research findings on gender differences in classroom environment perceptions. For example, in a study by Goh and Fraser (1997), they found that at primary school level, the girls in Singapore generally viewed their classroom environments more favourably than boys.

TABLE 10
Mean Difference in the Perceptions of the Actual Tertiary Science Learning Environment Based on Gender

Subscales	Gender	*n*	*M*	*SD*	Mean Difference	Effect Size	*t*	*df*	*p*
Personalization	Male	21	3.734	.643	.142	.237	-.767	42	.448
	Female	23	3.876	.578					
Cooperation	Male	21	4.047	.588	.152	.259	-.871	42	.389
	Female	23	4.199	.563					
Student Cohesiveness	Male	21	3.769	.826	.741	.965	-3.523	42	.001**
	Female	23	4.510	.553					
Equity	Male	21	3.667	.647	.264	.325	-1.061	42	.295
	Female	23	3.931	.963					
Task Orientation	Male	21	3.463	.531	.114	.258	-.841	42	.405
	Female	23	3.577	.369					
Innovation	Male	21	2.823	.493	.114	.212	.689	42	.495
	Female	23	2.709	.604					
Individualization	Male	21	2.946	.518	.147	.348	-1.129	32.450	.267
	Female	23	3.093	.315					
Overall	Male	21	2.445	.291	.144	.537	-1.795	42	.080
	Female	23	2.589	.242					

** *p* < .01; The effect size is the mean difference divided by the pooled standard deviation.

TABLE 11
Mean Difference in the Perceptions of the Preferred Tertiary Science Learning Environment Based on Gender

Subscales	Gender	N	M	SD	Mean Difference	Effect Size	t	df	p
Personalization	Male	16	4.197	.592	.210	.409	-1.311	40	.197
	Female	26	4.407	.444					
Cooperation	Male	16	4.321	.573	.542	1.068	-3.416	21.850	.002**
	Female	26	4.863	.346					
Student Cohesiveness	Male	16	3.901	.880	.439	.579	-1.923	40	.062
	Female	26	4.340	.601					
Equity	Male	16	4.126	.745	.571	.950	-2.852	19.988	.010**
	Female	26	4.697	.384					
Task Orientation	Male	16	3.973	.602	.158	.272	-.866	40	.392
	Female	26	4.131	.561					
Innovation	Male	16	3.687	.763	.154	.243	.746	40	.460
	Female	26	3.533	.575					
Individualization	Male	16	3.446	.739	.087	.145	-.442	40	.661
	Female	26	3.533	.528					
Overall	Male	16	2.765	.389	.186	.625	-1.753	20.605	.095
	Female	26	2.951	.212					

** $p < .01$; The effect size is the mean difference divided by the pooled standard deviation.

In Fisher and Rickards' (1998) study, statistically significant gender differences were detected in students' responses to classroom environment scales. They found that the females perceived their teachers in a more positive way compared to the males.

Research on gender differences in classroom environment perceptions has also been conducted in various countries (Fisher *et al.,* 1997; Fisher *et al.,* 1997; Fraser *et al.,* 1995; Henderson *et al.,* 2000; Wong & Fraser, 1997). Overall, these studies have shown that girls generally hold more favourable perceptions of their classroom learning environments than boys in the same classes. These studies serve to inform teachers about the different learning needs of boys and girls. With this knowledge, teachers are likely to be guided in creating a more supportive environment for teaching and learning for both boys and girls.

Considerable work (e.g., Ferguson & Fraser, 1996; Rickards *et al.,* 1997; Suarez *et al.,* 1998) carried out with respect to gender and Science education showed that male and female students perceive their learning environment differently. In general, girls tended to perceive their learning environment just as favourably if not more favourably than boys. This finding further supports the previous related research (see for instance, Fraser *et al.,* 1992; Lawrenz,

1987; Rickards & Fisher, 1997; Wong & Fraser, 1997) in science laboratory learning environments. Females generally have higher expectations of their Science learning environment than their male counterparts. Teachers may like to take note of the perception differences among the sexes so as to maximize learning of each individual in class. In relation to this, Myint and Goh (2001), in a study investigating gender differences in graduate teacher trainees' perceptions of their learning environments, found that out of seven scales, only Student Cohesiveness was significantly different. Female graduate teacher trainees perceived that within their classroom environment, they knew each other well and maintained good friendships among themselves. This also appeared to corroborate with similar findings on gender differences in the classrooms.

Mean Difference in the Attitudes towards Science between Male and Female Pre-Service Science Teachers

The third null hypothesis was tested by using the Independent sample t-test at a specified significance level, alpha = .05. As shown in Table 12, the independent sample t-test results showed that there is no significant difference in the attitudes towards Science between male and female pre-service Science teachers (t = -1.188, p = .243). Hence, this finding failed to

TABLE 12
Mean Difference in Attitudes towards Science between the Male and Female Pre-Service Science Teachers

Subscales	Gender	n	M	SD	Mean Difference	Effect Size	t	Df	p
Social Implications of Science (S)	Male	18	3.611	.530	.226	.495	-1.559	35	.128
	Female	19	3.837	.334					
Normality of Scientists (N)	Male	18	3.111	.608	.136	.280	-.835	35	.409
	Female	19	3.247	.360					
Attitude to Scientific Inquiry (I)	Male	18	3.533	.472	.093	.162	-.488	35	.629
	Female	19	3.626	.666					
Adoption of Scientific Attitudes (A)	Male	18	3.667	.516	.223	.489	-1.492	35	.145
	Female	19	3.889	.387					
Enjoyment of Science Lessons (E)	Male	18	3.917	.653	.120	.220	-.654	35	.517
	Female	19	4.037	.452					
Leisure Interest in Science (L)	Male	18	3.406	.735	.279	.432	-1.311	35	.198
	Female	19	3.684	.549					
Career Interest in Science (C)	Male	18	3.611	.701	.115	.190	-.572	35	.571
	Female	19	3.726	.514					
Overall	Male	18	3.551	.513	.170	.390	-1.188	35	.243
	Female	19	3.721	.347					

The effect size is the mean difference divided by the pooled standard deviation.

reject the third null hypothesis. Generally, female students possessed more favourable attitudes towards Science as compared to their male student counterpart. However, the mean differences were not statistically significant.

In a study to describe classroom environment and teacher interpersonal behaviour in secondary Science classes in Korea *et al.* (2000) found that relative to girls, boys perceived their learning environments and their teachers' interpersonal behaviour to be more favourably and reported more favourable attitudes towards their Science classes.

Associations between Perceptions of the Actual and Preferred Science Learning Environment, and Attitudes towards Science

The fourth null hypothesis was tested by using the Pearson's product-moment correlation and multiple linear regression analysis at a specified significance level, alpha = .05. Correlation analysis results showed that there were low to moderate, positive, and significant correlations between the subscales of the actual science learning environment and the subscales of attitudes towards Science. Pearson's product-moment correlation coefficients were found in the range of .330 to .642 (Table 13). On the other hand, there were also low to moderate, positive, and significant correlations between the subscales of the preferred science learning environment and the subscales of attitudes towards Science. Pearson's product-moment correlation coefficients were found in the range of

.339 to .577 (Table 13). The results shown in Table 16 also revealed that the CUCEI subscales can be used to explain appreciable amounts of variance in the pre-service Science teachers' attitudes towards Science. Thus, these findings had rejected the fourth null hypothesis successfully.

The findings of this study are consistent with the previous research done in this field of study. For example, in his theory on educational productivity, Walberg (1981; 1984) includes classroom environment as one of the nine factors that contributes to the variance in students' cognitive and affective outcomes. The other eight factors are ability, maturity, motivation, the quality of instruction, the quantity of instruction, the psychological environment at home, the peer group outside the classroom, and the time involved with video/television media. The model was successfully tested as a part of a national study showing that student achievement and attitudes were influenced jointly by these factors (Walberg, Fraser, & Welch, 1986). A relevant outcome was the finding that classroom and school environments were important influences on student outcomes.

In a study to investigate learning environments and student attitudes to Science at the senior secondary and tertiary levels, Nair and Fisher (2001) found that Personalization, Individualization and Innovation were significantly related to the attitudinal measure of Speed; only the Individualization scale with Difficulty and all the seven scales were significantly related to the student satisfaction outcome

TABLE 13

Simple Correlation and Multiple Regression Analyses for the Association between the Perceptions of Actual and Preferred Science Learning Environment and the Attitudes towards Science

CUCEI scales		S r	S β	N r	N β	I r	I β	A r	A β	E r	E β	L r	L β	C r	C β
Personalization	A	.344*	.099	.331*	.240	.396*	.303*	.452*	.333*	.453**	.283*	.571**	.571**	.453**	.386**
	P	.420*	-.023	.208	.022	.339*	.662**	.577**	.555**	.425*	.486**	.471**	.479**	.533**	.579**
Cooperation	A	.442**	.339*	.382*	.235	.128	-.234	.377*	.127	.375*	.108	.288	.014	.465**	.320*
	P	.360*	-.165	.366*	.162	.159	-.062	.537**	.315	.422*	.280	.425*	.199	.418*	.158
Student Cohesiveness	A	.281	.134	.145	.086	.398*	.313*	.477**	.412**	.349*	.243	.273	.150	.290	.176
	P	.217	-.017	.112	-.026	.395*	.145	.407*	.253	.332	.215	.247	.070	.331	.162
Equity	A	.329	.061	.286	.181	.183	-.178	.371*	.027	.243	-.059	.277	-.018	.253	-.229
	P	.526**	.453**	.449**	.462**	.075	-.116	.506**	.224	.327	.170	.381*	.096	.395*	.167
Task Orientation	A	.415*	.296*	.400*	.358*	.403*	.081	.330*	.008	.642**	.434**	.536**	.177	.501**	.235
	P	.455**	.350**	.262	.090	.170	.231	.378*	.070	.386*	.074	.348*	.019	.458**	.108
Innovation	A	.110	.034	.163	.118	.090	.010	.148	.058	.206	.035	.305	.076	.193	.078
	P	.389*	-.117	.293	.068	-.059	-.844**	.376*	-.016	.242	-.160	.291	-.060	.332	-.080
Individualization	A	.153	-.077	.023	-.064	.337*	.053	.322	.019	.287	.023	.444**	.177	.290	.101
	P	.155	-.166	.118	.048	.229	.587**	.372*	.167	.135	-.038	.095	-.044	.110	-.052
Total Model Fit:															
F-value	A	7.859		6.015		6.278		11.039		11.920		19.845		9.109	
	P	13.291		10.830		8.123		17.827		12.670		12.180		20.692	
Significance	A	.001		.019		.004		.000		.000		.000		.001	
	P	.000		.002		.000		.000		.001		.001		.000	
Multiple	A	.531		.358		.480		.582		.602		.571		.555	
Correlation, R	P	.642		.462		.620		.555		.486		.479		.579	
% Explained	A	28.2		12.8		23.0		33.9		36.2		32.6		30.8	
	P	41.2		21.3		38.5		30.8		23.6		22.9		33.5	

** Correlation is significant at 0.01 level (2-tailed)
* Correlation is significant at 0.05 level (2-tailed)
A= Actual; P = Preferred; S = Social Implications of Science; N = Normality of Scientists; I = Attitude to Scientific Inquiry; A = Adoption of Scientific Attitudes; E = Enjoyment of Science Lessons; L = Leisure Interest in Science; C = Career Interest in Science.

($p< .001$). The beta weights showed that all the three attitude scales retained their significance with the Individualization scale in a more conservative multivariate test. The multiple regression correlation indicates a significant association between the classroom environments, as measured by all the CUCEI scales and the three attitudinal outcomes; the speed at which the courses are taught, the degree of difficulty of the courses taken and, students' satisfaction with the course they are taking (Nair & Fisher, 2001).

More generally, this study also replicated the finding that there is a strong link between student outcomes and their perceptions of the learning environment (Fraser & Fisher, 1982; den Brok *et al.,* 2004; Wubbels & Brekelmans, 1998). In more specific, the findings are similar to those of other studies using the WIHIC and TOSRA (e.g., Adolphe *et al.,* 2003; Allen, 2003; Hunus & Fraser, 1997; Wahyudi, 2004; Kim *et al.,* 2000).

For instance, Wong and Fraser (1996) investigated Singaporean secondary Chemistry students' and teachers' perceptions of their laboratory lessons. They investigated differences in the perceptions of actual and preferred chemistry laboratory environments between teachers and students, students of different streams, as well as male and female students. They also examined the associations between classroom environment and students' attitudes towards Chemistry. They reported that (1) the perceptions of students and teachers differed, (2) students wanted to experience more positive laboratory lessons than those presently provided, (3) students from different streams differed only in their preferred perceptions, (4) females held more favourable perceptions than males, and (5) positive assocations existed between the nature of the Chemistry laboratory environment and students' attitudinal outcomes.

Hunus and Fraser (1997) used a modified version of the WIHIC in Brunei, and reported on the associations between the perceptions of learning environment and attitudinal outcomes. Simple and multiple correlations showed that there was a significant relationship between the set of environment scales and students' attitudes towards Chemistry theory classes. The Student Cohesiveness, Teacher Support, Involvement, and Task Orientation scales were positively associated with the students' attitudes.

Allen (2003) reported the results of a simple correlation analysis between the scales of the WIHIC and TOSRA. In his study, Investigation was significantly correlated with Inquiry. Additionally, Involvement, Task Orientation and Investigation were significantly correlated with Enjoyment. All correlations found were positive.

A study by Wahyudi (2004) found association between students' outcomes and the status of classroom learning environments. Both simple analysis and multiple regression analysis procedures showed that all the scales of Indonesian WIHIC were statistically, significantly, and positively associated with the two

scales of the Indonesian adapted TOSRA and students' cognitive scores. Overall, these findings show that many or all of the WIHIC scales are positively related to student attitudes. High associations have particularly been found for the scales Teacher Support, Equity and Investigation.

What is Happening in this Class (WIHIC) questionnaire and Questionnaire on Teacher Interaction (QTI) were used to describe classroom learning environment and the teachers' behaviour in Korea (Kim, Fisher, & Fraser, 2000). They found that there were positive relationships between classroom environment and interpersonal teachers' behaviour with students' attitudinal outcome.

Using SLEI, associations with students' cognitive and affective outcomes were found for a sample of 489 senior high school Biology students in Australia (Fisher *et al.,* 1997). Fisher *et al.* (1997) extended research regarding associations between students' outcomes and their perceptions of their laboratory lessons by including practical performance and cognitive achievement as student outcomes in Biology classes. They reported that each outcome was associated with environmental perceptions. In relation to this, Fraser *et al.* (1995) also found that associations existed between classroom environment perceptions of students and their attitudes towards Science laboratories.

Wolf and Fraser (2008) conducted a study to compare inquiry and non-inquiry laboratory teaching in terms of students' perceptions of the classroom learning environment, attitudes towards Science, and

achievement among middle-school physical science students. Learning environment and attitude scales were found to be valid and related to each other for a sample of 1434 students in 71 classes.

Hence, findings of previous research have further supported the existence of associations between the perceptions of actual and preferred tertiary Science learning environment and the attitudes towards Science among primary and secondary school pre-service Science teachers, as evident in this study.

CONCLUSION

The results of this study have indicated that CUCEI and TOSRA are valid and reliable instruments to gain a better picture of the Science learning environment at tertiary level, the perceived learning needs, and pre-service Science teachers' attitudes towards Science. Data analyses in the present and past studies have revealed relationships between the Science classroom learning environment and the attitudinal and achievement outcomes of students. However, it cannot be concluded in absolute terms that the nature of the environment has caused the observed student attitudinal or student achievement outcomes. In order for such a conclusion to be reached, classroom intervention studies would have to be conducted. Such studies will add meaning to the currently reported association.

IMPLICATIONS OF THE STUDY

Measuring learning environment with an appropriate tool will help lecturers

to examine their Science classes and continuously improve to a productive Science learning environment. It will be an advantage for lecturers to use this instrument in finding out the nature of their Science classrooms. Such information can then be used with other source of data to be aware of the changing needs of the Science classroom environment. It also provided support to the fact that lecturers need to take gender differences into consideration when planning and designing the Science curriculum for pre-service Science teachers at tertiary level.

Recent research on classroom environment has also indicated positive associations between the nature of the class environment and students' attitudinal and achievement outcomes (Fraser & O'Brien, 1985; McRobbie & Fraser, 1993; Goh *et al.,* 1995; Wong & Fraser, 1997). Hence, lecturers should not neglect pre-service Science teachers' attitude while pursuing academic excellence. They should make conscious efforts in planning and improving Science lessons in order to improve pre-service Science teachers' attitude to Science. The differences between the actual and preferred perceptions of pre-service Science teachers signal a need to look into the possible areas where tertiary Science learning environment can be improved.

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An Instrumental Analysis of English Monophthongs Produced by Thai EFL Learners

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ABSTRACT

This study examined the production of English monophthong vowels of native speakers of Thai. The results of the acoustic analysis of Thai English (ThaiE) monophthongs suggest the influence of Thai on ThaiE in the maintenance of length contrast between vowel pairs. The results also indicate transference of Thai vowel quality to comparable English vowels /i:/, /e/, /u:/, / ɔ:/ and /æ/. One of the effects of this influence is the maintenance of the vowel contrast between /e/ and /æ/ in ThaiE. These findings lend some support to Flege's (1995) Speech Learning Model which posits that second language sounds which have phonetic similarity to those in the first language will tend to be merged. The findings contribute empirical evidence to and complement existing research on Thai English pronunciation.

Keywords: EFL, Thai English, vowel contrast, vowel quality, vowel duration

INTRODUCTION

Research into the characteristics of English pronunciation of native speakers of Thai can provide insights into the success of English language teaching in Thailand, where it is taught as a foreign language from Grade One in primary school to Grade 12 in secondary school (Tsukada, 2008). Within this context, this study investigated the acoustic properties of English monophthong vowels produced by native speakers of Thai focusing in particular on the extent to which vowel distinctions are maintained, and also the extent of first language (L1) influence. In addition, since previous instrumental studies on Thai English (ThaiE) have been based on speakers who are currently living outside Thailand with varying exposures to L1 environments (e.g. Tsukada, 2008, 2009; Sarmah *et al.*, 2009), this study sought to investigate the pronunciation of a group of native speakers of Thai who have been learning English as a foreign language (EFL) in Thailand, and those who were

residing in Thailand when the data were collected.

REVIEW OF RELATED STUDIES

ThaiE Vowels

The production of English vowels by native speakers of Thai has been previously described. For example Smyth (1987, p. 254), refers to the tendency of Thai speakers to pronounce English /æ/ as a long vowel, while diphthongs like /eɪ/, /əʊ/ and /eə/ are likely to be produced as long monophthongs, that is as /eː/, /oː/ and /æː/. Recent acoustic analyses on the production of English vowels by Thai speakers have confirmed this tendency to produce some diphthongs as monophthongs. Tsukada (2008), for instance, examined four English monophthongs and two diphthongs produced by 15 native speakers of Thai who had been living in Australia for an average of 3.2 years, and compared them to those produced by native Australian English speakers. Tsukada (ibid., p. 201) found that her Thai subjects produced the /ɪ/, /æ/, /ʊ/ and /ʌ/ vowels similar to the Australian speakers in terms of the vowel quality although there are no equivalent Thai vowels. Despite the fact that all her subjects had been living in Australia at the time of the recordings, Tsukada (ibid.) felt that they still retained the typical features of ThaiE pronunciation, citing the low success rate of acquiring native-like pronunciation among adult learners. Given the fact that the majority of the subjects were young adults in their 20s and were mostly university students, however, it is rather surprising that

their English pronunciation is assumed to be unaffected by the exposure to Australian English.

Unlike Standard Southern British English which has 12 monophthong vowels (Roach, 2009), Standard Thai has 18 monophthongs (see Table 1). Thai vowels can occur phonemically as short or long vowels (Charunrochana, 2007; Nathong, 2003; Sarmah *et al.*, 2009). This differs from English, where there is also quality contrast apart from the length distinction between vowel pairs, such as /ɪ/-/iː/, /ʌ/-/ɑː/, /ʊ/-/uː/ and /ɒ/-/ɔː/ (Wells, 1962). Most diphthongs in Thai also contrast for length, except for /ɪa/, /ɯa/ and /ua/ (Sarmah *et al.*, 2009; Tsukada, 2008).

TABLE 1
Thai monophthong vowels

	Front unrounded		Central unrounded		Back rounded	
Close	i	iː	ɯ	ɯː	u	uː
Mid	e	eː	ɤ	ɤː	o	oː
Open	æ	æː	a	aː	ɔ	ɔː

Source: Roengpitya (2001, as cited in Sarmah *et al.*, 2009, p. 201)

As noted by Sarmah *et al.* (2009), the symbol /ɛ/ is used in some of the literature for the open front vowel (e.g. Tingsabadh & Abramson, 1999; Wayland, 1997).

The large difference in duration between the short and long vowel pairs in Thai may account for Thai speakers producing shorter English vowels as compared to Australian English speakers (Tsukada, 2008). On the other hand, the two diphthongs Tsukada (2008) examined, /eɪ/ and /oʊ/, were generally produced longer by the

Thai speakers. Tsukada (ibid., p. 206) posits that "Thai speakers equate English monophthongs and diphthongs with short and long Thai vowels, respectively, and have exaggerated a durational difference between the two classes of English vowels". In other words, the diphthongs were being treated as long vowels.

Further, Tsukada (2009), in an experiment with /i/ and /ɪ/, also found that the Thai respondents, who had been living in Australia for periods ranging from 3 months to 30 years, tended to produce a shorter /ɪ/ compared to Australian speakers, but produced a longer /i/ resulting in a bigger mean difference between the duration of these two vowels. This is similar to Sarmah *et al*. (2009) who not only found a lack of quality contrast between English /iː/ and /ɪ/ produced by their Thai subjects, but also /ɪ/ and /ʊ/ being produced much shorter than /iː/ and /uː/, which was similar to the corresponding Thai vowels. Their results lend some support to Tsukada's (2009) suggestion that Thai speakers transfer phonemic length contrast in Thai to their production of English vowel pairs.

In relation to vowel quality, Sarmah *et al*. (2009) found differences between the vowels produced by their Thai subjects and American and British English in terms of vowel contrasts and the placement of the vowels in the vowel space. Not surprisingly, the findings revealed that the Thai subjects with less exposure to an L1 environment (less than for months in an English speaking country) merged the /iː/ and /ɪ/ vowels. On the other hand, this vowel pair was contrasted amongst those with more exposure (lived in America for more than 18 months). In comparison, the low and back vowels tended to show more contrast for both groups of subjects.

The subjects in Sarmah *et al*. (2009) with less L1 exposure produced the front vowels similar to comparable Thai vowels, which may be attributed to L1 influence. For both groups, however, the quality [as measured by the first (F1) and second (F2) formant values] of the back vowels differed from British and American English. In varieties, such as Brunei, Malaysian and Singapore English, the vowels also tend to occupy a more compact vowel space with many of the vowel pairs being merged, resulting in a smaller vowel set (Pillai *et al*., 2010b). This is unlike Tsukada (2008) who found that her Thai subjects produced /ɪ/, /æ/, /ʊ/ and /ʌ/ similar in quality to the Australian speakers in her study.

The findings from Tsukada (2008; 2009) and Sarmah *et al*. (2009) show that the presence of the phonemic vowel contrast in Thai is likely to have resulted in the Thai respondents producing length contrast in their production of English vowels. However, they appeared to have exaggerated this contrast, thus making their production of vowels sound different from native speakers of English. Further, Tsukada's (2008) findings that the Thai respondents were able to produce English vowels that were absent in the Thai vowel inventory lend support to Flege's (1995) Speech Learning Model (SLM).

Speech Learning Model

In this model, it is theorised that the acquisition of second language (L2) sounds is dependent on the level of perceived similarity between phonemes in L1 and L2, with phonemes having a higher level of dissimilarity being easier to acquire than those which are similar. The rationale for this model is that when a different phoneme is encountered in L2, the differences are noticed or perceived and following this, learners are able to create a new category for the particular phoneme (Flege, 1995). On the contrary, L2 sounds; for example, the vowels with phonetic similarity to L1 vowels will be merged with existing L1 categories and therefore, it can be expected that these vowels will be produced less native-like (Flege *et al*., 1999).

There is a problem, however, with SLM in relation to the identification of perceived similarity between sounds. Perhaps because of this, studies have found contrary evidence on the relationship between perceived similarity and the level of difficulty of learning L2 sounds. For instance, Iverson and Evans (2007) in their study on the acquisition of English vowels by different L1 groups (French, Spanish, German and Norwegian) found that the Spanish and Norwegian speakers did not show evidence of having learnt English /əʊ/, which is more dissimilar to the equivalent vowel in their L1s, while the German speakers were able to learn /aɪ/, which has a higher assimilation rating. Iverson and Evans (2007, p. 2842) concluded that speakers from different L1s "learned new aspects of the English vowel system rather than simply assimilating vowels into existing first language categories". They also found that speakers with a larger L1 vowel system (e.g. Norwegian) are more accurate at recognizing English vowels than those with a smaller one (e.g. Spanish).

Pillai *et al*. (2010b, p. 170) also found that Malaysian speakers of different ethnic groups "acquired English vowels with new qualities, namely, qualities that do not match vowels in Malay, Chinese or Tamil; the main L1s for the group". For example, evidence of length contrast between vowel pairs was discovered, and this a contrast which is not present in Chinese.

THE PRESENT STUDY

Acoustic analysis of ThaiE vowels is an emerging area of research, but previous studies tended to be based on speakers who were living outside Thailand in native English environments. In contrast, this paper focuses on speakers who are presently residing in Thailand and have been studying English in Thai schools, with the aim of capturing the production of vowels by Thai speakers who have not been influenced by a native speaker environment as may have been the case in the previous studies. More specifically, the current study aimed to examine the acoustic properties of English monophthong vowels produced by Thai speakers to investigate if vowel contrast is maintained and to ascertain the extent of L1 influence.

MATERIALS AND METHODS

Subjects

The subjects comprised 15 Grade 12 students (pre-university level) from a high school in Narathiwat in southern Thailand. The subjects were between 18 and 19 years old at the time of the study, and comprised only females to keep the gender variable constant. The subjects were chosen based on several criteria: they were native speakers of Thai with no exposure to a native English environment; they had learnt English in Thailand from native speakers of Thai; they were at the pre-university level to ensure that they had learnt English for at least 10-11 years; they had no speech impediments. The selection of the subjects was based on specific criteria which were aimed at answering particular research questions and the small number of subjects (e.g. 10-20) is common in phonetic research (see Harrington, 2010). None of the subjects had been abroad and all of them had been taught English by teachers who were native speakers of Thai throughout the 11 years that they had been studying English as a subject. Since the subjects' exposure to English is limited to the classroom context, it can be safely assumed that the results in this study are not be affected by direct exposure to native varieties of English which may have been the case in Sarmah *et al.* (2009) and Tsukada (2008; 2009).

In order to enable a comparison of the Thai vowels with the English ones produced by the subjects, recordings of Thai speech by five of the Thai female subjects were also carried out. Following Sarmah *et al*. (2009),

it was felt that the speakers' regional Thai dialect would not drastically affect their production of vowels in Standard Thai, especially since they all used Standard Thai in school.

Data

Five of the Thai subjects were recorded reading a word list containing nine short and nine long Thai vowels which were placed in a carrier sentence /karuna ʔɔːksɪaŋ ... ʔiːkkraŋ/ (*Please say ... again*). The English data were collected by recording the subjects in two speaking contexts, a Word List Context (WLC) and an Informal Speaking Context (ISC).

For WLC, the target vowels for monophthongs were embedded in bVd words. The target words were put in a carrier sentence, *Say bVd again*, to obtain a more naturalistic production. The subjects were asked to read the sentences with the following words: *bead*, *bid*, *bed*, *bad*, *body*, *board*, *booed*, *Buddha*, *bird*, *bud*, and *bard*, which were taken from Ladefoged's list of words with English vowels (2005, p. 27). The choice of these bVd words to elicit monophthong vowels ensured a constant phonetic environment and made it easier to determine the vowel portion on the spectrogram. The words are all 'real' words that were familiar to the subjects. We do note that the word *Buddha* is the only two-syllable word in the list, but decided to use it as the target vowel appears on the stressed syllable. A survey of the recent literature on an acoustic analysis of English vowels has shown that researchers use a range of CVC

contexts. Sarmah *et al*. (2009), for example, used a combination of hVt, hVd and other CVC words, whilst Tsukada (2008) had words ending with voiceless stops. In the absence of a standard word list and to avoid the use of non-words, we decided to use a bVd context. The use of the voiced stops also minimised co-articulatory effects on the vowels.

The subjects were presented with the sentences in random order and they were asked to read the list twice. In each case, the first and last sentence contained words that were not used in the analysis and acted as fillers to counter for "beginning- and end-of lists effects" in reading (Hawkins & Midgley, 2005, p. 108). This yielded 22 tokens of vowels per subject giving a total of 330 tokens for the analysis.

Informal conversational speech was collected by recording the subjects talking about their future plans for approximately five minutes each. Informal speech was used to supplement the word list because read speech can yield different results due to a more careful pronunciation of words. Although the use of informal speech has the advantage of capturing target sounds being used in a more naturalistic and realistic context, there is obviously no control over the actual production and the number of occurrences of the target sounds. The number of usable data may also be reduced due to the unsuitable phonetic environment of the target sounds. This is because the vowels after approximants and before /ŋ/ and /l/ are generally avoided because of the "severe co-articulatory effects on the

formants of the … vowels" (Deterding, 2003, p. 4).

The choice of the target vowels is also usually limited to the vowels in stressed syllables and content words (e.g. Harrington, 2006; Jacobi *et al*., 2006). Since only vowels that occurred in the stressed syllables and in content words without neighbouring approximants and nasals were extracted for analysis, this resulted in less than ten tokens for /ɑː/ and /ɔː/ (see Table 2), and hence, the results relating to these vowels need to be treated with caution.

The number of tokens that were extracted from the informal speech cannot be directly compared to the frequency of occurrences of English vowels (e.g. Cruttenden, 1994; Knowles, 1987) because as Knowles (ibid.) points out, the frequency distributions of phonemes will vary according to the different varieties of English and the types of text from which the frequencies are obtained. Further, not all the vowels that occurred in the informal speech of the subjects in this study were used for the analysis based on the criteria mentioned earlier.

Thus, whilst the vowel /ɜː/ is reported as the least frequently occurring monophthong in English in Cruttenden (1994, p. 137), this particular vowel was the second highest frequently occurring vowel extracted from the data. This could be explained by the high frequency of occurrence for the word *university* (32 occurrences) in the data due to the topic of conversation for data elicitation, where all the respondents had talked about their plans to further their education after completing their secondary

school education. The frequency of tokens for each of the monophthong vowels extracted in the ISC is shown in Table 2.

TABLE 2
Frequency of the vowels extracted from the informal speech context

Vowels	Frequency
iː	40
ɪ	70
e	58
æ	45
ʌ	57
ɑː	7
ɒ	39
ɔː	3
ʊ	26
uː	14
ɜː	54

Instruments

All the subjects were recorded in a quiet room in the school using a Marantz PMD661 Professional Solid State Recorder and an Audio Technica ATM73a cardioid condenser head worn microphone at a sampling rate of 44.1 kHz at a 16-bit rate.

Transcription and annotation

The data were transcribed and annotated using Praat Version 5.1.03 (Boersma & Weenink, 2009). In the first pass, the data were orthographically transcribed using the TextGrid function of Praat. Then, the target vowels were isolated and measured. For the WLC, PraatScripts were used to automatize the segmentation of the target words and to insert orthographic transcriptions of the words used. However, for the ISC, the transcription was done manually and the vowels to be measured were identified. The vowels were selected if they occurred in the stressed syllables of content words avoiding vowels that preceded and followed approximants and nasals as there are likely to be co-articulatory effects on the vowel quality. All the measurements were annotated in the subsequent tiers in TextGrids.

Data analysis

Visual inspection of the waveforms and spectrograms together with auditory examination of the data were used to determine and measure the F1 and F2, and the duration of the vowels in the target words in both the WLC and the ISC. The F1 and F2 frequencies were measured using the automatic linear predictive coding (LPC) tracker overlaid on a wide-band spectrogram in Praat. The measurements were made approximately at the midpoint of the vowel where the vowel is at its most steady state (see Harrington, 2010, p. 172).

For vowel length, the duration of the vowel was measured (in milliseconds) from the onset and offset of the vowel. For the bVd context, the onset of the vowel was preceded by the release of the initial stop consonant, while the vowel offset was preceded by the absence of the acoustic signal for the following stop consonant, *d*. The average durations of the vowel pairs in the WLC and the ISC were compared.

Once the measurements were taken and checked for accuracy, the average F1 and F2

values for the monophthongs were converted from Hertz into Bark scale (Zwicker & Terhardt, 1980) to enable the vowels to be plotted on a F1 vs. F2 vowel chart, with two separate charts being generated for the WLC and ISC. The average formant values and vowel durations were calculated separately for the WLC and ISC. In order to examine the extent to which the vowel pairs are contrasted, scatter plots of the vowel pairs were generated to determine the distribution of the vowels. In addition, comparisons were also made with the characteristics of Thai vowels to determine the extent of L1 influence. Wherever relevant, reference was made to the findings from other Southeast Asian varieties of English, with the aim of highlighting similar patterns of vowel production (see Sarmah *et al*., 2009).

RESULTS AND DISCUSSION

The average measurements for F1 and F2 or the monophthong vowels in the WLC and ISC are shown in Tables 3 and 4.

TABLE 3
The average values for F1 and F2 for the WLC

Vowels	F1 (Hz)	F2 (Hz)	F1 (Bark)	F2 (Bark)
iː	438	2615	4.19	14.78
ɪ	459	2712	4.38	15.00
e	571	2400	5.34	14.26
æ	715	1766	6.50	12.29
ʌ	803	1612	7.16	11.68
ɑː	865	1609	7.61	11.67
ɒ	683	1301	6.25	10.24
ɔː	736	1112	6.66	9.20
ʊ	447	1342	4.27	10.45

Table 3 (*continued*)

uː	433	1000	4.14	8.51
ɜː	613	1835	5.69	12.54
Average	615	1755	5.65	11.88

TABLE 4
The average values for F1 and F2 for the ISC

Vowels	F1 (Hz)	F2 (Hz)	F1 (Bark)	F2 (Bark)
iː	414	2570	3.97	14.68
ɪ	469	2538	4.46	14.60
e	614	2340	5.70	14.10
æ	809	1985	7.21	13.06
ʌ	809	1692	7.21	12.01
ɑː	896	1677	7.82	11.95
ɒ	746	1357	6.74	10.53
ɔː	605	1145	5.62	9.39
ʊ	493	1265	4.67	10.05
uː	452	1333	4.32	10.40
ɜː	610	1767	5.66	12.30
Average	629	1788	5.76	12.10

Vowel quality

Fig.1 shows the vowel chart for ThaiE vowels produced in the WLC, while Fig.2 depicts the ThaiE vowels produced in the ISC. In both the speaking contexts, the mid-central vowel is produced similarly. In terms of the vowel contrast, the vowel charts show that the contrast between /iː/-/ɪ/ and /ʌ/-/ɑː/ is not great in both these contexts. On the other hand, /e/-/æ/ and /ɒ/-/ɔː/ are contrasted in both the WLC and ISC. In the WLC, /ʊ/-/uː/ are also contrasted with the former being produced further back than in the ISC. The more apparent contrast between the vowel pairs in the WLC suggests that the subjects may have been more careful with maintaining the vowel contrast in this context which is to be expected in more careful speech.
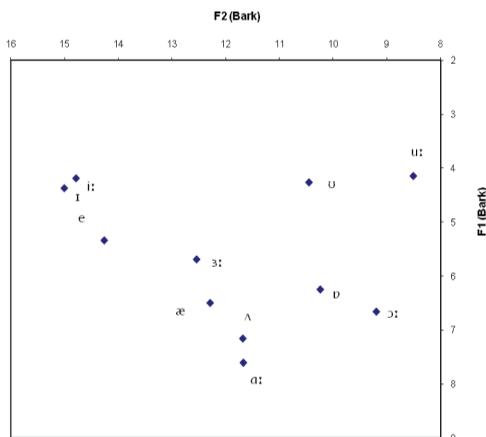
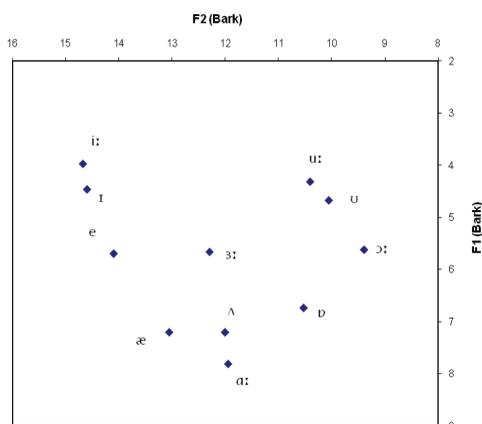Fig.1: The vowel chart for Thai English vowels in the WLC

Fig.2: The vowel chart for Thai English vowels in the ISC

To obtain a clearer picture of the extent of the vowel contrast between the vowel pairs in ThaiE, the distribution of the vowels produced by the subjects in both speaking contexts is shown in the scatter plot diagrams (see Fig.3 to Fig.7). The scatter plots in Fig.3 show the overlapping tendencies of /iː/ and /ɪ/ in both speaking contexts. Consistently, no significant

differences were found between the average F1 and F2 for these two vowels in the WLC [$t(29)$=2.26, p=0.02; $t(29)$=0.84, p=0.20]. However, an independent sample t-test shows a significant difference between F1 in ISC ($t(108)$= 3.87, p<0.0001; $t(108)$=0.53, p=0.299), indicating that /iː/ (M= 414 Hz) is produced higher in the vowel space than /ɪ/ (M=469Hz). This tendency to merge /iː/ and /ɪ/ has also been reported in neighbouring varieties of English (Deterding, 2003; Salbrina Haji Sharbawi, 2006; Pillai *et al.*, 2010a; Pillai *et al.*, 2010b).

Similarly for /ʌ/ and /ɑː/, there is an overlap between the two vowels in both speaking contexts (see Fig.4). There is no significant difference in the average F1 and F2 between both these vowels in the WLC [$t(29)$=3.18, p=0.002; $t(29)$=0.03, p=0.49]. The difference in the average F1 and F2 for the ISC for these vowels were not tested statistically as there were only 7 tokens of /ɑː/ in this context, but the merging of the two vowels can be observed in the scatter plot in Fig.4. The lack of contrast between these vowels is also common in other Southeast Asian varieties such as Malaysian English (Pillai *et al.*, 2010b) and Singapore English (Deterding, 2003).

The scatter plots in Fig.5 show that there is an overlap between /ʊ/ and /ɔː/ in the WLC. The small number of tokens for /ɔː/ means that no conclusions can be made about these vowels in the ISC. There is a significant difference in F2, but there is no significant difference in the F1 of these vowels in the WLC (F1: $t(29)$=3.27, p=0.001; F2: $t(29)$=4.78, p<0.0001).
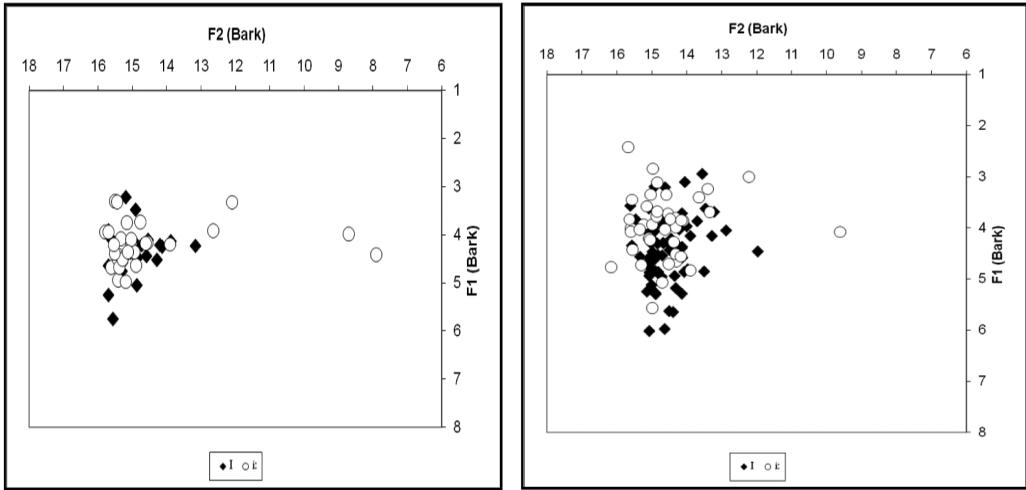
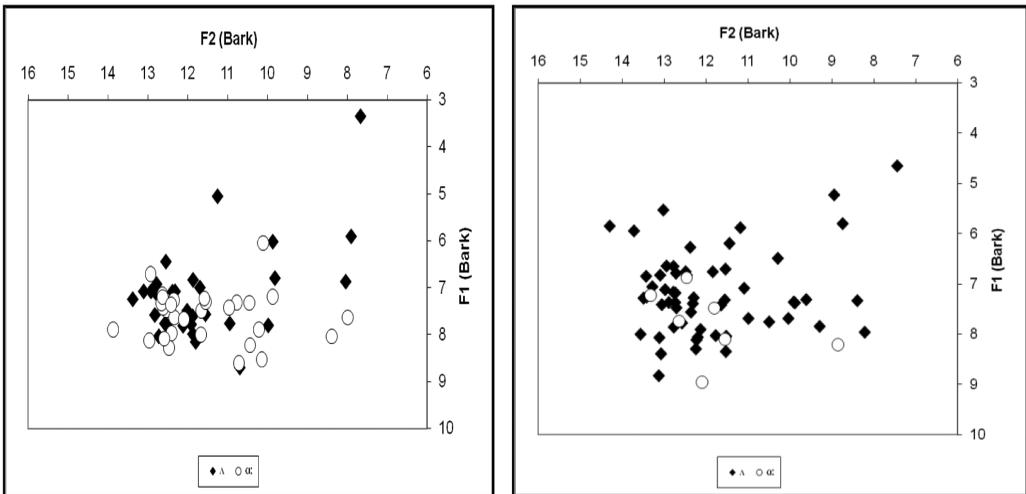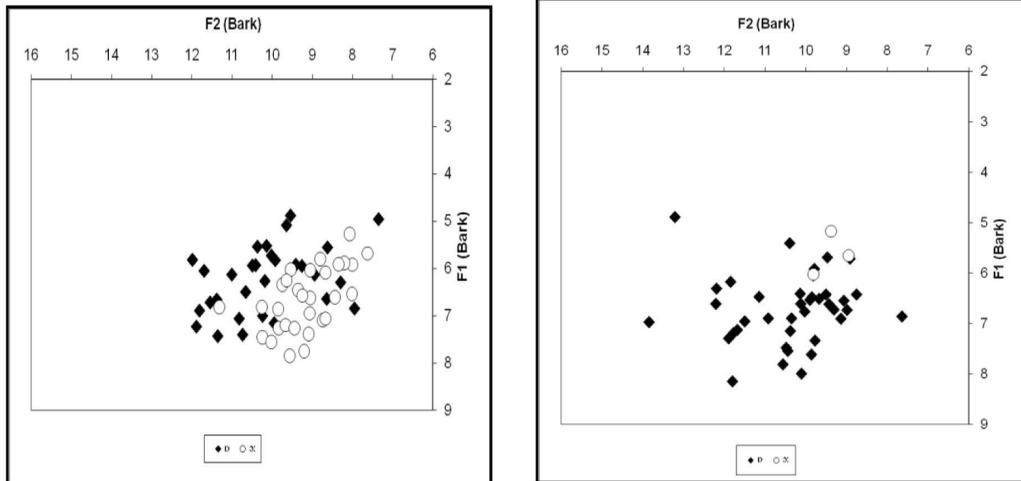Fig.3: The distributions of /ɪ/-/iː/ in the WLC (top) and ISC (bottom)

Fig.4: The distribution of /ʌ/-/ɑː/ in the WLC (top) and ISC (bottom)

Fig.6 shows the scatter plots for /ʊ/ and /uː/. Similarly for /ɒ/ and /ɔː/, a significant difference is only found between the average F2 for /ʊ/ and /uː/ in the WLC [F1: $t(29)=2.77$, $p=0.004$; F2: $t(29)=6.69$, $p<0.0001$]. Meanwhile, no t-test was carried out for the ISC due to the small number of samples for both vowels in this speaking context. Nevertheless, the scatter plot for ISC shows more overlap between the vowels in this speaking context compared to the WLC (see Fig.6). In other Southeast Asian Englishes, there tends to be more contrast between this vowel pair compared to other vowel pairs (e.g. Philippine, Malaysian and Singapore English).

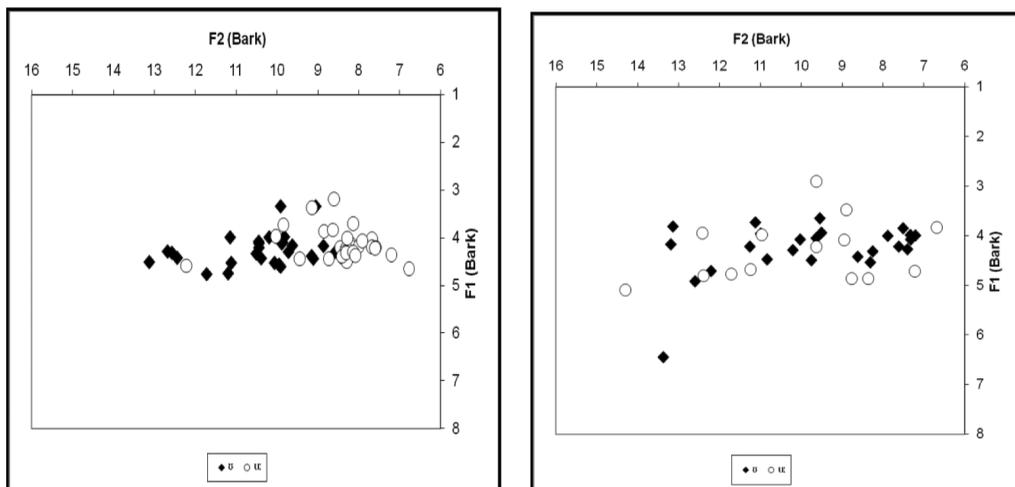Fig.5: The distribution of /ɒ/-/ɔː/ in the WLC (top) and ISC (bottom)

Fig.6: The distribution of /ʊ/-/uː/ in the WLC (top) and ISC (bottom)

Fig.7 shows the scatter plots for the vowels /e/-/æ/ in the WLC and ISC, where it can be seen that these vowels are contrasted. In fact, in both the speaking contexts, there is a significant difference between the average F1 and F2 of /e/-/æ/: WLC [$t(29)=5.26$, $p<0.0001$; $t(29)=5.4$, $p<0.0001$); ISC($t(101)=9.87$, $p<0.0001$;

$t(101)=6.62$, $p<0.0001$]. These findings support the results reported by Sarmah *et al*. (2009). The contrast between /e/-/æ/ is one of the features that distinguish ThaiE from the neighbouring varieties of English, where these vowels tend to be merged (e.g. Deterding, 2003; Salbrina Haji Sharbawi, 2006; Pillai *et al*., 2010b).
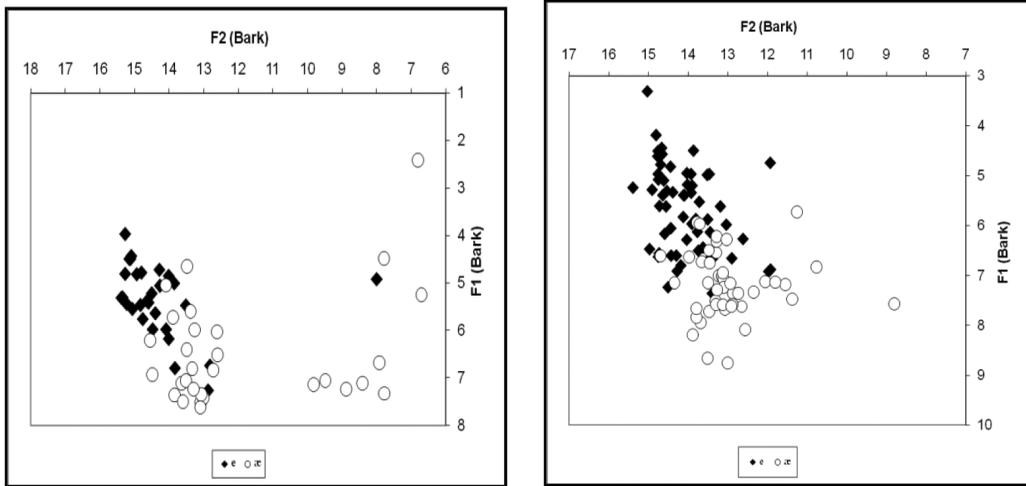
Fig.7: The distribution of /e/-/æ/ in the WLC (top) and ISC (bottom)

Vowel Duration

English monophthong vowels contrast in terms of vowel quality and also display length contrast (Wells, 1962). The ThaiE vowels produced in both speaking contexts were measured to determine if the length between the vowel pairs /ɪ/-/iː/, /e/-/æ/, /ʌ/-/ɑː/, /ɒ/-/ɔː/ and /ʊ/-/uː/ was distinguished. Table 5 shows the average duration (in milliseconds) of each of the monophthong vowels produced by the subjects in the WLC and ISC. There are significant differences between the average durations for all the vowel pairs ($p<0.0001$) in the WLC. For the ISC, no t-test was carried out for /ʌ/-/ɑː/, /ɒ/-/ɔː/ and /ʊ/-/uː/ since the sample size was rather small. A statistically significant difference was found between /ɪ/ and /iː/ [$t(108)=4.98$, $p<0.0001$], but not between /e/ and /æ/: [$t(101)=3.2$, $p=0.001$] in the ISC.

The ratios between the vowel pairs (see Table 5) indicate that the durations between the vowel pairs are distinguished more in the WLC (except for /e/-/æ/), which is to be expected as speakers would tend to focus on vowel length contrast in more careful speech. In general, it appears that the length contrast between the vowel pairs is maintained by the subjects. This is different from what has been reported for other Southeast Asian varieties of English, such as Brunei and Singapore English, where length tends not to be distinguished.

Comparison with Thai vowels

In order to investigate the influence of Thai vowels on the production of ThaiE vowels, the F1 and F2 measurements of Thai vowels were taken. Table 6 presents the average measurements for F1 and F2 and the duration for the Thai monophthongs, while Fig.8 shows the vowel chart for the short and long Thai vowels. In terms of the vowel contrast, the vowel pairs in Thai are produced similar in quality, whereas length is contrasted. Thus, if there is L1 transfer

TABLE 5
Vowel duration in Thai English

Vowels	WLC duration (msec)	Ratio between Vowel Pairs	ISC duration (msec)	Ratio between Vowel Pairs
ɪ	121	.61	82	.68
iː	197		120	
e	170	.83	102	.77
æ	206		132	
ʌ	152	.66	128	.79
ɑː	230		163	
ɒ	123	.54	115	.69
ɔː	226		167	
ʊ	72	.36	133	.94
uː	200		141	
ɜː	213		119	

TABLE 6
The average values for Thai vowels

Vowels	F1 (Hz)	F2 (Hz)	F1 (Bark)	F2 (Bark)	Duration (msec)	Ratio between Vowel Pairs
i	413	2825	3.97	15.25	139	0.74
iː	407	2961	3.91	15.53	187	
e	567	2500	5.31	14.51	112	0.50
eː	532	2722	5.01	15.03	226	
æ	740	2262	6.69	13.89	127	0.51
æː	781	2576	7.00	14.69	251	
ɯ	431	1767	4.13	12.29	78	0.40
ɯː	495	1783	4.69	12.35	195	
a	897	1691	7.83	12.00	117	0.39
aː	976	1798	8.36	12.41	300	
u	411	853	3.94	7.52	73	0.48
uː	368	767	3.55	6.90	152	
o	556	954	5.21	8.21	137	0.64
oː	499	900	4.73	7.85	215	
ɔ	680	1056	6.23	8.86	151	0.68
ɔː	658	1063	6.05	8.90	221	
ɤ	623	1586	5.77	11.57	133	0.37
ɤː	557	1725	5.23	12.14	360	
Average	588	1766	5.42	11.66		

from Thai, we can anticipate that the Thai speakers will be more likely to contrast vowel length rather than vowel quality when they produce English vowels. Based on the comparison of the formant and durational values between Thai and ThaiE, this appears to be the case. Length contrast is evident between the vowel pairs in ThaiE, but there is a lack of quality contrast between /ɪ/-/iː/ and /ʌ/-/ɑː/ and to a certain extent between the back vowels.

Based on Sarmah *et al*. (2009) and Tsukada (2008), we can assume that both Thai and English share the following vowels: /iː/, /e/, /uː/, /ɔː/ and /æ/ [although Tsukada (2008) says that /æ/ is not present in Thai]. A comparison of the five Thai and English vowels in Fig.9 and Fig.10 indicate that the vowels have comparable F1 and F2 values, suggesting that they were produced quite similarly. Based on the F1 values of

the front vowels, we concur with Sarmah *et al*. (2009) that Thai speakers produce these English vowels similar to the comparable vowels in Thai.

CONCLUSION

The results of the acoustic analysis of the ThaiE monophthong points towards the influence of Thai on ThaiE in the maintenance of length contrast between the vowel pairs. The results also suggest a possible transference of Thai vowel quality in comparable English vowels /iː/, /e/, /uː/, /ɔː/ and /æ/, with one of the effects of this influence being the maintenance of the vowel contrast between /e/ and /æ/ in ThaiE. The similarly produced shared vowels (in terms of vowel quality) and the maintenance of the length contrast lend some support to Flege's (1995) SLM which advocates that

Fig.8: Thai monophthong vowels

Fig.9: The average F1 values of similar ThaiE and Thai vowels
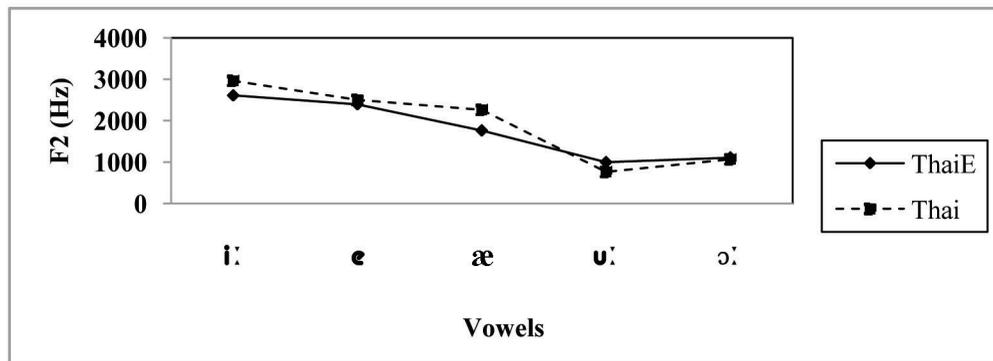
Fig.10: The average F2 values of similar ThaiE and Thai vowels

similar categories of L1 and L2 sounds will be merged. However, further research needs to be carried out to determine whether such a merger results in native-like sounds or whether speakers were producing equivalent vowels closer to their L1 vowel quality (see Flege *et al.*, 1999). Further investigation is also needed to examine whether dissimilar vowels, such as English /ʌ/ and /ɑː/, were being produced more native-like by the speakers, since theoretically they should 'notice' the differences to, for example, Thai /a/ and /aː/.

Although the current findings, being confined to a specific group of speakers, are in no way exhaustive, they do contribute empirical evidence to and complement existing research on Thai English pronunciation. Further research is required to include other aspects of English pronunciation by Thai EFL learners and to provide a more exhaustive description of their pronunciation features.

ACKNOWLEDGMENTS

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Interactions with Feedback: A Case Study of Protocol Analysis

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ABSTRACT

This paper reports on the crucial role that written feedback has in the development of students' writing skills. Using the think-aloud method, I investigated how a student writer interacted with the feedback comments when she revised her paper. As the think-aloud method offers direct access to the thought processes of an individual, the participant, thinking aloud while responding to feedback is engaged in a process that is essentially social. This contributes to her cognitive changes via interactions with the feedback giver through written commentaries. The findings highlight two aspects of the writer's interactions with feedback. First, feedback is viewed as a social activity, and secondly, as a form of dialogic activity that promotes interaction between the writer and the reader (feedback giver). The implication is that interactions with written feedback enabled the writer to externalize her thoughts as she internalized the meaning of feedback by means of thinking aloud that leads to the development of her writing skills.

Keywords: Interactions, social and dialogical activities, think-aloud protocols, thought processes, and written feedback

INTRODUCTION

Giving feedback on students' writing is a key feature in the process of feedback (Nicol, 2010) as it can enhance students' writing development through meaningful interactions. Mutch (2003) defines feedback as a key element in "the development and enhancement of learning" (p. 36). Feedback is also hailed as the "cornerstone of all learning" (Orrell, 2006, p. 441) and as a "key characteristic of quality teaching" (Carless, 2006, p. 219). It is thus, a means by which writers can evaluate their own progression in writing towards achieving their goals. Besides helping writers to repair errors, feedback also helps them to write (Flower & Hayes, 1981) and enables them to understand their progress (Ryan, 1997). In this way, feedback is an interaction

platform where writers could interact with feedback givers who support and encourage writers to achieve their writing goals (Grape & Kaplan, 1996). This interaction enables writers to view how others respond to their writing.

RELATED LITERATURE

Responding to feedback has been widely researched. However, though some studies have questioned the effectiveness of written feedback on students' drafts (see Hillocks, 1982; Sommers, 1982; Truscott, 1996), others have noted the positive effects of written feedback on students' papers (for example, Ferris, 1995, 1997; Goldstein, 2005; Hedgcock & Lefkowitz, 1994; Hyland, 1990; Kepner, 1991; Leki, 1991). Research suggests that feedback is beneficial to writers as it can aid writers to write and act as a tool to draw their attention to form and meaning (Ferris, 2003; Hyland & Hyland, 2006). Revision is an integral part in the writing process "with multiple factors interacting and mediating each other, through a cyclical process within which these multiple student texts and teacher commentary texts are created" (Goldstein, 2005, p. 24), which could determine how students respond to teachers' written commentaries and use them in their revisions.

In order to get an understanding of writers' interactions with feedback and their feedback provider, we need to look at writers' thought processes via the think-aloud method (TAM). Literature abounds with data from studies done on L2 writers'

revision and composing processes derived from think-aloud protocols (Cumming, 1990; Raimes, 1985; Roca de Larios *et al.,* 2006; Roca de Larios *et al.,* 2008) and how feedback is perceived by students by looking at cognitive processes (Cohen, 1987; Cohen & Cavalcanti, 1990). However, these studies have overlooked the actual thought processes of student writers as they attend to teacher's feedback and how students interact with their feedback providers and respond to teachers' written commentaries in their revisions.

Despite the wide use of verbal protocols in the areas of cognitive processing research during the last two decades, there have been concerns that thinking aloud may concurrently lead to the issue of reactivity, that is, the actual cognitive processes may be changed as a result of verbalizing rather than giving an accurate reflection of thoughts. To a certain extent, these concerns have been refuted by empirical studies (Bowles, 2008; Bowles & Leow, 2005; Leow & Morgan, 2004) that explored the issue of reactivity that could have risen in the concurrent think-aloud. However, the results of the three studies contradict with two others carried out by Sachs and Polio (2007) and Sanz *et al.* (2009). Hence, with only five empirical studies (two of them identifying evidence of reactivity), further research apparently needs to be undertaken to validate the presence and significance of reactivity in verbalizations since it is still the primary means of examining the cognitive processes which otherwise could only be investigated indirectly.

It is important to underline that rather than assuming that the TAM offers direct access to cognitive processes of the individual, this study is open to the possibility that while thinking aloud reactivity may have set in, it might have a positive effect. By thinking aloud while responding to feedback, the writers may be engaged in a process that is essentially social, which may contributes to cognitive change – that is interacting with the feedback giver through teacher's written commentaries and not just focusing on the task at hand, which is just attending to written feedback.

THE STUDY

This study was carried out to understand the thought processes that a writer goes through when she/he engages with written feedback and the feedback provider. These thought processes were captured by using the TAM, where a writer's verbalizations (verbal protocols) are recorded as he/she is dealing with the feedback that is given on the written text. Data collected by means of the verbal protocols "probably provides the most direct insights into learner thought processes" (Wigglesworth, 2005, p. 99), giving direct access to the mental processes of the writer (Scardamalia & Bereiter, 1986). In this study, the main method of collecting think-aloud protocols is the concurrent method, where a writer simultaneously thinks aloud while attending to the feedback given.

Past studies have not explored the implications of student writers' interactions with teacher's written comments or their feedback providers. This study, thus, attempts to answer the following research questions:

1. How does a student writer interact with teacher's written feedback?

2. How does interaction affect revision/quality of writing?

METHODOLOGY

Setting

The case study reported here is part of a larger study that investigated the thought processes of eight writers when they engaged with written teacher feedback. The participants were all ESL postgraduate students of a writing class at a Malaysian public university. Ethical procedures were complied with and written consents were obtained from the participants. Data collected from the participants were in the form of concurrent verbal protocols, written essays and teacher written comments.

The Case in this Study

The case study reported here is Kelly (pseudonym). She is a native speaker of Chinese and English is her second language. She was enrolled in the MA programme majoring in English for Specific Purposes and considers herself to be fluent in English. She was selected for the study from a group of twenty-seven volunteers because of her proficiency in the English language and the rich verbalizations that she was able to provide for the research.

Training Sessions

Two training sessions on thinking aloud were held prior to the research. This was to enable the eight participants to familiarize themselves with thinking aloud, while executing another task at the same time. This allowed the participants to get comfortable with the idea of hearing themselves talk aloud, which was different from their usual mode of attending to teacher feedback. At the same time, the training sessions gave them the opportunity to practice verbalizing aloud while simultaneously completing sample tasks and to dissipate any anxieties the participants may have had of attending to the dual tasks of verbalizing and attending to feedback concurrently.

Data Collection

The sources of data for this study were recorded verbalizations, written texts and teacher written commentaries. Prior to data collection, the participants of the study were trained to think-aloud while performing task simultaneously. The participants were required to write an argumentative academic writing on the following writing prompt: *Success in education is influenced more by the student's life and training as a child than by the quality and effectiveness of the educational programme* (taken from Raimes, 1987). No time limit was placed on their writing and they were given the opportunity to write at their own convenience. Their completed first drafts were handed in to their lecturer for feedback. The drafts with the lecturer's written commentaries were then sealed in envelopes and handed back to the participants for revision. The participants were instructed to verbalize and record their verbalizations as soon as they opened their envelopes at a time and place suitable to them. The participants were not restricted to any time frame to complete their think-aloud. This reflects Young's (2005) observation that if the participants have demonstrated their ability to verbalize, they should be permitted to complete their task in privacy. The participants were given three weeks to revise their writing based on their teacher feedback.

Their recorded verbalizations, original and revised drafts, as well as written teacher's feedback formed the corpus of the data that were later analyzed. Each of the participants' recordings was transcribed verbatim as a word document, which was later coded for thought processes. Each of the eight participants was then given a copy of their transcription and recording of their verbalizations to check for any discrepancies. None of the participants provided any response.

RESULTS

In this section, Kelly's interactions with teacher's feedback and her feedback provider as she attended to the feedback comments on her initial drafts are discussed. Kelly had a total of thirty points of feedback comments on her initial draft. Kelly's verbalizations indicated that she accepted all the thirty points of feedback. The findings indicated that Kelly's interactions with the feedback and her feedback provider were initiated as social and dialogical activities.

Feedback as a Social Activity

One aspect of Kelly's interactions with feedback is by creating a social context in which she attempted to communicate with her feedback provider to clarify and negotiate issues that were highlighted in the teacher's written feedback.

When Kelly engaged with teacher's feedback, she attempted to communicate with her feedback giver even though she was not physically present. Her verbalizations indicated that she opened up a channel of communication with her feedback provider to enable her to understand the meaning of the feedback given on her writing. One extended example of Kelly creating a line of communication could be seen in the following extract. Her think-aloud is a means of communicating with her feedback giver.

> *Provide a link. Remind your reader about your stand. (Teacher feedback)*
>
> *Ugh, what do you mean? (Think aloud)*
>
> *Remind your reader about your stand (Teacher feedback)*
>
> *Remind my readers? That means, what you are saying is that instead of jumping straight into the subject matter, I could just like remind here or give a clue as to what comes next. Is that what you want me to do? (Think aloud)*

> *Yeah, I think that is exactly what you want me to do. (Think aloud)*
>
> *So that means, I must tell my reader what I said earlier, that school can only set a table and I should say how the previous point links to the current point (Think aloud)*
>
> *Right, will do exactly that in my next draft (Think aloud)*

Kelly's interaction with her feedback provider with this one point of feedback shows evidence of Kelly trying to communicate with her absent feedback provider on a social level. She then provided references to her original text and how she could revise it. This shows that she understood the meaning of the feedback that she implemented in her revised draft. In her first draft, Kelly concluded one of her preceding paragraphs in this way:

Thus saying that teachers are accountable for student achievement is unreasonable and begins a following paragraph by writing: *Educational institutions also cannot teach all or everything to a child.* Kelly seemed to have failed to link the two paragraphs and thus the need for teacher comments.

However, as a result of her interaction with her feedback provider, Kelly revised her writing. She concluded her preceding paragraph in this way: *...the socioeconomic status of a school had an effect on the academic achievement that was comparable to effects that are associated with the socioeconomic background of a family*. She

then began a new paragraph by linking both the paragraphs in this manner: *However, factors that contributed to these effects need to be considered…* Her revised writing shows a continuity from the previous paragraph to the subsequent paragraph through the connecting word, *however*, and the use of *these* and the repetition of the word *effects*.

In this extended example, Kelly interacted with her feedback provider by trying to communicate to understand even in the absence of her feedback giver. Hearing her own voice aloud in having a conversation with a person in absentia gave Kelly the opportunity to understand the feedback and to find solutions to the problems highlighted in the feedback.

Feedback as a Dialogical Activity

Another way in which Kelly interacted with the feedback is by engaging herself in a dialogical activity with her feedback provider. The following extract is an extended example of Kelly initiating a dialogue with her feedback provider.

> *Kelly, I agree with you. But you must substantiate these claims. Any evidence for these claims? (Teacher feedback)*
>
> *Hmmm, evidence for claims… (Teacher feedback)*
>
> *You mean like finding support or citations for what I say? (Think aloud)*

> *Okay, but like I said earlier, I find it hard to find evidence. (Think aloud)*
>
> *I know I need some references to support what I say. (Think aloud)*
>
> *All right, I will look into this matter. I will find it later. (Think-aloud)*
>
> *Yap, I will try my best. (Think aloud)*
>
> *Will definitely include references in my revision (Think aloud)*

The dialogical nature of the feedback addressed her as the writer and her abilities, and it gave an opportunity for Kelly to engage extensively with the feedback. The following extract is from Kelly's initial draft which warranted the above mentioned feedback. *… if proper guidance is provided by parents,…the child would be better adjusted in schools.*

As a result of this oral-like feedback, she had an on-going dialogue with her absent lecturer. Kelly understood that she had to substantiate whatever she says with proper references and agreed to follow up on her lecturer's feedback. The following extract is from Kelly's revised text as a result of her engagement in the dialogical activity with her lecturer. Kelly substantiated her claims and rewrote the part of the text this way:

> *Parents' positive self-perception and own experience as students also influence their child's education as they will be more comfortable to*

interact and participate with their child's education (Hill & Taylor, 2004)."

The final outcome of Kelly's conversation with her feedback provider is a thoroughly revised second draft with proper references cited in text.

DISCUSSION

The findings from this case study indicate two forms of interaction. The first is in the form of social interaction and the second is by having a dialogic engagement with her feedback provider.

Firstly, Kelly interacted with her feedback giver by socially engaging in a conversation even though in absentia. Though proponents of cognitive theory claim that interactions with another individual could be controlled or removed (Ericsson & Simon, 1993), written response is a social activity (Nystrand, 1989). Hayes (1996) believes that, as writing is increasingly being defined as a communicative act, it needs a social context. Hayes' (1996) model of writing reflects this current thinking that encompasses the task environment, which includes a social environment (the audience and other texts that a writer may encounter, as well as collaborators, such as teachers and peers) and a physical environment, which takes into account the text a writer has produced so far and the writing medium. In this case, the task environment encompasses Kelly's feedback provider and the physical environment, Kelly's writing and teacher's feedback. Thus, there is a provision in the cognitive writing model for writing to be viewed as a social interaction between the reader who is her feedback provider and the writer, in this case, Kelly, in a social context.

Smagorinsky (1998, 2001) and others working from a sociocultural perspective such as that of cultural-historical activity theory, on the other hand, suggest that verbal protocol data are not only socially contextualized, but socially constructed as well. From the socio-cultural perspective, interaction and communication promote cognitive development. In the context of writing for the audience, Kelly's feedback provider, who in turn provided feedback to which Kelly responded through a revised draft, a kind of conversation occurred. Thinking aloud contributes to this sense of communication. It is through this communicative activity that Kelly tried to understand and develop her writing when she accepted teacher feedback. In this way, feedback acted as a pedagogical as well as a social tool as Kelly engaged and interacted with feedback communicatively in the absence of her feedback provider. She tried to make sense of the feedback that was given in order to learn how to write better. It also appears to confirm the role of externalization in internalization, as Kelly voices out and interacts with the given feedback and as she attempts to understand the meaning of feedback. This happens as verbalizations become an "objective product that can be explored further by the speaker or others" (Swain, 2000, p. 102).

A second way in which Kelly interacted with her feedback giver is through dialogue.

It has been suggested that cognition and knowledge are dialogically constructed (Vygotsky, 1997) and can arise in any language learning activity (Swain *et al.,* 2002). In this study, revising texts with the guidance of teacher's feedback inevitably involved dialogical activity between the feedback giver and Kelly. What was needed for learning to occur was the presence of an expert (Vygotsky, 1986), in the form of Kelly's feedback provider to help her develop her writing by offering written comments to which Kelly responded.

The teacher's feedback, which was directly addressed to Kelly, led her to respond directly. She did this by reading aloud the written feedback as if it was a confirmation check of the feedback in a conversation. Her acknowledgement of her teacher's comments shows that communicating with her feedback giver even though he was not physically present brought about Kelly's engagement with teacher's feedback and her acceptance of it that she took into consideration when she revised. Kelly interacted with her feedback provider by responding to the written commentaries. She tried to understand the meaning of feedback, made decisions and found solutions based on the feedback, and also made changes to her writing by engaging in dialogical interaction with her absent interlocutor.

Engaging with feedback as a dialogical activity and communicative tool acts as both an environmental and a pedagogical tool (Beason, 1993) for communication on a personal level. Most of the comments given to Kelly on her first draft were informal and dialogical in nature. The feedback giver addressed Kelly personally and gave an overview of the changes that they could attempt in lieu of the content, organization and presentation. From the verbalizations, it was evident that Kelly was more inclined to 'communicate' with the feedback that was dialogical in nature. The verbal protocols and Kelly's revised draft showed that Kelly responded to feedback by engaging in dialogue sessions with her absent feedback giver, and revised substantially based on this particular type of dialogical feedback. Kelly's verbalizations seemed to be longer when she was engaged with feedback that was dialogical in nature in comparison to the feedback that was just directive or mere indications or marking of errors or underlining of phrases or sentences on her text. The following extract is an evidence of Kelly's think aloud for feedback that was not dialogical in nature.

Check your language (Teacher feedback)

Language? (Think aloud)

Hmmm, ok. (Think aloud)

Kelly, in this study, moved back and forth constantly between teacher's feedback and her text, communicating with her feedback giver as she tried to comprehend the feedback and find solutions for the issues that were highlighted in the feedback before attending to the next feedback. Thus, Kelly was able to produce a successfully revised draft by making necessary changes guided by the teacher's feedback. This observation

matches Straub's (2000) findings, and his report that students responded more positively to written feedback when it was informal and oral in nature. The thought processes of Kelly in this study indicated that she engaged actively by 'communicating' actively and negotiating with her absent feedback giver by understanding, weighing, evaluating and justifying the feedback that was given before accepting or rejecting it. This engagement in the process seems to have worked out successfully for Kelly.

The social and dialogical forms of interaction appear to be tools of communication. Revision, seen from these perspectives, allowed Kelly to focus on the 'conversation' with her feedback provider in the forms of feedback and responses that had helped her to internalize them. In order to make sense of her writing, Kelly actively attended to her writing by interacting with the written teacher's feedback and her feedback provider. She reconsidered, reformulated, and reorganized her original texts, which at a later date, brought about an improved revised text which was audience targeted. In doing this, she externalized her thoughts. Her think-aloud is an externalization of her social and dialogical interactions with the feedback and her feedback provider with the feedback enabling the essays to be treated as objects to be considered. Kelly externalized the feedback by taking on the role of her absent feedback provider by reading the feedback aloud, to which she then responded again by externalizing her responses by voicing aloud her thoughts.

Although evidence of internalization is more difficult to find as this is not a longitudinal study, the revisions may indicate that the process of internalization is underway. As the process of internalization is supported by speech (Lantolf, 2000), the think-aloud protocols may have provided the means for the participants to attend to and interact with so as to internalize the meaning of feedback. This was then re-externalized in the form of a thoroughly revised draft by Kelly.

For example, Kelly had a dialogue with her absent interlocutor that was externalized in her protocols, which possibly showed how internalization had occurred. Kelly read the following teacher's feedback: *So, what is your argument here? Remind your reader about your stand* which prompted the following externalizations: *I guess I just have to make my stand clear. I always need to remind my reader what stand I am taking.* Kelly's externalizations of her thoughts finally ended in her internalization of the meaning of feedback, which is exhibited in the following verbalizations: *Oh dear! I guess having ideas in my head alone is not enough, I need to say what my argument is about, and write it clearly as well.* The process of internalization as a result of thinking aloud is manifested through her words when she expresses her realization that, for her, *'remind your reader about your stand'* means emphasizing her argument clearly in the revised draft, where there is evidence that she briefly restated her points to support her argument.

Teacher's feedback in this study was socially constructed and acted as a channel for communication for Kelly and her feedback provider. The dialogical interaction which Kelly initiated with her absent feedback giver guided and helped her to reformulate ideas, rethink and rewrite what she wanted to say to her audience. The verbal protocols symbolized a social and dialogical interaction between the writer and her reader. In this context, Kelly communicated with her feedback giver in arriving at and understanding coming to terms with the feedback given, as evident in Kelly's interaction with her feedback provider. Kelly went through a whole process of thinking-aloud on a particular point of feedback before internalization, stemming from the dialogical interactions sets in for revision to take place. Revision, in this context, occurred as a result of these interactive actions by Kelly and her feedback provider through feedback which gave rise to three implications.

IMPLICATIONS

The first implication is that teacher's feedback is a valuable pedagogical tool in the writing process. As the aim of a written feedback is to "intervene" (Emig, 1967, p. 128), it acted as an intervention platform that encouraged Kelly to rework and rewrite her text. Kelly was able to see what was lacking (Johnson, 1988) in her initial draft as a result of written teacher feedback and she took steps to find solutions to address the issues highlighted in the feedback. Giving feedback is a valuable way of ensuring that writers are given the 'push' to further enhance and develop their writing skills where they are presented with opportunities to evaluate and make their own decisions.

The second implication for feedback providers would be for them to encourage student writers to have more interactions with the feedback and feedback givers even if they were not present physically. Data from this case study showed evidence that Kelly was engaging with her teacher's feedback by interacting with her feedback provider through internalizing dialogue sessions. Attending to feedback while thinking aloud is not shown to be merely a mental activity that involves a writer's thought processes alone. Thinking aloud is also shown to be a dialogical activity that involves both the writer and the feedback giver in a dynamic social activity.

The third pedagogical implication is in educating writers about the think-aloud technique. In this study, what Kelly did when she verbalized was to engage in a social conversation/dialogue with her feedback provider. By externalizing her thoughts in the social and dialogical activities, she might have been able to negotiate her revision (Grabe & Kaplan, 1996) as she internalized the meaning of feedback. Ultimately, this social/dialogic engagement resulted in Kelly producing an extensively revised quality second draft.

CONCLUSION

Feedback is the medium through which Kelly interacted with her feedback provider, where she used various strategies to interact

with and be aware of her reader (Hyland, 2005). This case study has highlighted the importance of teacher feedback: it was the focal point for interaction from which ensuing activities that the participant engaged in took off. Feedback acted both as a pedagogical and social tool as the student writer interacted with feedback socially and dialogically in the absence of her feedback provider by trying to make sense of the feedback that was given in order for her to learn how to write better. Thus, the role of written teacher feedback is essential is assisting writers to develop their potential as writers.

The think-aloud protocols arising from teacher feedback are a means by which meaning is produced in cognitive perspective (Smagorinsky, 2001) or restructured in sociocultural perspective (Swain, 2006), as a result of interaction between the participant and her reader (Vygotsky, 1986). The findings suggest that by thinking aloud and interacting with written commentaries and the feedback giver, Kelly was able to develop her writing further. It also confirms the role of externalization in internalization, as verbalizations become an 'objective product that can be explored further by the speaker of others' (Swain, 2000, p. 102).

This case study has also indicated the value of externalizing internal thought processes while engaging with written feedback. It is suggested that further studies use a larger number of participants to seek an understanding of how engagement with feedback and internalization can lead to self-assessment and ultimately to self-regulated learning.

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The Price of Dignity by Azizi Haji Abdullah: Contesting the Judgment on an Award-Winning Novel

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ABSTRACT

The novel *The Price of Dignity* (the Malay original is *Harga Sebuah Maruah,* henceforth *Tpd*) by Azizi Haji Abdullah came in second place in the Writing Competition in Honour of the Golden Jubilee Celebrations of The Institute of Language and Literature 2006. According to the official competition report, the strength of the novel lies in its storytelling aspects, such as its technique, sequencing of events, seamless flow, the compact nature of its plot, as well as the lack of authorial intrusion in its narrative development. This article uses as its analytical framework a number of key ideas from Persuratan Baru, especially the differentiation between knowledge and the story, and the emphasis on the usage of discourse as the medium for the transmission of knowledge. This article analyses the extent to which the judging panel complied with their own criteria in their evaluation of the novel, and in their justifications for the award of the second prize to *Tpd*. In relation to that, the article also analyses *Tpd* to explore the extent to which the novel itself can be considered as having adhered to the criteria outlined by the panel, and corresponded to their justifications. The article contests the panel's judgment which is seen as debatable because of a confused understanding of the nature of thought and the narrative structure in a creative work.

Keywords: Story, knowledge, Persuratan Baru, thought, narrative structure

INTRODUCTION

In 2006, Dewan Bahasa dan Pustaka (The Institute of Language and Literature, henceforth DBP) held a Writing Competition in Honour of the Golden Jubilee Celebrations of DBP, a landmark literary event in the development of Malaysian

literature. Given its significance, this article focuses on the outcome of the competition, in terms of Azizi Haji Abdullah's *The Price of Dignity* (the Malay original is *Harga Sebuah Maruah,* henceforth *Tpd*) winning the second prize, with a cash reward of RM40,000.00. Specifically, the article examines the Report of the Writing Competition in Honour of the Golden Jubilee Celebrations of DBP, (henceforth Report), published in the March 2007 issue of *Dewan Sastera*, to see if the panel abided by its own criteria in the evaluation of *Tpd*, as well as in the justifications put forth for the novel being awarded the second prize. In line with that, the article also undertakes an analysis of *Tpd* itself to see if the novel actually corresponds to both the outlined criteria and the justifications provided by DBP for it being awarded the second prize. To that end, the article utilises as its analytical framework Mohd. Affandi Hassan's (henceforth MAH) literary concept of Persuratan Baru (henceforth PB), in particular its ideas on knowledge and the story, as well as the position of the latter in a work of creative fiction.

PERSURATAN BARU AS THE ANALYTICAL FRAMEWORK

The corpus of PB is now vast and easily accessible, what with the existence of a dedicated blog (www.pbaru.blogspot.com), an up-to-date resource to provide readers with information on the literary concept.[1] For the purposes of this article, however, only a number of its ideas will be discussed below.

MAH divides PB into three major concerns: the nature of man (*hakikat insan*), the nature of knowledge and action (*hakikat ilmu dan amal*) and the nature and function of literature (*hakikat dan fungsi sastera*). With reference to the first, the nature of man, PB posits as the main premise underlying all arguments the concept of *taklif* or man's responsibility and accountability to abide by His commands and to avoid that which He prohibits, that is, the responsibilities and implications arising from man's dual roles as servant of Allah SWT and His vicegerent on Earth, as stated in the Al-Qur'an: "I have only created Jinns and men, that They may serve Me" (Surah Al-Zariyat, 51:56). Where the nature of knowledge is concerned, PB stresses the importance of knowledge and its noble status within Islam. MAH has already debated at length the absolute importance of knowledge in Islam; it will suffice here to recall a *Hadith* (Traditions of Prophet Mohammed, pbuh) which Rahmah Ahmad Othman (2010) quoted: "and truly, the supremacy of an *alim* (learned man) over an *abid* (pious man) is like that of the moon over the stars" (p.29).[2] 'Knowledge' here refers to *true* knowledge, which enables one to distinguish between the true and the false; only with the ability to do so can one alleviate doubt and suspicion, and arrive at a sense of certainty (Mohd. Zariat Abdul Rani, 2010). The sources of this true knowledge are the Qur'an and the Hadith, in that they contain revelations, signs and guidance direct from Allah SWT, which are certain and absolute in nature. This is differentiated from knowledge gleaned from

man's cognitive faculties of thought and experience, which originate from internal mental processes, and are used to learn, interpret and understand. The origin of this cognitive knowledge in itself makes it limited and relative, and thus, it has to be based on absolute revealed knowledge for it to approach true knowledge. It is this understanding that is at the core of PB, in its stress on true knowledge as its point of departure.

Recognising the importance of knowledge and action as a solid entity ensures that knowledge will be given priority in any undertaking, including that of writing both creative and critical pieces (which, of course, includes judging works in competitions). In relation to that, the story of Prophet Yusuf (a.s) can be recalled here, which shows that the very aim of storytelling is the dissemination of messages and advice. The story is presented as a composed and refined parable which has a clear function, i.e. to deliver true knowledge. This is evident in the last verse of Surah Yusuf:

> There is, in their stories, Instruction for men endued with understanding. It is not a tale invented, but a confirmation of what went before it - A detailed exposition of all things, and a Guide and a Mercy to any such As believe (Surah Yusuf, 12: 111).

This understanding of the purpose of a story is at the foundation of PB.

PB also lays down a number of principles on the treatment of knowledge and the story in a creative or critical work. This includes the principle of *differentiating* knowledge from the story. What this means is that knowledge and story are allocated different *statuses*, *functions* and *forms* in any given narrative. The *status* of knowledge, according to PB, is higher than that of the story, which in turn makes the delivery of knowledge, ideas, arguments and thoughts as the real concern or core business (*urusan hakiki*) of creative works, as PB conceives it.

This hierarchical relationship entails that the function of knowledge should determine and shape the story, and not vice versa. What this means, in the context of PB, is that the knowledge that the author wishes to impart should determine the choice of narrative components employed to construct the story, such as characters and characterisation, plot, episodes, setting, action, events, language, and so on. The choice of these components is based on their ability and suitability to enable the dissemination of knowledge (in the form of a discourse, which will be discussed below), in as effective and lucid a manner as possible. In short, the choice of narrative components in the construction of a story is based on the 'needs' of the body of knowledge that the author wishes to discuss, and not those of the story to be constructed; this is what PB calls an *epistemic choice*. By making this epistemic choice, the story will then function as a vehicle of that knowledge,

a channel that makes possible for knowledge to develop fully and soundly.

As this channel is provided by the story and its narrative components, it is therefore a uniquely creative channel, as opposed to an academic channel with its own requirements, which do not call for the manipulation of characters, events, episodes, and so on. This explanation invalidates the commonly held assumption that PB either neglects or denies altogether the presence of the story in a creative work. To PB, its understanding of the story is very clear; of course there is a story present in a creative work—it would scarcely be a creative work otherwise!—but its form, function and status are *wrought* in such a way as to prioritise knowledge. This is the shift in the practical aspects of creative writing that PB advocates.

Having established the priority of knowledge, PB then posits discourse as a mechanism by which this priority can be realised. The utilisation of discourse within a creative work is inherently advantageous to the delivery of knowledge because it encompasses a number of practices— such as discussing, revealing, elaborating, explaining, commenting, demonstrating, debating, proving, affirming, disputing, and so on—that facilitate developing ideas, thoughts or knowledge. The very presence of knowledge in the form of discourse is what separates *Persuratan* works or works advocated by PB from common literary works that also claim to impart knowledge. At this juncture, it is crucial to understand fully what PB means by discourse, which MAH (Mohd. Affandi Hassan, 2004, p.54)

defines as follows:

> Discourse is thoughts (ideas) that have been distilled from a large body of information which is developed and thought out based on a particular concept of knowledge ... discourse is learned arguments that is used to explain an issue which can then be summarised into a particular conclusion.[3]

In relation to that, discourse is often mistakenly seen as synonymous with information. In this view, facts—including those that are readily observable by anyone—are considered as knowledge and touted as such when they are added into a story, with the assumption that the very presence of those facts automatically renders a text "scholarly", or an intellectual work of fiction (Ungku Maimunah Mohd. Tahir, 2008, p. 239-270). Discourse, as perceived by PB, is information that has undergone a process of *rumination*, such that it can stand as an idea (or ideas) on its own strength.

It also needs to be understood how this discourse can be presented in a story. PB introduces the concept of the *stylisation of ideas*. This stylisation of ideas does not refer to information that is simply inserted into a story; instead, it encompasses both an emphasis on ideas as well as the need for those ideas to be stylised. This would mean that discourse, as defined by MAH above, is *inscribed in* the story in a smooth, unobtrusive manner such that its presence

is felt not as a deviation from the story, but rather as its natural development that is fully integrated, even if the content of that discourse is saturated with arguments, debates or deep knowledge. Thus, the story plays its role as a vehicle of knowledge when ideas are artistically woven through this concept of inscription.

In the context of Malay literature, the above discussion clearly shows that PB represents a clear shift in the production and comprehension of both creative and critical works. I have elaborated on this matter at length in another instance (see Ungku Maimunah Mohd. Tahir, 2009), but suffice it to say here that the commonly held view in the world of Malay literature is that knowledge and the story are synonymous. The implication of this view is that knowledge and the story are of equal status, since the story *is* itself knowledge, meaning that when authors fulfil the demands of the story, they are also fulfilling the demands of knowledge. Moreover, in the context of narrative construction, it is acceptable or even recommended that the story dominates knowledge entirely, which can be seen in the practice of excluding from the story anything bearing knowledge, such as the technique of the sermon. This view is taken to its extreme when S. Othman Kelantan (2002) categorically pronounces that creative works should exclude knowledge altogether: "The literary researchers who themselves do not produce creative works often declare that creative writers should produce scholarly texts. As a researcher and a creative writer myself, I find that if writers want to be

intellectual, then they should produce scholarly texts, and not literary works."[4] And the fact that S. Othman Kelantan was anointed as the country's National Laureate (Sasterawan Negara) shows that this view has been institutionalised in the Malay literature. It is in this context that I made the argument that the main principle organising the Malay literary works is story-making, in the sense that the *real concern* or core business of these works is to initiate, develop, sustain, stretch out and conclude the story—a story which is also taken to be equivalent to knowledge. I summarise this in my statement that "the story is the comfort zone of Malay literature,"[5], referring to the ease of merely telling a story, as well as the easy resort to the acceptance of the story as knowledge (Ungku Maimunah Mohd. Tahir, 2007, p. 58).

With the analytical framework of PB thus established, the article will move onto an analysis of *Tpd* as a work that was deemed worthy of receiving the second prize in the DBP competition, based on the criteria outlined in the panel's Report, as well as the reasons proffered to justify their decision.

A BRIEF NOTE ON THE COMPETITION

Tpd was produced in a specific context: a competition that had clearly outlined its own regulations, both from the aspect of the creative requirements of the submissions, and that of the evaluation of said submissions. An advertisement in the March 2005 issue of *Dewan Sastera* stated that the competition was aimed at "encouraging local writers

to produce novels framing the issue of a Malaysian community that is developing, competitive, liberal, progressive, peaceful and was, is and will be held in high regard by others" (p.37).[6] Undoubtedly, the purpose of the competition held in line with DBP's anniversary is overwhelmingly positive. In relation to that, the regulations did not set a singular theme that the entries should work around; however, they stated that the works "should be able to depict a community that is rich in the culture and customs of Malaysia, with high moral values and ethics, as meeting one of the challenges of Vision 2020" (p.37).[7]

With reference to the report written by Zalila Sharif (2007) and published in the March 2007 issue of *Dewan Sastera* (p.19-22), each submission should fulfil the three criteria:

Thought, ethics and a positive vision of life, displayed in positive and dynamic characters, and the ability of the writer to use new and creative writing techniques with interesting style and linguistic ability (p.20, emphasis added).[8]

By using the word "and" instead of "or," it is important to note that the criterion of "thought" is clearly emphasised, along with "ethics" and "a positive vision of life."

Moving to the judgment which specifically discusses the reasons behind awarding *Tpd* the second prize, the Report states:

The author successfully utilised

a natural storytelling technique, allowing his characters to develop in line with the design of the plot. The author does not intrude upon his own narrative. The smooth flow of events and the tightness of the plot provides added value to the storytelling style (p.21).[9]

And with reference to what is considered to be the "message" of the novel, the Report states:

There is a clear message on the [implications] of forced exploitative development, which readily strips away the tradition and dignity of the Malay people...The writer elegantly connotes that certain instances of physical development undermine the welfare of Malays in the long run (p.21).[10]

It is in the context of these excerpts that *Tpd* was produced and judged.

Based on PB and the Report excerpted above, the article will now shift onto the analysis of *Tpd* to examine the extent to which the outlined criteria and the justifications provided for this award were tenable. In turn, the analysis also examines if the novel does adhere to these criteria, and does correspond to the justifications put forth by the judging panel.

THE PRICE OF DIGNITY AS A COMPETITION WINNER: AN

ANALYSIS

In treating *Tpd* as the first runner-up in the competition, two things will be explored: firstly, the storytelling technique it employs as a work of creative fiction, and secondly, the concept of "thought" as understood in the novel and in the Report of the competition. Before the analysis can begin, however, a brief synopsis of the novel is provided here for ease of comprehension.

Tpd is the story of the struggles of Kampung Kertau's farming community, after they learn that their paddy fields, which have provided them with sustenance for generations, will be taken over by a development corporation to make way for an aquaculture farming project. Although the farmers will receive monetary compensation for their lands, the majority of them begin to resist the corporation, led by an old widow named Cah, and her son Hijrah. Their resistance notwithstanding, the corporation begins to deploy tractors to uproot the paddy fields in preparation for the takeover. When Hijrah attempts to stop the tractors, he is arrested, placed in a lockup, and released after a few days. Although Cah, Habibah and Saad then manage to obtain legal aid and get an injunction to stop the tractors temporarily, they are also eventually arrested and placed in police custody. As the harvesting season approaches, the tractors resume their work, and begin tearing up the paddy field of an old farmer, Pak Kassim. Shocked by the event, he has a heart attack and dies a few days later. The day of his death also coincides with the wedding of his granddaughter, Habibah, and Hijrah.

Later, when all the residents of Kampung Kertau are in a village meeting—except Cah and Habibah—the tractors return to finish uprooting Pak Kassim's fields, and also those of Cah. Enraged, and armed with a *parang* (machete), Cah tries to stop the tractors by rolling in the mud and clutching at the paddy stalks in desperation. In doing so, she inadvertently stabs herself in the neck with her own *parang*, and is rushed to the hospital. While recovering, she is told that her land will indeed be taken over because the corporation is acting within its legal boundaries, as determined by a constitutional Act. Cah's eldest son, Sulaiman, who has all the while been urging his mother to accept the compensation, is thrilled by the news. When he excitedly tells his mother that they are about to receive RM200,000.00 in compensation, she spits on her own son. In Cah's mind, her decision to stop fighting is down to abiding the law, not selling out for cash.

Storytelling technique

From the synopsis above, it is clear that *Tpd* employs a straightforward plot development. The plot structure is linear, in that its events are deployed in sequential order, in accordance with the principle of cause-and-effect. This plot structure, wherein events are chronologically arranged to lead towards a definite resolution, is very commonly used, since it is, on the part of the author, easy to write, and on the part of the reader, easy to digest—hence its popular name, the conventional plot. In the context of *Tpd*, it is clear that Azizi employs this

structure to the letter, not only in his use of chronological sequencing, but also the characters, events, issues, and indeed, the whole story is geared towards reaching a definite ending, namely the resolution of the conflict faced by the villagers of Kampung Kertau—whether their paddy fields will be taken over by the development corporation or stay in their own hands. Although there are a few flashback sequences in the novel, their presence does not disrupt the chronological flow of the story. Moreover, these flashbacks still address the singular, overarching issue at stake in the novel, namely, the farmers' struggle to keep hold of their paddy fields. For instance, Cah has a flashback of herself and her husband working together on the paddy field—which only reinforces the understanding of why Cah's continued possession of paddy fields matters so much to her. This is also true of the sequence in which Cah remembers the disaster that befell her husband—his father selling off the family fields—which only serves to reinforce Cah's willingness to lay blood on the line in the fight against the development corporation. What this shows is that the presence of flashback sequences does not contradict the observation that the plot structure of *Tpd* is indeed linear. Nonetheless, the usage of such a conventional plot structure draws attention back to one of the entry criteria of the competition listed above, i.e., "the ability of the writer to use new and creative writing techniques." Clearly, the writing technique on display here is not new, and is a very faithful adoption of the old narrative

structure with hardly any innovations that can be considered creative. Thus, when viewed from this perspective, *Tpd* does *not* actually fulfil the criterion of a new writing technique.

Besides this usage of a linear plot, the development of the plot also shows the usage of a commonly used formula, which is also considered conventional and passé, that of the introduction-complication-climax-resolution. The development of *Tpd* along the lines of the formula can be summarised as follows: *Introduction*: laying the groundwork of the story, namely, Cah's love for her paddy fields, which is reinforced by means of flashbacks, as described above. *Complication*: the development project and its implication, namely, the destruction and takeover of the farmers' paddy fields. This section not only allows the story to be fleshed out, but also drawn out across the length of the novel. It is executed through lengthy descriptions of a number of events, namely, the separate occasions of resistance to the project by Cah, Hijrah and the rest of the villagers. This is usually referred to as the *rising action*. *Climax*: Cah stabs herself with the blade of her *parang* when attempting to stop the tractors. *Resolution*: the paddy fields are taken over by deed. From this, it can be seen that the plot of *Tpd* is clearly in complete accordance with the formula. Strictly speaking, this is *not* a new writing technique—even if the Report would seem to claim otherwise.

Following that, another important issue is the very understanding of the basis of the novel form, as shown by *Tpd* itself

on the one hand, and the Report on the other. This understanding is significant, since it determines not only the storytelling technique employed in the novel, but also the shape it assumes in its construction. Elsewhere, I have discussed E.M. Forster's *Aspects of the Novel* (1968), which was a major reference for Malaysian literary critics in the 1970s. In Forster's view, "the basis of a novel is a story, and a story is a narrative of events arranged in time sequence" (p.37-38). As observed above in the analysis of its plot and the formula of its development, *Tpd* is a perfect manifestation of Forster's definition. *Tpd* is told in chronological order, which is from the time the news of the development project is first announced that puts the villagers in Kampung Kertau in a bind, until the resolution, when it becomes certain that the paddy fields will indeed fall into the hands of the development corporation.

This clear sequence is paralleled with a chain of events—for instance, Hijrah being arrested, the villagers having a meeting, Cah and Habibah being arrested, etc.—that occur one after another. This is the *story* which is at the basis of *Tpd*. It needs to be recalled here that the earliest publication of Forster's book was in 1927 (by Harcourt, Brace & Co.), which makes his definition about 80 years old. It is indeed impossible to label a storytelling technique that has been around for at least eight decades— indeed, this understanding of the basis of a novel has been in use long before that — as something 'new'. This datedness is even more stark given that post-modernism, with

its concepts of fragmentation and non-linear plots (which has also been employed by Malaysian writers), is available, in addition to local theories, such as PB, which offer different and 'newer' understandings of the writing process, as described above. Put simply, in the context of a competition that clearly outlined a "new writing technique" as one of its evaluation criteria, the analysis of *Tpd* shows that it employs arguably the most conventional writing technique there is—one that is not just impossible to label 'new', but is also generally considered to be ordinary, outdated and not innovative. This would mean that *Tpd* does not fulfil the criteria of a "new writing technique", which then calls into question the judgment made by the panel and their subsequent justifications in the Report. Given that it is virtually impossible to say that *Tpd* did indeed fulfil the "new writing technique" requirement, then its victory should be read instead as the failure of the Report to apply its very own criteria. How did this happen? It would be hard to say that the judges are not well-versed in literary concepts, given that the plot structure and the formula used in *Tpd* is one of the most basic concepts of literature, and that the competition counted as its judges renowned literary figures and scholars. Or, was it a case of the outlined criteria being nothing more than lip service—a necessary formality, but a non-binding one which can be ignored? Whatever the explanation, the analysis clearly shows that the judges did not apply the criterion of a "new writing technique", as much as it was not applied

in the creation of *Tpd*. This means that calling into question the judgment of the Report, and the reasons provided to justify its decision, is not an inappropriate and disrespectful act carried out for its own sake, but rather a necessary measure to ensure the integrity of the judgment, besides preserving the quality of works that have received similar institutional recognition.

The writing technique used in *Tpd*, as well as its understanding of the basis of the novel form, both of which have been proven to not be 'new', have deep implications on the construction of the novel itself in particular, and in the practice of Malay literature in general. Where *Tpd* itself is concerned—especially in the context of Forster's definition of the novel form and its faithful adaptation in *Tpd* — it is worthwhile to note that Forster (1968, p. 34) also claimed that, "The novel tells a story. That is the fundamental aspect without which it could not exist". This excerpt reinforces the position of the story as the "fundamental aspect" of the novel, and renders story-making the main principle to be considered in the construction of a novel. In this light, it would not be remiss to assume that narrative components will be utilised to their fullest extent in *Tpd* to adhere to the principle of story-making. And, this is exactly what Azizi does. For reasons of brevity, only three narrative components will be discussed below: event, suspense and detailing.

The exploitation and manipulation of events are very clearly employed in *Tpd*. Firstly, Azizi presents a myriad of events in the novel, ranging from the trivial, such as spitting, to the dramatic, such as rolling desperately in a muddy paddy field and being stabbed by one's own *parang*. Secondly, and more importantly, is that these varied events are linked together in a chain — the tractors destroying the fields, Hijrah being compelled to use his *parang* to stop them, Hijrah being sent to jail, Hijrah getting released from jail, the newly-released Hijrah continuing his protest, and so on—and in this way, the story is driven forward consistently until the novel reaches its ending, which then completes the construction of the story. The role of events here can be thought of as bricks, arranged one by one, so as to erect a structure, namely, the story. Clearly, the events presented in *Tpd*, as well as their manipulation, are an explicit acknowledgement that the story and the process of story-making are at the forefront of the novel's construction.

Detailing is used heavily in *Tpd*, whether for the purposes of describing a situation, action or even a backdrop. In line with the emphasis placed on the story, the detailing in the novel functions to flesh out the story, to add content to a structure that is essentially no more complex than the protestations of Kampung Kertau's farmers on the one hand, and the unmovable developing corporation on the other. Through the heavy usage of detailing, this essential struggle is padded with descriptions of the paddy fields that are up for grabs—from the sowing of the paddy plants to their harvesting—which are nestled alongside descriptions of life-and-death or unexpected actions. The manipulation of

is released again, and this is repeated over and over to preserve the rhythm of tension-release. By manipulating tension-release, the story consciously chooses to elicit the involvement of the readers' emotions, namely feelings of anxiety and relief in turn—as opposed to what PB would prescribe, that is the involvement of their intellect. The accuracy of this observation will be shown below in the discussion on the aspect of 'thought'; but suffice to say at this stage that on the whole, *Tpd* places a much greater emphasis on the story as opposed to knowledge—the very opposite of what a PB-influenced work would do.

By arguing against an understanding of creative works wherein the story is prioritised, PB is actually *rejecting* the claim that it is narrow and rigid in its scope; what PB does, in fact, is *widen* the understanding of creative works by differentiating between knowledge and the story, because this very differentiation allows both aspects to be explored in much greater depth, and with a much more refined sense of beauty. On the one hand, by emphasising discourse, PB allows for an expansive space for knowledge to be framed. When knowledge is no longer conflated with the story, creative works that have hitherto been 'prohibited' from intellectual discourse are now free to explore realms of knowledge with as much depth as they so choose, without being bound by the confines placed by the demands of the story. On the other hand, based on the concept of the stylisation of ideas, the story no longer has to adhere to rigid and established forms and techniques, but is free to assume any

form that would best render it a vehicle of knowledge. With these shackles being undone, inflexible forms or formulas — such as the introduction-complication-resolution formula, chronological sequencing of events, detailing for the sake of realism, suspense to delay the conclusion, or 'newer' techniques, such as non-linear plots, fragmentation, and so on — become irrelevant. And so too, for instance, the prohibition of *syair* (traditional Malay verse), as a form associated with classical literature from being inserted into 'modern' creative works, and other similar restrictions. This is true creative freedom. Because the stylisation of ideas does not designate a definitive and rigid form, every literary work becomes unique, in that they no longer need to be produced from fixed and prohibitive blueprints,[12] forms, structures, or formulas. Nevertheless, despite displaying a myriad of styles and forms, every creative work subscribes to the one conviction, namely, the celebration of true knowledge. In the context of Malay literature, this truly represents a great paradigm shift.

Thought

With regard to the issue of 'thought', *Tpd* refers to the idea of "development." The Report concurs in seeing it as the 'message' of the novel, even if it narrows down 'development' into "exploitative development" or "damaging physical development" (p.21).[13] But is 'development' really the 'message' of *Tpd*? The analysis shows that 'development' is made present in the novel only to initiate conflict, and not as an issue in itself that is addressed

by the novel. The conflict arises when the residents of Kampung Kertau become anxious and despondent when they learn of the impending takeover of their paddy fields by a corporation intent on turning those fields into an aquaculture farming project, in the name of 'development'. However, there are no traces of a debate on this issue of 'development', as would be expected of a work that claims to be "presenting thought."[14] Instead, the issue of 'development' emerges as mere tokenism, only made to sound more impressive with references to the scientific names of the toxic waste materials from the aquaculture project that will damage the ecosystem. This serves to reinforce the claim that the issue as such is absent, and is not addressed directly; instead, it only functions to trigger conflict, a narrative tool to drive the story towards its conclusion.

This function is evident in that 'development' is made to instigate conflict—the villagers of Kampung Kertau become angry and despondent, and decide to collectively resist the aquaculture project—but then disappears from the story when its function has already been carried out. 'Development' only reappears, again as a tokenism, when the story needs to be driven forward, that is when the villagers act upon their anger. And with the conflict having been sparked, their subsequent actions can then be linked to the chronological chain of events that make up the story (see again Forster's definition above). What emerges here is that the novel is primarily focused on the villagers' resistance, especially that of

Cah and her son, which are veritable bricks in the structure of the novel. But 'development' as an issue in itself is not addressed, let alone fore grounded as an idea or thought to be explored in a creative fashion within *Tpd*.

The position of this 'development' also needs to be understood in the context of the Report, which, as noted above, outlines as its first criterion that all competition entries must contain "thought, ethics and a positive vision of life." And given that *Tpd* is the first-runner up in the competition, surely it is not too much to assume that the novel has indeed fulfilled the criteria of containing 'thought'? In the section of the Report on *Tpd*, it is clear that there is no reference to 'thought', but there is instead a reference to a 'message'—with the only 'message' being that of 'development'. Does this then mean that in the context of its usage in the Report, the terms 'message' and 'thought' are considered synonymous? If the answer is 'no', it then begs another question: what actually constitutes the 'thought' component in *Tpd*, which must have been present in the novel for it to win the second prize in the competition? Clearly, if the two terms are not synonymous, then the Report truly has failed to do its job of explaining to the literary public that *Tpd* has indeed fulfilled the first criteria, and detailing how Azizi was able to achieve this in a creative manner.

However, if the terms 'message' and 'thought' *are* considered synonymous, then it would be appropriate to ask: how can the Report acknowledge that *Tpd* did fulfil the criterion of "presenting thought," if the analysis above proves that 'development' is

only presented as an instigator of conflict, and not as 'thought' per se? Put simply, *Tpd* shows no evidence of 'thought', and therefore, logically, it does not fulfil the first criterion outlined in the Report.

Moreover, in relation to that, it also needs to be recalled that the Report states: "The writer elegantly connotes that certain instances of physical development undermine the welfare of Malays in the long run" (see above). *Tpd* ends with the villagers of Kampung Kertau parting with their paddy fields, represented in the meeting between Cah and her eldest son, Sulaiman, on page 376 in the 379-page novel. It is clear that the Report sees the villagers' loss of their paddy fields as part of a larger 'message', that of 'undermining the welfare of Malays.' But on that note, it is worthwhile to take cognizance of the fact that this 'message' can only be fully discerned in the final episode of the novel; in other words, if the reader were to stop reading the novel at any point before the conclusion, this 'message' would not be visible. This effectively lifts the story to a very significant level in *Tpd*, in that it now functions as the 'articulator' of the novel's message. In other words, the story of Cah itself then becomes the message—meaning that the story and the 'message' (or 'thought', as understood by the Report) are synonymous. This synonymy is in sharp contrast to PB's understanding of the story and thought/knowledge being differentiated in terms of status, function and the form of its presence in a creative work.

The above analysis clearly shows a confusion in the Report's understanding of the terms 'thought' and 'message'; moreover, the term 'thought' is used arbitrarily, without a clear explanation. This is regrettable, seeing as 'thought' was underlined by the panel itself as a criterion for the process of evaluation. This would beg a further question: given that the public has evidence of works that *do not* contain 'thought' being evaluated, acknowledged and showcased by the Writing Competition in Honour of the Golden Jubilee Celebrations of DBP as works that *do* contain 'thought', would this then not perpetuate the confusion over the exact meaning of 'thought' when these novels, as well as others like them, are held as quality examples to be followed?

In this context, it needs to be reiterated that 'thought' as conceptualised by PB takes on an entirely different meaning, which will simultaneously alleviate this confusion. As noted above, PB posits the use of discourse as a mechanism to uncover, discuss, refine, dispute, reinforce (and so on) clear and concrete 'thought'. And in accordance with its very terminology, 'thought' should not involve readers' emotive capacity, as seen in *Tpd*, but rather their intellectual faculties, the rigour of which will be forged from the processes of uncovering, discussing, refining, disputing, reinforcing, and so on. In addition, 'thought' must be neatly woven into a story, to preclude the possibility of its being confused as an 'instigator of conflict', or any other similarly functioning narrative component. This is reinforced by PB's differentiation between the story and knowledge in terms of status, function and

form. Clearly, 'thought' as defined by PB is far more sophisticated, and is a celebration of knowledge. It also represents a shift in the understanding of the process behind the production of creative and critical works, and it truly is something 'new' in the context of Malay literature—a literary world that has for too long nestled in a comfort zone, wherein it is just easier for the author to tell a story, and expedient for the reader to make the easy association of this story with 'thought' (Ungku Maimunah Mohd. Tahir, 2009).

The analysis here clearly reveals just how debatable the judgment of the Report is in its recognition of *Tpd*. In the two aspects explored, that is storytelling technique and thought, *Tpd* is found to have not fulfilled the stated criteria; it also does not correspond to the justifications put forth by the Report to explain its award of the second prize. It is thus essential to ask: is this the kind of judgment that will increase the quality of Malay *literature*, or impede its progress? And in relation to that, will this example of selecting and judging literary works at the highest level increase the quality of literary *criticism*, or otherwise? This analysis cannot, unfortunately, provide positive answers to these questions.

Aside from the judgment of the Report, and the implication of its fallacy, *Tpd* emerges as a rather ordinary literary work, which wholly inhabits the level of the story without offering any inspiring arguments. The structuring and technique of storytelling displayed in the novel are generally bound to understandings and practices of old, and

do not show any creativity or innovation in this regard. This is also true of its 'thought' component, which is conflated with the story; it considers this to be sufficient and appropriate. Where then are the strengths of *Tpd* that the judges saw, and which they believed to merit the second prize? Based on the analysis above, it can be concluded that the 'strength' of *Tpd* actually lies in the fact that it was created in a context of literature that is fully at ease with these old understandings and practices.

CONCLUDING REMARKS

The analysis above shows that the evaluation and recognition of *Tpd* by the judging panel was debatable. The expertise in the field of literature, which one would expect to be the most basic prerequisite of a panel selected to evaluate and award recognition to literary works, seems to be absent. What do seem to be present are a sense of confusion and a lack of depth of understanding, which are now institutionally legitimised as a guide to similar evaluations in the future. The critical analysis quite simply reveals that claims of the novel's strengths or special nature are in fact untenable, in terms of being able to be justified intellectually. In many respects, the claims made in the Report are openly at odds with the evidence (i.e., the novel itself). Given this unfortunate situation, would it not be reasonable and responsible to ask for genuine expertise and in-depth knowledge to serve as prerequisites for purposes of evaluation? And should not a report that stems from such an evaluation be more intellectually rigorous and responsible,

so as to steer clear from general and unsubstantiated claims and arguments?

The debatable judgment as shown above calls attention to the important question of favouring as a criterion in narrative-writing competitions the prioritisation of story and story-making. The crucial question is, are these evaluative criteria the best we can hope for, in terms of ensuring the quality of works that will one day be canonised as national treasures? If the core of any successful civilisation is its knowledge, surely then a cold shoulder towards knowledge would not be a smart choice—all the more so when there *is* an alternative option available, one which is rooted in noble conviction and a solid understanding of the primacy of knowledge, as well as its relevance in creative writing.

In short, PB makes it clear that knowledge needs to be prioritised, at the same time that it takes into account the status, function and form of the story. This will ensure that creative works are produced and judged with authority, in that they will be free from confusion and uncertainties, at the same time they are sensitive to aesthetic demands. This truly is a dynamic shift, which allows for the flourishing of creative and critical works of high intellectual content and refined aesthetic quality. In the context of Malay literature today, this is the very shift that is needed.

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ENDNOTES

[1]See Mohd. Affandi Hassan 1992, 1994, 1997, 2008, 2010; Ungku Maimunah Mohd. Tahir 2007, 2009, 2010a, 2010b; and Mohd. Zariat Abdul Rani 2004, 2010.

[2]My translation from the Malay: "*Dan sesesungguhnya keutamaan darjat seorang alim ke atas seorang abid seperti keutamaan bulan purnama berbanding bintang-bintang.*"

[3]My translation from the Malay: "*Wacana adalah pemikiran berasaskan maklumat yang disaring daripada sejumlah maklumat yang telah dimatangkan oleh pemikiran berasaskan konsep ilmu tertentu...wacana adalah hujah-hujah ilmiah yang digunakan untuk menjelaskan sesuatu persoalan sehingga dapat dirumuskan ke dalam kesimpulan tertentu.*"

[4]My translation from the Malay: "*Pengkaji sastera yang tidak menghasilkan karya kreatif kerap menggembar-gemburkan penulis kreatif perlu menghasilkan karya ilmu. Saya sebagai pengkaji dan penulis kreatif berpendapat sekiranya pengarang mahu menulis ilmu, maka mereka sepatutnya menulis buku ilmu dan bukannya karya sastera.*"

[5]My translation from the Malay: "*...cerita adalah medan keselesaan sastera Melayu.*"

[6]My translation from the Malay: "*... menggalakkan golongan sasterawan tanah air mengarang novel yang menggarap persoalan masyarakat Malaysia yang membangun dan berdaya saing, liberal, progresif, aman damai dan dipandang tinggi oleh negara luar dari dahulu, sekarang dan pada masa hadapan.*"

[7]My translation from the Malay: "*...haruslah berupaya menggambarkan sebuah masyarakat yang kaya dengan budaya dan adat resam masyarakat Malaysia yang mempunyai nilai-nilai moral dan etika yang tinggi sebagai memenuhi satu daripada cabaran Wawasan 2020.*"

[8]My translation from the Malay: "*...pemikiran, etika dan visi hidup positif dalam persoalan, penampilan perwatakan positif serta dinamik, dan kemampuan pengarang menggunakan teknik penulisan baharu yang berdaya kreatif dengan gaya dan kebahasaan yang menarik.*"

[9]My translation from the Malay: "*Pengarangnya berhasil memanfaatkan teknik bercerita bersahaja, memberikan kebebasan watak-wataknya berkembang mengikut acuan plot. Pengarang tidak mencampuri naratifnya yang mengongkong. Kelancaran peralihan peristiwa dan kekejapan plot memberikan nilai tambah yang tinggi terhadap gaya penceritaannya.*"

[10]My translation from the Malay: "*Mesejnya jelas tentang paksaan pembangunan bersifat eksploitatif yang secara mudah menghakis tradisi warisan dan maruah orang Melayu… Pengarang secara halus, memberikan konotasi bahawa ada pembangunan fizikal yang*

memudaratkan kesejahteraan orang Melayu pada jangka waktu panjang."

[11]My translation from the Malay: "*Maka apabila selesai, kalau waktu petang, sangat indah nampaknya. Air sawah tenang dan nampak selut berjalur-jalur bekas traktor seperti batas-batas sayur yang terjaga. Di permukaan air selut yang tenang itu nampak kelekatu, serangga lain berterbangan. Lelabah merangkak-rangkak. Ketika itulah layang-layang melayah menyambar pantas. Sesekali anak haruan yang terselamat daripada pening dan mabuk putaran, menangkap apa-apa*

menjadikan air sawah yang diam itu berkocak kecil. Bau masam selut waktu petang pun, sedap."

[12]Compare this to the insistence of the Report on the "mould of the plot" (*acuan plot*) which is considered to be among the strengths of *Tpd*: it "allow[s] his characters to develop in line with the mould of the plot."

[13]My translation from the Malay: "*pembangunan bersifat eksploitatif*" and "*pembangunan fizikal yang memudaratkan...*"

[14]My translation from the Malay: "*mengadakan pemikiran.*"

Interruption as Power Ploy in Women's Conversation

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ABSTRACT

This study evaluates the concept of power in women's conversation. It also investigates how power is practised among Iranian women's speech through interruptions. A group of educated upper middle class Iranian women was chosen due to their ability to communicate effectively in English. The group's speech was audio recorded and then transcribed using a modified version of Gail Jefferson's (1978) transcription convention. The conversation recorded was analyzed based on the turns and the interruptions that women made and also the way that they exerted power through their use of interruptions. It also attempts to demonstrate the extent to which Iranian women use power and how they manage their turns in face-to-face interaction. The findings of this study indicate that the participants constantly interrupt each other to voice their ideas. They have the tendency to vie for the floor and jockey for turns in their quest to dominate the conversation and in turn prove that they are more powerful than the others. This study suggests that the female participants tend to dominate the conversation in order to demonstrate the power and control that they possess over their peers.

Keywords: Power, Women's Conversation, professional women, interruptions, Iranian society

INTRODUCTION

It is widely believed that interruption is associated with power and dominance (Zimmerman & West, 1975), and when power is observed in an interaction, it is perceived that the participants, regardless of their gender, have adopted a masculine behaviour. Considering interruption as an opportunity for both genders to demonstrate power and assertion, it is expected that men interrupt more than women (Zimmerman & West, 1975; Jariah Mohd. Jan, 1999) and in so doing, they aim to assert their ideas and appear more powerful. On the other hand,

women interrupt to show their solidarity and support and ultimately maintain their friendship (Coates, 1989). Generally speaking, the language that women use to interact is considered weak and mitigating in nature (Lakoff, 1975). O'Barr and Atkins (1980) label the language that women use as "Powerless Language" since they lack power and assertion. However, they argue that these elements can be used by both genders depending on their social situation and status. As a result, it can be assumed that language, and specifically interruptions, provide the opportunity for the interlocutors to practice either their power or solidarity.

Men, Women and Conversation

It is evident that men and women have different communicative competence and what is perceived by men may be perceived differently or otherwise by women (Coates, 1998). It is believed that the differences between genders can be considered as cross cultural miscommunications which naturally exist between interlocutors in every society (Gumperz, 1982). As a result, the way that they speak is the reflection of these social differences. For instance, men have more tendencies towards power demonstration than women (Zimmerman & West, 1975; Leet-Pellegrini, 1980). Women, on the other hand, welcome solidarity more than power and prefer a collaborative interaction (Coates, 1989). In the following sections, the different linguistic elements which exert power or solidarity are highlighted.

Power, Dominance and Control

The elements that men use in their speech are interconnected with their dominant role that they possess in society. For instance, men's talk usually lacks supportive elements such as minimal responses and instead, long pauses exist between the utterances. However, men unlike women can continue their interaction without receiving these supportive feedbacks. Furthermore, since men are more into competition (Aries, 1976; Coates, 1989) and power demonstration, they tend to interrupt more frequently (Zimmerman & West, 1975).

Moreover, the topics that men usually discuss are mostly impersonal such as sports, cars and technology (Coates, 2004). By favouring impersonal topics, men do not need to 'self-disclose' or engage in private talk while interacting. Holmes (2001) also argues that men's talk is naturally based on facts and information and men generally adopt an abrupt way of changing topics and there is no unity observed between their topic changes (Tannen, 1990; Pilkington, 1998). Their talk is also affluent with direct criticism, disagreement and conflict. However, men enjoy and do not consider them as serious (Pilkington, 1998).

All in all, it is inferred that men would rather maintain their power by avoiding the elements which are associated with cooperation and ultimately feminine. It is inferred that they practise their masculinity at all times.

Solidarity and Cooperation

Women are always associated with the concept of solidarity and cooperation as they favour and encourage friendship more than men (Coates, 1989; Aries, 1976; Tannen, 1992), and their conversation is tilted towards cooperation and demonstrating solidarity. Women, in order to demonstrate their cooperation, try to build on each other's speech and tend to support each other vigorously in different ways while they are interacting.

One of the characteristics of women's talk which is associated with support and cooperation is the frequent use of minimal responses which are collaboratively transferred between female friends. These items are usually well placed in women's conversation to indicate their active listenership (Zimmerman & West, 1975; Fishman, 1980; Coates, 1989; Holmes, 1995).

Another way of demonstrating cooperation and support is via the topic of conversation. Women typically talk about people and feelings rather than things (Coates, 1996, 2004) and they concentrate on personal, emotional aspects of their topic (Estaji, 2010). The topics that women talk about have a sense of self-disclosure and it is mainly to the virtue of the fact that women hope to give support and receive support in turn as a reciprocal act of exchanging favours. In terms of changing topics, women have also proven that they follow a gradual collaborative strategy of building on each others' utterances to change from one topic to another (Coates, 2004, 1996, 1989; Maltz & Borker, 1982).

Interruption: the Allocation of Power and Solidarity

Many studies on interruption and gender have found marked asymmetries between men and women. Men interrupt more often than women in order to hold the floor (Zimmerman & West, 1975; Bohn & Stutman, 1983; West & Zimmerman, 1983; Jariah Mohd. Jan, 1999). Interruption is mainly coupled with power and dominance in conversation. In a study on Iranian men and women, Ghafar Samar & Alibakhshi (2007) found out that the most powerful person interrupts and holds the floor more than the other parties who are less powerful. In their study, the connection between power and interruption is clearly revealed.

On the other hand, there are some other studies that show interruptions entail solidarity and support (Booth-Butterfield & Booth-Butterfield, 1988; Coates, 1989). In this regard, James and Clarke (1993) assert that not all the interruptions or overlaps are signs of dominance. Instead, interruption can show the interrupter's supportive attitudes rather than disruptive behaviour. They believe that "…the extent to which an interruption is interpreted as negative and disruptive is probably not a black and white matter, but rather a matter of degree" (1993, p. 241).

In another contradictory study, Shaw and Sadler (1965) showed that women interrupt men more than the reverse and that they are more dominant in conversation compared to men. It appears that it is not always men who get the control of conversation via the interruptions. There is also a research by Beattie in 1981 on

interruption which contradicts the idea of men interrupting women more. In her research, she examined interruptions among the participants of university tutorials. She also introduced two main categories of interruptions such as the following:

1. Successful Interruptions

    •   Overlap: simultaneous speech present and utterance complete

    •   Simple interruption: simultaneous speech present but incomplete utterance

    •   Smooth speaker switch: simultaneous speech not present but utterance complete

    •   Silent interruption: neither simultaneous speech present, nor utterance complete

2. Unsuccessful Interruptions

    •   Butting-in interruption: simultaneous speech present

Her classification of interruption also considers the presence of simultaneous speech and utterances that are "intentionally, syntactically and semantically" complete in both verbal and nonverbal level (Beattie, 1981, p. 20).

In her study, Beattie (1981) noticed that there is no significant difference between men and women in the number of interruptions. Students, in her study, interrupted the tutors more than the reverse, although the tutors are considered as the powerful parties compared to the students. As a result, she concluded that there is no gender difference in either the frequency or

the type of interruptions that females and males make.

This paper benefits from Beattie's classification since it demonstrates power and cooperation within the interruptions (Jariah Mohd. Jan, 1999). However, it should be regarded that as the focus of this paper is on power, the elements that evoke power more than the rest are depicted from Beattie's classification to introduce a clear reflection of power in women's talk. These elements are butting-in interruptions, silent interruptions and simple interruptions.

According to Beattie's interruption model (1981), butting-in interruption is an unsuccessful attempt to grab the floor. The person, who interrupts, butts into the current speaker's utterance while he is still speaking, and makes an overlapping statement in order to take the turn and express his idea. However in this type of interruption, he is not allowed to own the floor and the current speaker moves on. Despite butting-in interruption which is an unsuccessful attempt to seize the floor, silent interruption is a successful effort where in an interaction the current speaker is interrupted before he is able to complete his utterance. In this type of interruption, there is no overlapping speech observed and the interrupter seizes the floor forcefully. Another type of interruption, which is used in this study, is simple interruption when the current speaker is interrupted by another speaker successfully. The speaker who interrupts manages to seize the floor by making an overlap, without considering the completion point in the current speaker's

utterance. All these three selected types of interruptions explain power play and dominance between the interactants in various degrees and levels.

The Role of Women in Iranian Society

Iranian society is believed to be patriarchal and it encompasses unfairness when it comes to women's right (Azari, 1983). Iranian women are positioned as inferior whose rights come second compared to men's. However, Iranian women have never accepted this inferior role and tried hard to achieve equal rights. Although women's demands are often voiced by many Iranian feminists and institutions, men still prefer to maintain their powerful status. Despite men's attempts to discourage women from advancing in their careers, women have played important roles in almost every domain which includes politics and economics as well.

Iranian women have formed many institutions and communities supporting women and they also place education as one of their main goals to be achieved (Encyclopedia of Iranian Woman, 2003). In the early days, education was a privilege granted to men but not to women. A such, the feminist communities tried to elevate women's knowledge and awareness in order to create a refuge, freedom, financial independence and also a respectable position for women in society (Shavarini, 2005). In other words, they consider education as a gate which ultimately leads them to win over social discriminations and gain power and authority. Today, women in Iran have gained access to higher education and more than half of the population of students at colleges and universities in Iran consist of women (Moghadam, 2005).

PURPOSE OF THE STUDY

This study investigates the ways in which women interrupt each other in order to gain control of the face-to-face interaction and to appear more powerful in single sex groups. In particular, the concept of power is challenged through the change of turns among professional women. The linguistic elements that exist within the interaction, which demonstrate power, authority and control, are discussed.

MATERIALS AND METHOD

The sample of this study consisted of four Iranian professional educated women aged between 25 and 36, who knew each other for at least three years since they worked as English teachers in a language institute. As professionals in the academia, these participants are considered proficient in English and so, they are able to effectively interact with other participants in the all female group. This study focused on a small number of participants (N=4) so as to be able to observe and trace the occurrences of interruptions. The setting of this study is informal and this was done to create a friendly and comfortable environment and to obtain a naturally occurring interaction. As such, the participants were gathered in the living room of one of the participants and they freely helped themselves with snacks and drinks which appeared to be a ritual

amongst them.

The presence of these professional women in this gathering is an indication of their consent in participating in this study. These women interacted in English and their interactions were recorded for a period of fifty minutes. The recorded data were then transcribed using a modified version of Gail Jefferson's 1978 transcription convention (see Appendix). In this convention, not only the words are transcribed, but some paralinguistic features (such as laughter, sighs and other sounds) are considered as well. Pseudonyms and letters are used to refer to the proper names of the participants for the purpose of confidentiality.

RESEARCH DESIGN

Qualitative approach was used in order to discuss the interruptions made by the interactants. Nevertheless, the frequency counts of each type of interruptions assisted in giving some general information. The analysis was entirely based on Conversation Analysis (CA) since the study dealt with the naturally occurring conversation. In order to analyse the interruptions, a selected part of Beattie's interruption Model (1981) was depicted to best fit the purpose of this study. The types of interruptions selected for this study are butting-in interruptions, silent interruptions and simple interruptions, as indicated earlier.

RESULTS AND DISCUSSION

In this study, there are many instances that describe how women interrupt each other to demonstrate their power and dominance. The elements to be analyzed are Simple Interruptions, Silent Interruptions and Butting-in Interruptions. In Table 1, the frequency counts of these three elements are tabulated to show the number of times that each type of interruption is used by women during the interaction.

TABLE 1
The frequency counts of three types of interruption

Types of Interruption	Numbers	Percentages
Butting-in interruption	182	51.7
Silent interruption	112	31.8
Simple interruption	58	16.4
Total	352	99.9

As shown in Table 1 above, butting-in interruption is the most frequent type, with 182 times of occurrence followed by silent interruption (112) and simple interruption (58). The following section discusses the analysis of each type.

Example 1

[95]	F2:	can you <u>really</u> listen to opera for an hour?
[96]	F1:	not <u>every</u> opera /and I / I /⌈I may * be ~
[97]	F2:	whatever *
[98]	F1:	~ selective/ I may be selective /⌈about * EVEN Pavarotti's operas / not all of them
[99]	F2:	⌊but *
[100]	F2:	whatever / can you listen to it ...

Butting-in Interruption

In this type of interruption, the interrupter plans to seize the floor and insert her ideas as such she barges into the current speaker's utterance and makes a simultaneous speech. Her attempt to take a turn, however, is in vein because the current speaker does not give in her turn easily and moves on. The following examples illustrate the way in which butting-in interruptions are distributed and also how the female participants in this research dominate the conversation.

In Example 1, the participants discussed about their taste in different types of music. In line [95], F2 poses a question and when F1 is trying to answer her, F2 makes intrusive interruptions. She interrupts her friend to make challenging comments because her friend's answer is not in line with her ideas. However, she is not so successful to gain the floor because the current speaker, F1, does not relinquish her turn easily.

On the other hand, F1, whose floor is threatened by F2, raises her voice in line [98] immediately after F2's intrusion and says "...EVEN Pavarotti's operas...". We can observe that F1 shows powerful attitude in not allowing F2 take her floor away easily and she strongly holds her own turn till her idea is fully expressed. Similarly, it can be inferred that F2, despite her failed butting-in attempts, is a powerful interlocutor because of being intrusive and determined in expressing her idea. Here, it is obvious that the turns are not so collaboratively changed.

Another instance of butting-in interruption is illustrated in the following example. In this instance, the powerful role of the participants can be significantly observed.

In Example 2, F2 is presenting an anecdote about one of her friends who is so rich but her husband has a strong body odour. In line [1462], she manages to finalize her story "but I don't know why her

Example 2

[1462] F2: but I don't know why her _husband_ was always smelling / <u>horribly</u>

[1463] F1:   but you see * F2 ~

[1464] F2:   you know *

[1465] F1: ~ it is some * <u>bodies</u>

[1466] F2:   and every *   no no no / listen //

[1467] F1:   // some bodies / but some * people they ~

[1468] F2:   no no no *

[1469] F1: ~ even know that they smell

[1470] F2:   no no //

[1471] F1:   // they don't understand *

[1472] F2:   he never used this * / he never used any
        deodorant and once we went to their house and I told my husband / he didn't know
        what to do / he said how can I tell him / I said I will tell you what to do / next time
        when we go to their house / buy //

husband was always smelling/ horribly". F2, who does not agree with her friend's point of view, takes the opportunity in [1463] to state her contradictory idea but she is interrupted unsuccessfully by F2, the story teller. F2 eventually gets frustrated because of not being able to get the floor and in line [1466], she begs "no no no/ listen". However, F1, who has already shown a dominant behaviour in not relinquishing the floor easily, does not pay attention to F2's attempt and interrupts her in [1467] to reiterate her own opinion and despite F2's another butted-in intrusion in [1468], she continues to move on. Eventually in [1472], F2 is able to seize the floor successfully and make her point.

It is evident that the turns exchanged between F1 and F2 are competitive and forceful in nature. They are constantly trying to dominate the conversation in order to convey their own ideas. In this instance, F1 and F2 try to gain the floor in order to assert their own views, but neither of them relents to proceed.

In Example 3, the participants are talking about movie stars when suddenly F2, in line [320], criticizes F1 for being contradictory at all times. Whilst F1, in [321], is trying to defend herself, F2 raises her voice and butts in unsuccessfully to assert the opposite. F2, however, manages to take a successful turn in [322], but after uttering a single word, she is interrupted by F1 in [323]. As can be observed, F1 and F2 do not build on each others' utterances and instead, each of them tries to stress her own idea. In other words, their turns do not demonstrate any collaboration. F1 appears to be a powerful participant as she does not let the others seize her floor easily.

The participants in Example 4 are talking about books and the films which are produced based on the books. F2, in line [836], is comparing a character in the book and the movie and unexpectedly, she raises her voice and aggressively defends herself and at the same time accuses the others "...I DIDN'T LEAD THE TOPIC OF THE CONVERSATION TO MOVIES/ you did".

Example 3

```
[320]  F2:  why do you always want to contradict with every one?
[321]  F1:                                                    it is not contradicting with
             any one * / it is my IDEA
[322]  F2:  IT I :::S *              so your idea is always contradictory *
[323]  F1:                   PAUL NEWMAN IS GREAT / but * I like Al Pacino
```

Example 4

```
[836]  F2:  ... / you know in the book the character is totally different / I DIDN'T LEAD
             THE TOPIC OF THE CONVERSATION * TO MOVIES / you did /
[839]  F4:  I didn't read the book but I watched it *
[840]  F1:                                                    so?
[841]  F3:                                              what is that
             finger to me? / I did?
```

In the meantime, F4, despite F2's raised voice, butts in to add something relevant to the topic and continues till her utterance is fully worded out though it appears that she is not successful in gaining the floor. F2, who is the current speaker, does not pay attention to F4's intrusion and proceeds. This example is significant as it shows both the interrupter (F4) and interuptee's (F2) powerful attitudes in their trials to hold the floor and express their ideas.

It is evident that the interrupter is not the only powerful person. The person who is interrupted can also appear powerful and dominant since she does not simply give in her turn and at the same time makes an effort to keep the floor. This point can be clearly observed in the examples above. We have shown that the interruptee can be powerful when she does not surrender easily and when she continues despite the interruptions. The interrupter, on the other hand, is a powerful person while she makes consistent attempts to convey her views despite being unsuccessful.

Silent Interruption

Silent interruption is another type of interruption which demonstrates the way in which the female interactants appear powerful in an interaction. The interrupter breaks in successfully with her ideas without considering the current speaker's completion point and also without leaving any overlapping utterances. In other words, this kind of interruption brings the present speaker's flow of speech to a sudden haul.

In Example 5, it is clear that F2 is telling a joke about politics. F1, who believes that her friend is not telling the joke right, suddenly barges in to correct her [1350]. F2, who is certain about her joke, takes a turn in [1351] in order to express her disagreement and at the same time tries to exert her claim. From this point onwards, silent interruption is observed, where there are quick competitive flow of turns between F1 and F2 in lines [1352-1354]. Eventually in line [1353], F2 gets quite desperate and interrupts F1 and demands her to "listen". In order to put an end into this jockeying of turns, F3 interrupts F1 in line [1355], and in

Example 5

[1349]	F2:	uh / he said I am the breadwinner of the family so I'm capitalism / your mother is the organizer / so she is the government *
[1350]	F1:	no / no * / mother is a / working class
[1351]	F2:	no no no no //
[1352]	F1:	//no no no//
[1353]	F2:	// listen //
[1354]	F1:	// yes yes / yes yes yes *
[1355]	F3:	I HATE * when people wanna tell a joke and they don't know about the joke

a raised voice, she complains about people pretending to know about jokes when in fact they do not. This example illustrates the extent to which the participants are not willing to relinquish their turns easily in order to assert their ideas and ultimately prove their point.

F2, in Example 6, is talking about the time when she was sick and could not teach the students in her class. In line [626], she is trying to emphasize the period of time that she was away, but F3 interjects and makes fun of her in line [627]. In the midst of the cheers, F2 raises her voice [628], wanting desperately to be heard but again she is interrupted, and this time is by F1 [629].

In this instance, despite the opportunity that F2 thought she might have to convince her friends, it fell short because F1 and F3 are powerful and not willing to relinquish their turns, thus dominating the conversation. Silent interruption is seen in lines [627] and [629], in which F3 and F1 interrupt and deny F2 of her right to defend herself.

Example 7 is a short excerpt of silent interruption. In line [131], F1 intends to criticize F2 for her frequent interruptions. However, she is not allowed to complete her complaint because F2 interrupts her to justify herself [132]. In this instance, F2 appears powerful since she does not let anyone criticize her and she defends herself by interrupting them. In the end, F2 manages to seize the floor and shows her dominance.

Simple Interruption

In a simple interruption, the person who interrupts appears to be in control and exerts power to seize the floor. In this instance, the interrupter is successful in grabbing the floor by making a simultaneous overlap before the current speaker completes her utterance. The following examples depict instances where the participants utilise this strategy to exert their power in the conversation.

The female participants in Example 8 appear to be arguing about a book called 'one hundred years in solitude', particularly about the extent to which it has been understood.

Example 6

[626]	F2:	a month / I was //
[627]	F3:	// well actually in that case if it was that serious you had a pretty brave face ((everybody laughs)) that you came to work every day ((every one cheers))
[628]	F2:	I WAS / I WAS //
[629]	F1:	// come on / not that one / the other one

Example 7

| [131] | F1: | THIS / this is one of her / uh // |
| [132] | F2: | // I can't concentrate / it's my problems / I think I'm hyper active too / I have to take Ritalin |

Example 8

[1277]	F1:	you mean you understand that?
[1278]	F2:	NO / I DID / it's not a book to understand
[1279]	F1:	aha
[1280]	F2:	it's /

it's not you know it's/ unlike what people *

| [1281] | F1: | BECAUSE it's * different / you see some times * |
| [1282] | F2: | no / * UNLIKE what |

people think you know / they think that there is something behind the story / but even he himself / why are you trying to make up something which is not there? / it's just a story …

Example 9

[993]	F3:	he plays there very dramatically *
[994]	F1:	ok / anyway forget them / they are talking about movies *
[995]	F2:	BUT / WHAT A GIRL WANT /

WHAT A GIRL WANT * WHAT IS / WHAT A GIRL WANT? * I saw it on / uh / ~

| [996] | F1: | don't pay attention to her* |
| [997] | F2 | ~ multimedia |

In line [1280], F2 attempts to express her idea but before she could complete her utterance, F1 raises her voice and interrupts [1281], "BECAUSE it's different/ you see some times". F1, however, only manages to hold the floor for a short while because F2, just like F1 in [1281], also raises her voice and interrupts to seize her floor back from F1 in line [1282]. It appears that F2 manages to retain ownership of the turn and holds the floor much longer than F1. This indicates that F2 is more powerful than F1 for the mere fact that she was able to assert her ideas, hold the floor longer and thus dominate the conversation.

In Example 9, the participants are talking about movies and actors. In line [993], F3 compliments Collin Firth about his acting abilities but she is interrupted by F1, who is quite fed up about her friends continuously talking about nothing else but movies. As such, F1 tells her other friend (F4, who is silent) to ignore F2 and F3 in [994]. But then in line [995], F2 dramatically raises her voice, interrupts F1 and repeatedly suggests another movie "... WHAT A GIRL WANT?". Even though it is clear that F1 tries to interject in line [996] by trying to persuade others to not listen to F2, her attempt at the turn fails because F2 denies F1 of her turn and continues in line [997] to discuss about the movie that she has initially suggested.

It can be summarised that the interruptions in Examples 8 and 9 do not illustrate any instances of cooperation at all but instead women compete for floors and exert their power in order to dominate the conversations.

CONCLUSION

In this paper, we have examined professional Iranian women conversation and also studied how power is manifested in their language. As shown in this study, power is exercised via the intrusive interruptions that the participants make to seize the floor. Through a careful analysis of females' interruptions, it is apparent that Iranian women are assertive and they utilise power in their interaction to achieve their goals. The participants in this study appear to frequently vie for the floor and jockey for the turns in their quest to dominate the conversation and in turn prove that they are more powerful than the others. In fact, their ability to interrupt, particularly when they bluntly disagree, aggressively assert their ideas, tactfully ploy, continuously complain and consistently control the flow of talk, shows that they are more powerful compared to the unequal positions they have possessed for a long time in the Iranian society.

On the other hand, there are also participants who manage to retain the floor despite others who make several attempts to seize the floor. These participants have demonstrated power by not relinquishing their turns easily.

In sum, the study reveals that the female participants wield power in their discussion amongst peers in private domain unlike previous studies which indicate that women practice solidarity in similar situation. In the case of the Iranian women, due to recent social success in embracing autonomy, they have gained more confidence and consequently tend to dominate conversations. They have also been seen to constantly fight for equal rights in the society. It appears that in this study, the female participants have mirrored this behaviour and applied the same strategy in fighting for turns in their interaction amongst friends. In addition, it also appears that these professional women have great tendency to uphold their status, dominate the interaction and ultimately display power.

It would also be interesting to see whether such act of power prevails when Iranian female professionals interact with their male counterparts. Would they emulate powerful speech styles and dominate interactions in order to retain their powerful status? In this regard, more studies should be conducted to examine the distribution of power in women's talk.

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APPENDIX

TRANSCRIPTION CONVENTION

⌐	A single left bracket indicates the point of overlap onset
*	An asterisk indicates the end of the overlapped utterance
CAPITALS	Capitals indicate the utterances which are uttered with loudness
?	Question marks show a question or the rising tone which signifies a question
(word)	the words or phrases in single parenthesis demonstrate uncertain speech
/	A slash indicates a short pause
Word	Words in italics indicate some sort of emphasis
:::	Colons indicate prolongation of the immediately prior sound
~	one at the end of an utterance and one at the beginning of an utterance in some lines below indicate the continuation of the same line
//	Double slashes, one at the end of one line and one at the beginning of a next line indicate an interruption or latching without any simultaneous speech
…	Three dots are used to indicate the continuation of utterances within a turn which has been eliminated
((word))	Words in double parenthesis are used to explain any non-speech sounds and non verbal actions and any necessary information such as translation and the researcher's clarifying comments
[1], [2]	Arabic numerals indicate the lines of the transcription form the beginning of each transcription
F1, F2, F3, F4	Capital F indicates female speakers and the immediate number after each letter indicates the order of speakers appearing in conversation

Dividend Tax Cuts in the United States and Single-Tier Tax Regime in Malaysia: Share Price Reactions to Tax Policy Changes

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ABSTRACT

There is a body of received theories which suggest that tax policy changes actually influence the value of corporations, and affect capital market values. There is strong evidence of share price being changed whenever good or bad news from tax changes occur. This paper provides a very short review of well-known theories, with the aim of showing how tax changes *relating to dividends* in Malaysia and in the USA do actually affect the values of shares in one mid-income and one high-income economy. Malaysia's policy change in 2007 to streamline the dividend credit system into a single-tier tax system led to share price increases in *Bursa* Malaysia. Tax effect in the USA was tested using the good news of dividend tax cuts passed into law on three dates over 2003 and 2010. These findings are very much policy relevant for the ongoing debate, for example, in Malaysia on introducing future goods and sales tax to reduce other taxes.

Keywords: Taxation theories, share prices, disclosure effect, tax policy effect, Bursa Malaysia, goods and sales tax

JEL Classification: H22, H50

INTRODUCTION

Modern theories of how firms behave financially are widely accepted after 50 years of empirical support for most of the predictions of theories. This paper is about a subset of these theories relating to how share values of firms are affected by

government's tax policy changes in two economies changing dividend taxes, namely, United States (US) and Malaysia. A brief review of the theories relating to corporation and personal tax effects on share value is provided as the background to this paper. This review is meant to provide a sound up-to-date position of the finance discipline relating to taxation policy as a preview to the empirical results to be presented in this paper. The aim of this research is to propose and then test for statistically significant share price effects around the time of announcements of tax change policies in two capital markets. The Malaysian and US tax reforms are related to dividend taxes with US cutting dividend tax and Malaysia eliminating dividend tax credits, hence, both were studied. The proposed price effects are identified from the capital structure theories in the literature. Tax policy changes in both cases studied reduced the tax paid by shareholders. Hence, as per the capital structure theory, it is proposed that the direction of the share price changes around the time of the announcement of the tax change policies in both countries as testable propositions.

The empirical results from studying the announcement effects of tax policy changes in the US on three occasions during 2003-2010 are reported in this paper; and the share price reaction to Malaysia's decision in 2007 to introduce a single-tier tax regime to replace the dividend credit system that dated back to 1958. Just as the theories would predict, these policy changes are perceived as good news by shareholders in

both markets as these tax changes reduced the taxes in the US and formally introduced a reduced dividend tax regime in Malaysia. Therefore, the shareholding investors of the affected firms would re-price the values of their shares when these announcements were made to the markets.

If for example the package of any future tax policy on goods and sales tax is perceived as good news, a similar good news price reaction would then be predicted in the *Bursa* Malaysia. Current debate on this new tax hovers around the possibility of introducing this tax and at the same time reducing the corporate and personal tax rates. Several nations have reduced the personal and corporate tax rates since the 1980s, i.e. after the US and United Kingdom started to reduce tax rates in 1989-82. When sales taxes were introduced by several governments such as Singapore in 2003, the governments reduce personal and corporate taxes and provide cash payments to households to offset the sales tax impact of the bad news effect of introducing sales tax. This is to sweeten the debut of sales tax as being regressive. This tax often starts at 2 per cent only to be increased by politicians in later years to higher and higher rates as it happened in several EU countries, where it hovers around 10-20 per cent as at 2012.[1]

The rest of the paper is organised as follows: **Tax Effect Theories** is an introduction to the relevant theories and

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[1]See Ariff & Aslam (2011). *Reinventing the State and Expanding Taxation, presented at the Globalisation and Reinventing the State conference*, November, 14, 2011, Bond University, Qld., Australia.

these theories are structured into a testable model for application. Also, in this section the reader will find some worldwide facts about tax revenues so as to relate our findings to the policy issues in the evolution of tax changes. The methods and tests to be done with the data set selected for Malaysia and the US are described next. The findings are summarised and discussed in **Results** before ending this paper with some comments in **Conclusion**.

TAX EFFECT THEORIES

Worldwide Taxation Facts

Modern theory of the structure of taxation as a body of positive theory was developed only during the last 53 years starting with the works of Nobel laureates Modigliani and Miller (1958; 1961). Prior to this important advance in knowledge as our very valuable positive finance theoretical framework, the debate on taxation was based on common sense – often not producing valid evidence to support such common-sense-based ideas. The enunciation of a rationally structured framework led to a new thinking about the effect of taxation that led to a body of literature supported by empirical evidence. To give context to the debate on tax policy evolution, basic facts about taxation across the world are also provided: Per capita tax revenue is US$ 3,800 against per capita world income of US$11,000 as at 2010 (Ariff & Aslam, 2011) based on OCED statistics. Tax does bite into the incomes of people. Given this background, some salient facts of cash flows involved in

taxation across the world are introduced in this section.

Tax has been levied as long ago as the first civilization some 4500 years ago in Sumeria by King Hammurabi (Adams, 1993; Simon & Nobes, 1992).[2] All settled societies had some form of taxation. For simplicity, the taxation structures are divided as practised over centuries into three epochs. The early settled societies imposed a poll (household) tax as did the Romans, along with tax on land or other assets such as produces and tax on subject nations. Added to this, a toll tax was collected at the gates of cities from merchants who would want to trade, and it is called sales tax. Of course, the confiscation of the wealth of defeated people often supplemented as extra revenue. That appears to be the totality of taxation for centuries. There were some minor extra taxes such as levy on the rich when wars broke out.

This was the simple template for taxation that lasted well into about 1500 AD. The result was that these were pre-modern societies without elaborated tax system as compared to the modern times in modern societies. China, as an exception in the early period, has records of income tax levied on households during some dynasties (for example, during the Tang Dynasty in 7-9th centuries). However, income tax did not contribute much to the total revenue as did the poll, wealth, produce, land, toll taxes.

[2]There are several sources for a historical review of taxation. An excellent introduction is found in Charles, A. (1993). *For Good and Evil: The Impact of Taxes on the Course of Civilization*. Madison Books.

Hence, the first period of tax experience lasted for a long period.

This appear to have changed with the birth of modernisation in the 16th century and the organisation of modern stock exchanges some decades later, along with the expansion of the European power to the New World, Africa, Asia and Australia. New forms of taxation started to take root during this second period (Brien & Hunt, 1993; Stewart, 2011). Among these were the agricultural tax (both land and produces); wealth tax that even included a tax on owners of buggies in England; and some forms of tax on ships that plied across the oceans. Nevertheless, there were no major inventions of the new tax forms. Most of the old tax forms now began to provide more tax dollars. With population increases, tax revenue from exports and imports (creating for the 20th century economists a platform to abolish the ad valorem and excise duties, which averaged about 90% of the value of goods in 1950s) increased as did poll tax when the number of households increased. There were no estimates of how much tax was collected. Some rough estimates found in the records suggest that tax farming was a lucrative trade, but there are no records of the amount of wealth a particular nation had during the period of Renaissance in Europe for example in the 12-14th centuries.

All this changed about 200 years ago mainly in Europe as new forms of taxation started to develop, especially based on the incomes of firms and of individuals. Income-based tax was introduced at the times as war expenses: large corporate tax was introduced in United Kingdom in its modern form after World War II (Musgrave & Musgrave, 1989). An example of the early income tax is the infamous England's windows tax meant to tax richer people living in larger houses with more windows (Raithby, 1820). Personal income tax became an extra tax over and above land and produce taxes. For example, the British rulers of India introduced the land and produce taxes by taxing the owners of produces; the tax officers would stand during the harvest times at the collection points of harvesting to estimate the produce value to slap a tax on the richer segments of the empire. Of course, we have heard of the infamous tax on tea imposed on the US colonies and the subsequent tea revolt in Boston that led to the push for the fight for a republic.

The income tax and corporate taxes were perfected by the European and the US governments about 120 years ago.[3] This tax form spread to all their colonies so today almost all the governments use these new devises to tax people across the world, even in tiny countries such as Singapore or Hong Kong to amass huge revenue base from taxing high-density populations on tiny lands. In the 1950s, as justified soon after the World War II to create jobs and to repair the damaged infrastructure, support

[3]The first attempt at income tax was shrouded as windows tax. An attempt to tax incomes in the closing decade of the nineteenth century led to a revolt in the US. The Supreme Court ruled such a tax as unconstitutional, so the imposition of this tax had to wait for the new laws in the first decade of the twentieth century.

Fig.1: Per Capita US$ Share of the Total Tax out of World's GDP
(The data for this analysis were from OECD sources and World Bank)

for a value added tax came from some economists. Thus, this new form of tax transformed into the GST of today (Tait, 1988).[4]

The total taxes collected in 2010 by governments across the world averaged to US$ 3,800 per capita against the per capita world income of US$ 11,000, which means tax is 32 per cent of per capita GDP (Ariff & Aslam, 2011). The total taxes in wealthier 36 OECD countries averages 32 per cent of GDP, while the total tax of the less well-off non-OECD countries is 19 per cent of their GDP (see Fig.1). The net results of the tax policies of nations in the opening decade of the 21st century are summarised in Table 1. The amount of money in the form of taxation is 27.5 per cent of the world GDP or about $18,000 billion.

[4]Tait, A. A. (1988). *Value Added Tax: International Practice and Problems.* Washington: International Monetary Fund. Other classics are: Musgrave, R. A., & Musgrave, P. B. (1989). *Public Finance in Theory and Practice*. New York: McGraw Hill Higher Education; Musgrave, R. A., & Peacecock, A. T. (Eds.) (1958). *Classics in the Theory of Public Finance*. London: MacMillan; Pechman, J. A. (1985). *Who Paid the Taxes 1966-85?* Washington D.C.: Brookings Inst Press.

TABLE 1
Chronology of Events on the Single-Tier Tax Policy in Malaysia

Event Dates	Description of Event
29/05/2007	Budget 2008 consultation session and Budget presentation date announced to be 7th September 2007.
05/09/2007	President of Malaysian Institute of Taxation (MIT) revealed the proposal included a plan for a single tier tax for corporate income.
07/09/2007	Budget presented at the Dewan Rakyat (Parliament).
03/12/2007	Budget endorsed by Parliament.

$ billion

Fig.2: World Income (GDP) and Share of Taxation and Gross Investment
(The data for this analysis were from World Bank's World Development Reports)

These numbers are calculated from the data available on world taxation in several sources, including OECD publications (see also Ariff & Aslam, 2011) for details on this analysis.

Fig.2 shows the average gross capital investment to be $14,000 billion a year: the governments' share of this gross investment from tax revenue is 2.7 per cent and the rest are just expenses of government bodies.[5] These figures suggest that taxation is an important macroeconomic variable in all countries, aside from gross investment and employment rates, which are significant drivers of the economic affairs. Should a country's tax policy affects the share prices of the stocks listed in an economy? Received theories of information economics and capital structure theories suggest that share prices are affected by the changes in tax policies. A brief review of these theories is provided so as to propose the testable propositions for our empirical tests in the US and Malaysian share markets.

Taxation Effect Theories: Is Tax Relevant to Value?

Modern taxation studies can be traced back to the early 1950s. Few theories remain unexamined, such as those in Modigliani and Miller (1958; 1963), which provide a framework as the modern theory of valuation of firm. The theory predicts that in a perfect market where there is no corporate tax (think of the years before the 20th century or think of countries that have no corporate tax even today, such as Qatar), any choice between debt and equity will have no relevance to the firm's value. That is, the

[5]Forty-four countries hold sovereign wealth funds totalling of $4,800 billion. Of these, 7 countries (China, UAE, Norway, Saudi Arabia, Singapore, and Hong Kong) hold 75% of the total assets. In a broader sense, these wealth funds are over-taxed income or resource-based income farmed into separate accounts and used as sovereign wealth funds for gaining control of the firms across the world.

share value of the firm is unaffected by tax policies. If corporate tax is imposed, it is predicted that the firm value is not affected as long as the firm is not giving the right to deduct interest costs as tax deductible. If the firm is permitted to tax-deduct interest expenses and there is corporate tax, the firm would earn more net income by reducing its tax liability. This creates a *tax-shield value*, which increases the value of the firm due to the corporate tax applied. In a world without taxation (Qatar today or pre-1994 China), the absence of corporate tax would mean that there is no tax shield value for firm whereas in other taxed countries, tax shield value is relevant as tax-induced value gained by the firm. Hence, policy change to introduce corporate tax in Saudi Arabia, Oman, and China would lead to share price changes.

Miller and Modigliani (1961) also made another sound proposition on dividends (relevant for this paper's analysis of US dividend tax cuts), stating it is *irrelevant to the value* of firms by assuming there is no tax on dividend incomes. A firm could pay all the income as dividends and then turn around to raise money for new investment. In the of the expectation of profits, the new investments may make the share price go up, but not the re-assignment of income as dividends. They further state that the firm value can only be increased through other sources, such as investment, but not from repackaging earnings as dividends. In addition, they stated that the change in the value of share price could only be due to signalling value if there is a sudden unexpected increase in future dividends (as for example, when US cut dividend taxes three times in 2003-2010; or when Malaysia chose single tax regime in 2008), signalling that value change is not dividend-repackaging value, they added. In their 1966 study, Miller and Modigliani (1966) further strengthened their claim with an empirical test, where they found that the cross-sectional regression against return showed a slightly negative and insignificant dividend payout term.

The theory on dividend irrelevancy was further extended by Elton and Gruber (1970) to capture the predicted drop in share price around the ex-rights dates based on investors selling and buying value on the after-tax value of dividends; they named this the price-drop effect:

$$\frac{P_B - P_A}{Div} = \frac{1 - \tau_p}{1 - \tau_{cg}} \qquad (1)$$

where P_B is the stock price before the ex-dividend day and P_A is the stock price after the stock goes ex-dividend. Therefore, in a situation where dividend tax is higher than capital gains tax ($\tau_p > \tau_{cg}$), the dividend drop ratio on the left side of Equation (1) is expected to be less than one. They showed that the price would drop by less than 1.00 on the ex dates and that the dividend-to-share price drop ratio could be used to compute the average tax effect on investors. They developed an expression for this relationship between dividen payment and share price, before and after ex-dividend date.

The corollary of this prediction is that in the absence of tax on dividend incomes, the price drop ratio will be equal to one (for example, in Malaysia under the single tax regime introduced in 2007). The price drop ratio should be equal to 1.00 as would also be the case in the US in the period after May 2003, when the tax on dividends was reduced to 0. They examined the share price behaviour following ex-dividend day on NYSE market and found that the average price had dropped to be 0.76. This showed that the average tax rate in US was 1-0.76 = 0.34 or 34 per cent in the 1960s.

Besides Elton and Gruber's study, another study that has also been receiving attention is that of Brennan (1970). He incorporates the effect of personal tax into the famous capital asset pricing model (CAPM),[6] which could be specified as:

$$E(R_j) - r_f = b\beta_j + \tau(d_j - r_f) \quad (2)$$

where $E(R_j)$ is expected return (before tax) and r_f return on risk-free asset for security j. For the right-hand side, there are variable β_j, which is beta, the systematic risk and variable d_j, which

is the dividend payout on each security j. Tax premium, which is indicated by τ, shows the relevance of dividend payment to the value of the firm.

Although Brennan did not test his theory, this framework was replicated in some studies in different tax environments. Ariff (1985) found a significant coefficient for the dividend yield variable in the Singapore market. With an extended model, Litzenberger and Ramaswamy (1979; 1980; 1982) also found significantly positive dividend yield coefficients in the NYSE market. Similarly, Poterba and Summers (1984) detected changes in the dividend yield while examining the model across radical tax reform over 30 years of UK data.

At present, there are several studies on personal tax effects on share prices, however, with different models than of Brennan's (Chen *et al*., 1990; Fama & French, 1998; Gentry *et al*., 2003). Investigations through different models revealed that there is no consensus about the tax effects. The arguments over tax effect is, however, not new and it is in line with the theory of the late Miller (1977)[7] who claimed that it is possible for everyone to avoid paying tax by designing schemes such as from investment through retirement option to offset the

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[6]The after tax CAPM model (Brennan, 1970) is an extension of a pricing model framework constructed by Ferrar and Selwyn (1967). This model incorporates the CAPM that is derived by the works of Sharpe (1964), Lintner (1965), and Mossin (1966). While the previous CAPM provides specifications of risk and expected returns on all assets and securities given a corresponding portfolio with assumption of no taxes, the after tax CAPM provides similar indication with assumption of tax.

[7]Some authors claim that the tax effect is negligible because much of the cash dividends being invested in tax-exempt pension funds. See Chetty, R., Harrison, & Sharpe, S. (2007). The effects of taxes on market response to dividend announcements and payments: What can we learn from the 2003 tax cut? In A. Auerbach, J. Hines, and J. Slemrod, J. (Eds.). *Taxing Corporate Income in the 21-st century*, Cambridge, UK.

dividend tax or capital gains tax. Therefore, in a world with different types of taxes, the gain on leverage would be insignificant and could even be negative.

DATA, HYPOTHESES AND TEST MODELS

Hypotheses and Data

Hypotheses: There is one major hypothesis to be tested, which is: Did the tax policy change have a significant price effect on (i) NYSE market and (ii) *Bursa* Malaysia. A general positive return is expected following the confirmation of dividend tax abolition/ reduction news events in the US; a similar effect is expected to the Malaysia's policy change to convert the dividend credit system to a single tax regime. Hence, the hypotheses are: There are no share price effects around tax change announcement dates in (i) the US and (ii) Malaysia. Rejecting the null hypothesis in our tests would confirm if there is a price effect.

The price effect from policy change is expected to occur after a surprise event is announced as happens with any completely unanticipated changes. This has been documented for many *un*expected events in prior studies (Barrett *et al.*, 1987; Carter & Simkins, 2004). This hypothesis is the corollary of the Miller and Modigliani (1961), i.e., if there is an unexpected increase in dividend cash flows to investors, there would be a clientele effect. Nonetheless, in this case, cash flow increase is evident from the reduction in dividend tax and abolition of dividend tax. Therefore, it is expected that a positive price effect is predictable in both countries.

Data relating to share prices and market index values were collected from DataStream. In order to analyze the effect of tax law changes on the overall market, daily market index values (NYSE S&P 500 and KLSE Composite index) were collected for days around the disclosure of the dividend-relevant disclosure dates. As is clearly known in the literature, the movement of stock index is affected by so many events such as import duty cuts in Malaysia in 2008, new spending, tax exemptions for venture capital firms, etc. We zero in on the (i) three tax cuts in the US and (ii) announcement of single tax regime in Malaysia, so we measured the effect on those unique important event dates. Additionally, the effects on individual firms in the NYSE and the *Bursa* around the tax cut dates were also examined so as to minimize the impact of other events before or later than the event of interest.

The effect on individual stocks required data on individual share prices, for which a sample of 1,665 shares in NYSE and 843 in the Bursa Malaysia were collected. Individual share data are needed to conduct significant tests on measured share price impacts. Thus, the hypotheses addressed are: Did the share market react to tax change disclosures? Did individual stocks react to the same tax change disclosures? The data used are adjusted for market capitalisation. Event dates were collected mainly from daily updated newspaper articles, which are the main sources in each country, supplemented by reports in the

web. Then, the dates were verified with the government's databases on how the lawmakers proceeded to take the bills to become laws over a given period of time.[8]

For each market index, index returns were calculated as natural log of the share price behaviour around the event dates, and market returns are termed as R_{mt}. Individual stock returns are termed as R_{it}, where i denotes the individual stocks in either markets. Thus, the variables computed are as in Equation (3), with m denoting market and i denoting stocks.

$$R_{it} = \ln(\frac{P_{it}}{P_{it}-1}) \qquad (3)$$

where R_{it} is the rate of change in individual values at time t in a country; P is the individual share price value (or portfolio value of 1,665 US stocks and 843 Malaysian stocks after averaging across the samples) at time t and time t-1, which are daily returns.[9] The ratios were changed to percentages by multiplying them by 100.

We computed the abnormal percentage returns as $AR_i = R_{it} - R_{mt}$ (based on the widely used market adjustment model) for each individual shares and the CAR_i

as the cumulative abnormal returns[10] over a number of windows around the event dates chosen for the portfolios of individual stocks in Malaysia and separately for the individual shares in the US. The windows are shown in the respective tables in the results section: the longest window was over 0 to + +9 days. In the measurement of the index price changes, no statistical test could be conducted. However, in the case of much more accurate individual stock's abnormal returns, relevant t-tests were used to test for significance. Some authors (e.g., Barber & Lyon, 1997) provide an alternative model for measuring price effect in windows greater than over six months.

RESULTS

Malaysia Tax Event

The change of imputation tax system to a single-tier tax system was formally announced on 7 September 2007 during the public disclosure process of presentation of the fiscal budget for the year 2008. Nonetheless, two days prior to that presentation, the chair of Malaysia Institute of Taxation made a statement to the press about the proposal for a single tier tax.

From an exhaustive search of the press releases and press reports, four dates chosen are the ones most likely to elicit a response in the market. The most important date

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[8]Malaysian tax enactment date can be accessed in parliamentary records of the Parliament of Malaysia in http://www.parliament.gov.my. The US tax legislative history can be accessed from US Government Printing Office: http://www.gpo.gov.
[9]In a continuing research, the price effect of individual share prices was pursued. Initial results are similar to the results reported in this paper for both the US and Malaysia.

[10]The CAR data could be used to find if the price effect as CAR is driven by some identifiable firm's characteristics. This will be a good extension of the work we have done, as it is an extensive further research.

was the second date when the authoritative person announced a change of policy.

Table 2 details the index prices and the returns observed around the event dates. It is evident that in all potential event dates, the returns are positive. The exception is the reaction on the date of budget presentation; by this date, the surprise element was already not there. These reactions from the market indicated that the policy change to inaugurate a single-tier tax system did have a positive price effect. These results are very preliminary just to show how the market reacted and also because with these numbers, no statistical tests could be conducted. The results relating to individual stocks presented later were tested for significance.

TABLE 2
Malaysian Index Price and Return (in percentage) on Event Dates

Event Date		-1	0	+1
29/05/2007	Return	0.51	-0.22	-0.28
	Price	1345.99	1343	1339.18
05/09/2007	Return	-0.03	1.10	0.07
	Price	1283.75	1297.93	1298.85
07/09/2007	Return		0.46	-1.09
	Price		1304.9	1290.7
03/12/2007	Return	1.64	1.59	-0.25
	Price	1396.98	1419.34	1415.81

This table shows the summary measures of how the market reacted to the tax reform announcements. The results are mixed. However, when the authoritative person made the announcement of tax reform and when the law was passed in Parliament,

there are very large changes in the index values: 1.1% and 1.59%. Fig.3 shows how the price reacted over time with no particular pattern indicating the uncertainty on the tax cut law being passed. We did not test the CAR over -1 and +1.

Following the press statement in May, the market index rose from 1,283.75 to 1,297.93, with a return of 1.1 per cent (see Table 2). That is an estimated market capitalization change of US$3.578 billion.[11] Two days later, following the presentation of the budget by the Finance Minister, the market index rose again by 0.46 per cent to the value of 1,304.9. Over three days, the market index return increased by 1.63 per cent. The return spikes to the event dates are plotted in Fig.3.

On 3rd December 2007, the Budget was endorsed by the Parliament, and this brought the single tier tax into effect on 1st January 2008. The market index was at 1,419, with a return of 1.59 per cent. Despite the US-origin global crisis spreading to this market at the same time, the market index price showed a mild increase at the time of Budget announcement on 7th December 2007.

The law was enacted and endorsed by Royal assent. It is noted that the large index return spikes around the month of August are unrelated to the announcement of tax. These changes may well be due to a combination of news including that of tax change policy. However, as is shown for individual stocks, this is not the case as

[11]The annual market capitalization as at year 2007 is US$325,290.3 million: source: World Market Exchange Federation (2007).
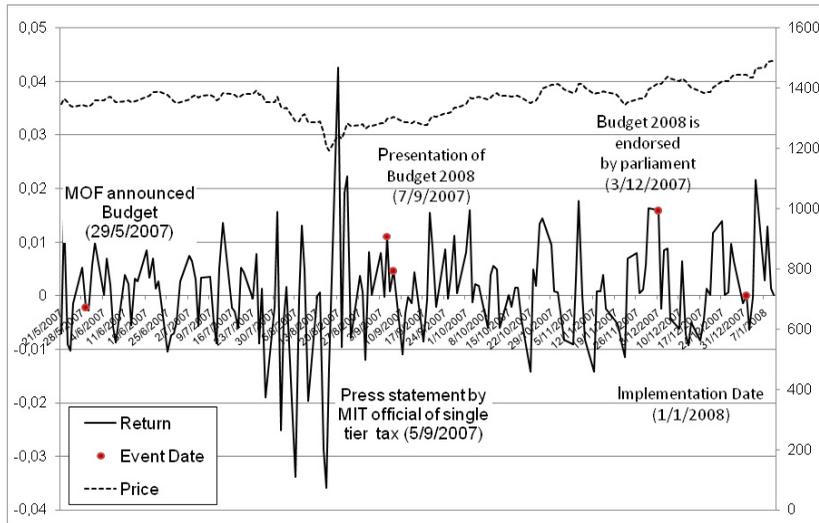
Fig.3: Malaysian Index Value and Returns around Single-Tier Tax Announcement

the market index change was substracted to compute the abnormal return using the market adjustment model widely used in event study.

The US Tax Cut Events

The plan to cut dividend tax was brought up much earlier than the effective date of debates in the US public media and the Congress. It was first discussed broadly at the economic forum held in Texas on August 2002 (see Table 3 for the four key dates).

Later, a formal announcement was made by President George W. Bush on 7 January 2003, detailing the proposed tax relief package for four years that was to be made to the House. NYSE Index values reacted immediately to this good news as shareholders re-priced the value of the increased cash dividends over four years. The return showed a positive spike of 2.06 per cent prior to the day (see Fig.4a and

Table 4), which accounted for an estimated capitalization increase of some US$354.32 billion.[12] Furthermore, it is evident that the price moved in an upward direction following the announcement.

TABLE 3
Important Dates on the US Dividend Tax Cut Plan

Event Dates	Description of Event
07/01/2003	President Bush made formal announcement on tax relief plan at the Economic Club of Chicago.
28/05/2003	President Bush signs proposal into law, which will expire by end of 2008.
17/05/2006	President Bush signs extension, which will expire by end of 2010.
17/12/2010	President Obama signs extension, which will expire by end of 2012.

[12]NYSE market capitalization is only available on an annual basis. Calculation is based on end-of-year 2002 market capitalization of USD17.2 trillion. The overall effect was much muted (see Footnote 6).

TABLE 4
NYSE Index Price and Return (in percentage) on Event Dates

Event Days		-1	0	1	-1 to +1
07/01/2003	Return	2.0559	-1.3114	-1.2168	-0.4723
	Price	5255.39	5186.92	5124.19	
28/05/2003	Return	1.4826	0.1915	-0.2141	1.4600
	Price	5367.44	5377.73	5366.23	
17/05/2006	Return	0.1117	-2.2692	-0.6264	-2.7839
	Price	8387.57	8199.38	8148.18	
17/12/2010	Return	0.530	-0.063	0.149	0.6160
	Price	7840.24	7835.31	7846.96	
	Market Cap ($bil)	16083.53	16072.73	16121.78	

After an exhaustive analysis of the announcements, these 4 dates were chosen. These were the only dates around which the market appeared to respond to tax cut announcements; at the first announcement, when the bills were signed into law on three occasions.

There are four identified dates for testing the share price effect, namely, the policy announcement in 2003, followed by the enacting of the law in May 2003, and two extensions of the law in 2006 and 2010. Share prices reacted positively just prior to the policy announcement (2.06%) and ahead of the bills being signed into law on three dates. These are index changes so no tests could be done. The tests were done on 1,680 stock price changes as shown in section 4.

The legislation went through some debate and voting process in the House and the Senate. Finally, the bill was passed into law when President Bush Jr. signed the law on 28 May 2003. The NYSE Index recorded an increase from 5,367.44 to 5,377.73

points, with 0.19 per cent in market return, a value which is much smaller than the initial announcement effect.

In Fig.4b, an upward price index movement can be observed, and this signals a positive news effect for the overall share market. This effect is mixed with other events as well as tax cut event, but we needed to see how the market reacted. The new legislation was due to expire by end of year 2006.

In 2005, the dividend tax cut bill was presented to the House for extension. The legislation process, however, was quite controversial and there were prolonged delaying actions by both parties. It took about 6 months since the bill was first introduced before it became law. It was finally signed into law by the same president. There was a mixed reaction towards the whole process since the tax cut was seen as very costly, which would add up the already worsening national debt.

a: Formal Announcement 7/1/2003

b: Signing of the Law 28/5/2003

c: Signing of the Extension Law 17/5/2006

d: Signing of the Extension Law 17/12/2010
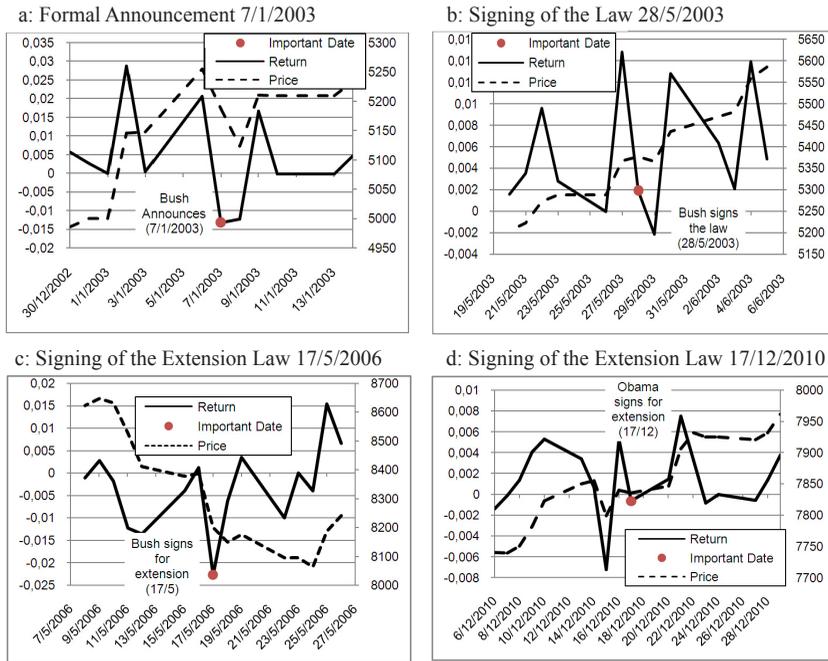
Fig.4: NYSE Price and Return Index Plot

As expected, the market index shows a negative movement preceding the signing of the extension on 17 May 2006. In fact, the index recorded a negative return of -2.27 per cent following the event. This is a decrease in the index point of 8,387.57 to 8,199.38 (see Fig.4c).

During the Obama presidency, the tax cut law was due to expire in 2010 and came up for a debate for a possible extension (see Fig.4d). The initial support of the new president was to revise the bill and extend the tax cut only for the lower to middle income investors, and not to the high income investors. On this point, the bill got stuck for a while, until a compromise was reached on the floor to extend the tax cut till end of 2010 and leave the rich vs. poor debate to be played out in 2012. This was good news for all and the market's positive reaction could be seen even before the signing of the law on 17th December 2010. The market index jumped and a return of 0.53 per cent was seen a day prior to the signing. There was a small decrease on the day of the signing but the index regained a 0.15 per cent the day after. That is, an accumulation of 0.62 per cent change over 3 days, which accounted for US$38.25 billion worth of market capitalization.

Individual Stock Performance and Tests of Significance

Malaysia

To provide a test of statistical significance, which could not be done with the market index analyses that are merely trends, the

TABLE 5
Individual Stock CAR in percentage in Malaysia

	-1 to +0	0 to +1	-1 to +1	0 to +9
29/5/2007	0.418	-0.600	-0.116	3.627
	(0.759)	(-1.283)	(-0.132)	(1.963)**
05/09/2007	0.121	0.507	0.371	
	(0.307)	(70.449)***	(0.950)	
07/09/2007	-0.959	-1.593	-1.328	
	(-0.644)	(-1.861)*	(-1.025)	
3/12/2007	-0.106	-1.387	-1.249	
	(-0.278)	(-1.540)	(-1.096)	

Note: The *p*-value is denoted as * (0.1), ** (0.05) or *** (0.01)

individual stock performance in the two markets were examined and then the test results are presented in this sub-section.

The Malaysian stocks were found to have reacted positively to the initial release of the information that a single-tier tax regime was to be implemented. As this news was a surprise, being completely unknown in public discussion, the reaction is *after* the government officials released policy change information ahead of the budget presentation on 29th May 2007. A cumulative abnormal return (CAR) of 3.63 per cent was observed with a t-value of 1.963, which is significant at p-value of <0.05 (see Table 5). Following the confirmatory statement made by the President of the Tax Association about the single-tier tax on 5th September 2007, another significant positive CAR was evident with a 0.51 per cent jump in the stock prices of 853 shares. These were abnormal returns after adjusting for the effects of the market-wide changes in those days. Hence, several windows were tested just to be sure.

These four dates correspond to the dates identified based on the market reactions to the news. Note the significant price effect when the authoritative person for taxation revealed a change of policy on 5th May (see row 2 for CAR for 0 to +1 window). The price effect was also significant when the Parliament passed the bill into law.

Nonetheless, a negative price reaction could be seen on the days following the budget presentation on 7th September 2007, with -1.59 per cent return. Similarly, a CAR of -1.39 percent was seen following the endorsement of the law on 3rd December 2007, although this is not significant at any level.

It is highly probable that these adverse reactions could be from the news of worldwide credit crunch that was happening around these dates, and the market index (R_{mt}) was plummeting quite badly for two weeks starting from about 6th September 2007. Therefore, we believe that the small impact seen on 5th September and the negative CARs on 7th September were due

TABLE 6
US Individual Stock Performance (in percentage)

Event Date	-1 to 0	0 to +1	-1 to +1	Others	
07/01/2003	0.0780	1.115	0.439		
	(0.055)	(2.844)***	(0.344)		
28/05/2003	0.282	1.083	1.152	2.021	-3 to +2
	(1.960)**	(1.647)	(1.557)	(2.480)***	
17/05/2006	1.292	1.009	1.344	1.515	-3 to +1
	(2.078)**	(1.114)	(1.675)*	(1.764)*	
17/12/2010	0.310	0.149	0.467		
	(-0.948)	(-0.897)	(-1.651)*		

Note: The *p*-value is denoted as * (0.1), ** (0.05) or *** (0.01).

to the global crisis that started to take effect in the first week of September, 2008, and this got worse by the middle of the month across the world. The bad news might have cancelled the good news on dividend tax abolition.

The US Results

The 1,665 individual stocks were analysed to test for significant price impacts. It is evident that following the day of the formal announcement of the Dividend Tax Cut policy by President Bush Jr. on 7th January 2003, the market reacted quickly. There was a significant CAR of 1.11 per cent, with a t-value of 2.844 and p-value<0.01 (see Table 6). The proposal went through some legislative processes before it was signed into law by the President on 28th May 2003. A significant on-event impact was recorded to be 0.28 per cent, while CAR over 6 days around the event (-3 and +2 days) was 2.02 per cent, with a t-value of 2.48 at p <0.00. A similar result was seen during the next

attempt to extend the tax cut to the year 2006.

Upon the signing of the extension of the tax cut on 17th May 2006, the CAR was 1.29 per cent; in particular, the CAR over three days around the event was 1.34 per cent with a *t*-value of 1.675 at *p* <0.10. When the tax cut bill was extended for 2 years by the Obama administration on 17 December 2010, after a period of acrimonious debate in the Senate, there was a smaller increase (CAR of 0.467) but with the *t*-value of 1.641, which is acceptable only at <0.10 level. There is an upward trend in all windows, although in some of them, the t-tests are not significant despite the positive signs predicted by the theory. We believe that the signal of tax cuts appeared to be registered in significant stock price increases at least prior to the announcement in -1 to 0 windows each time the bill was signed by the President. The main factor driving the stock price increases in the four occasions is the announcement effects of tax cuts leading to investors having to pay less tax once

the law was passed in the three occasions. Uncertainty about whether the laws policy would be passed into law was removed when the price effects became significant prior to the announcements of the passing of the law.

Four dates were identified for testing the share price effects in the United States, after exhaustive analyses of all the press releases and mass media reports and debates in the Senate and the Congress. Although the results are mixed, the statistical tests show the following: a 1.14% CAR is significant across 0 and +1 test window when the policy was first announced. Second, each time the bill was signed into law by the sitting presidents, there was also a significant price effect from the tax cut laws (see the statistically significant effects indicated by one or two asterisks on the different test windows).

The final factor that gave impetus to this is the novel idea of dividend tax cut for shareholders, which was mooted by the Bush policy makers and for the first time on 7th January, 2003. Hence, the factors affecting the price changes are suggested by the information effect theory and the dividend tax theory.

CONCLUSION

The aim of this paper is to present important share price reactions to announced tax reduction policy announcements in the US and in Malaysia. The events chosen relate to the good news effects when the (i) US policy makers cut the tax on cash dividends and (ii) Malaysian policy makers decided

to introduce a full single-tier tax regime in 2008 to replace the dividend credit regime of 1958. The US provided about $200 billion of tax away to shareholders on the hotly-debated premise that such an injection of cash as tax cut during 2003-2006 (first event) would spur the US economy to recover; again, the law was extended in 2010 to expire in 2012. Both country events were good news because the shareholders would benefit from increased cash dividends in the case of the US taxpayers and the introduction of single-tax regime that would reduce the administrative cost of filing tax returns as well as lower the cost of tax collection.

The US policy makers extended the tax reduction law to end in 2006 but later approved it again in 2010 to end it in 2012. Hence, our data set was meant to measure the taxation effects, as predicted by theories over the three occasions. As for Malaysia, this event played out during August and December 2007. The event dates were carefully selected from the announcements in the press and in the government sources. Market index was used to observe upward shifts to news, and individual stocks to conduct the statistical tests to test for any significance of the change. Prior studies only examined the 2003 tax cut in the US. As in the prior study, the share price effect was muted because of: (i) cuts being temporary and (ii) the institutional reason that most dividends are tax exempted in managed mutual and pension funds.

Our measurement of the event impacts on the share markets showed that the share

market reacted positively to the good news of reduced tax on dividends. In the US, these changes were seen over four dates, namely, at the first announcement of the policy and during each signing of the tax cut laws in 2003, 2005 and 2010. We dare to predict that a similar price effect will occur when the tax cut bill comes up for extension sometime in 2012 in the US. As for Malaysia, the official date of announcement, as well as when the bill became law with royal assent, the share market reacted positively. In the final results, using the individual shares (1,665 from NYSE and 843 from *Bursa* Malaysia) so that statistical measures could be conducted, similar positive and significant policy announcement effects could also be seen from both the policy change announcements in both countries. These results added new findings on dividend tax changes to the literature on two countries.

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Enhancing ESL Students Academic Writing Skills through the Term-Paper

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ABSTRACT

Tertiary ESL students find writing the academic term-paper a complex process as they grapple with issues about academic writing conventions and ethics. This paper examines tertiary students' thoughts and perceptions in co-constructing knowledge about academic writing and how multi-drafting and feedback strategies enhance their academic literacy skills through term-paper writing. In particular, we examine the use of the term-paper as a pedagogical instrument incorporating the process approach to writing for developing academic writing skills among tertiary level students in Malaysia including the importance of multi-drafting, where students reflect on the writing of the multi-drafts and evaluate their learning while working in groups. The respondents are 38 Diploma in Business Management students from a Malaysian university enrolled in an academic writing course. Focus group interviews, group observations and respondents reflective journal entries provided the qualitative data. Our findings show that group multi-drafting and feedback processes enhanced students understanding of writing as a recursive process and sharpened their academic writing literacy knowledge in the areas of referencing, planning, idea generation, editing and revising. We conclude that the multi-draft term-paper approach as a pedagogical tool seems to be a feasible solution to heightening the academic writing skills and confidence of tertiary students.

Keywords: Term-paper, multi-drafting, feedback, reflection, recursive process

INTRODUCTION

Academic writing (AW) is any written work or assignment given to students in any academic setting and is a central component of teaching and learning in any higher education context. Students in

higher education are required to engage in academic writing of, for example, term-papers, essays and reports which require the knowledge of specific academic writing conventions. A popular AW assessment is the term-paper.

In the context of this paper, a term-paper in higher education is defined as a research based paper written by students in English and due at the end of an academic term. Many ESL students find writing the research based academic term-paper a daunting process (Foster, 2006; Rohayah & Naginder, 2006; Abu Rass, 2001), and this is because writing is generally viewed as a spontaneous reaction but AW skills require deliberation and reflection, including the knowledge of specific writing rules (Arumugam, 2011; Foster, 2002). AW requires organisation of thoughts as students have to create ideas to produce facts following the academic conventions of their specific disciplines through logical reasoning. Most ESL students who struggle with AW conventions often try to find easy ways out by 'cutting and pasting' because they fail to understand the procedures of referencing conventions and do not see their importance apart from the lack of AW ability (Al-Khasawneh, 2010; Abasi et al., 2006; The University of Adelaide, 2004; Leask, 2004). We cannot blame the students as they are unfamiliar with academic language for paraphrasing and introducing quotes (McGowan, 2005).

The ability to write well is not a naturally acquired skill; it is usually learned or culturally transmitted through formal instructional practices (Rohayah &

Naginder, 2004; Kim & Kim, 2005). Hence, in order to enhance students' skills, academic writing should be taught and developed through effective approaches such as feedback and collaborative multi-drafting in tertiary English language classrooms (Bowker, 2007; Heffernan, 2006; Wei, 2004; Coffin et al., 2003).

Studies on the teaching of AW skills to students from various disciplines enrolled in ESL writing classrooms have paid close attention to "how students learn AW and how multi-drafting contributes to learning" (Cumming & Riazi, 2000, p. 57). These studies have mainly focused on collaborative writing in general (Brown, 2008; Mason, 2006; Chen, 2004), peer feedback (Arumugam, 2011; McGarrell & Verbeem, 2007; Rohayah & Naginder, 2006; Rollinson, 2005), and reflective writing processes (Granville & Dison, 2005; Zhu, 2004). The findings of these studies have shown that when students collaborate, they improve their writing competence and academic achievement (Brown, 2008; Lee, 2007; Hirst & Slavik, 2005).

Research on peer and teacher feedback have highlighted the positive effects on writing classrooms, where ESL students are able to further develop and refine their emerging language knowledge (Kim & Kim, 2005; Nassaji & Swain, 2000). In addition, Li and Lin (2007) and Chandler's (2003) work showed that teacher feedback improve students' accuracy in academic writing.

Studies of reflective writing processes (Lucas, 2008; Selvester & Rich, 2007; Granville & Dison, 2005) have demonstrated

that ESL students' academic writing ability is further enhanced when they are able to reflect on their experiences. For example, Rollinson (2005) highlighted the importance of peer collaboration and the significance of reflexivity, where writers can revise based on feedback from their peers. He argued that feedback from peer writers "can and do revise effectively on the basis of comments from peer readers" (p. 24). This argument is further supported by Mason (2006) and McGarrel and Verbeem (2007), who point out that the reflective component of writing and formative feedback motivate revisions of drafts and help students to understand the significance of their experiential learning apart from providing students opportunities to interact and learn from peers, create meaningful interaction among them and accelerate language learning.

Studies investigating the effectiveness of multi-drafting in the academic writing context have shown that multi-drafting empowers students by enabling them to make clearer decisions about the direction of their writing through discussion, drafting, feedback, and revision, which encourages students to take responsibility for their learning (Romova & Andrew, 2011; Rohayah & Naginder, 2004; Clenton, 2005; Lim, 2002;). Previous studies have reported that collaborative multi-drafting contributes to the development of learners' writing skills, creating an avenue for students to go through their writing back and forth repeatedly until they are satisfied with their writing (McGarrel & Verbeem, 2007). Fong, Kwan and Wang, (2008) claim that

multi-drafting, as an effective pedagogical approach, provides opportunities for students to improve their writing. They further elaborated that multi-drafts make a shift in the writing pedagogies, focusing on the significance of the writing process in revising students' drafts to improve their AW skills. Other researchers (Arumugam, 2011; Mason, 2006; Iwai, 2004) note that collaborative multi-drafting reduces anxiety and creates a risk-free and friendly environment.

Much needs to be learnt about how Malaysian tertiary students' acquire AW literacy through the multi-draft term-paper approach and how they come to understand their own learning. This study focused on investigating tertiary students' thoughts and perceptions in the co-construction of knowledge about AW, and how multi-drafting and feedback strategies enhanced their academic literacy skills through term-paper writing.

This study draws on Vygotsky's (1978) sociocultural theory and the process approach to writing (Badger & White, 2000, Flower & Hayes, 1981). One part of Vygotsky's sociocultural theory (1978) posits that language learning takes place when people interact socially. This notion of learning postulates that knowledge is constructed through joint activity where learning is then mediated by different learners within the group. Hence, knowledge of a subject matter is socially constructed through cooperative efforts towards shared objectives, or through discussions and challenges brought about by interaction among learners (Solomon, 1993).

A stress free environment is created when learners work cooperatively, helping one another to revise their writing which leads to meaningful interactions in a naturalistic educational setting (Nason & Woodruff, 2004; Mariam, 2004; Iwai, 2004).

The process approach to writing is not a linear process but rather a recursive process and focuses on several steps such as prewriting, drafting, revising, editing and evaluating (Badger & White, 2000; Flower & Hayes, 1981). Learners can move from one step to another and go back and forth around the steps. Leki (1991) states that the process approach to teaching writing emphasises the stages of the writing process than on the final product. By focusing on the writing process, learners may come to understand themselves more, especially, when they reflect on the strategies and the thinking behind their writing.

Zamel (1983) points out that writing is a process through which students can explore and discover their thoughts, construct meaning and assess it at the same time. Thus, "writing in process approaches is seen as predominantly to do with linguistic skills, such as planning and drafting, and there is much less emphasis on linguistic knowledge such as knowledge about grammar and text structure. In this approach students are taught planning, drafting, revising and editing" (Badger & White, 2000, p. 154).

Hence, by putting together Vygotsky's conception that learning is a social enterprise which leads to cognitive development and Johnson and Johnson's (1999) claim that students work better in cooperative learning groups, with the process approach to writing, the study sought to probe the benefits of teaching AW through multi-drafting using the term-paper as a pedagogical tool. In addition, the study infuses reflective practices into the writing of the multi-drafts to foreground meta-cognitive awareness during the process of writing the term-paper (Kathpalia & Heah, 2008).

METHODLOGY

A case study approach was used in this qualitative study. One intact academic writing class, consisting of thirty eight Business Management students, was selected for the study. There were 25 female and 13 male students. All the participants were enrolled in a compulsory academic writing course to improve their English language competency. The course is offered by the Language Academy at a branch campus of a public university in Malaysia. Each of the 38 students was randomly assigned to nine different writing groups. Each group consisted of 3 - 4 members to avoid the occurrence of free riders (Brown, 2008). The students had six contact hours per week over 14 weeks with each lesson lasting two hours. The intact class was instructed to carry out the writing tasks in their groups.

The study consisted of two phases. Phase one was the multi-drafting phase based on student-to-student feedback, whereby the group members edited multi-drafts and provided feedback. During this phase, the respondents had to continuously revise their term-paper based on peer feedback. The second phase was the instructor feedback

phase where the respondents handed-in their revised drafts from the peer feedback for instructor feedback.

The Term Paper Writing Task

The students wrote six term-paper drafts collaboratively: three descriptive and three argumentative. These writing tasks provided practice in AW and were conducted during class hours. The students were given a choice of 8 topics: four descriptive (Keys to healthy eating, Hypermarkets and sundry shops in our lives, Consequences of Smoking and Road accidents) and four argumentative (Who is to be blamed for abandonment of babies? Sex education must be introduced in school system; The government should control facebook networking, and College students should wear uniforms). Students had to choose three descriptive and three argumentative topics to write on. The six group writing tasks were graded in order to motivate the students to improve their writing for better grades and to also ensure that the students took their work seriously.

Research Instruments

The main instruments used in this study consisted of a guided reflective journal, a semi-structured focus group interview question checklist (Appendix A) adapted from Ingleton *et al*. (2000), and a group observation checklist (Appendix B). The primary data came from the focus group interview and data derived from the reflective journal commentaries, group discussions and observations complement that of the focus group interview.

Group Observation and Discussions

The researchers observed all the ten AW groups while they were discussing their multi-drafts of their term paper based on a checklist. The checklist consisted of items which were categorised according to themes and or categories (see Appendix B). The groups were observed during the two hour lesson with the researchers positioning themselves at different positions in the lecture room and ticking a category or theme if it occurred on the checklist. Data were analysed by comparing all the three researchers' checklist to ascertain agreement in terms of what was observed using frequency counts of occurrences of a certain category. In the case of the group discussions, the collaborative writing sessions were audiotaped and transcribed verbatim. Conversation analysis procedures (Ten Have, 2007) and inductive content analysis (Elo & Kyngas, 2008) were used to analyse the discussions.

Focus Group Interviews

The primary data for this study came from the focus group interviews. A semi-structured focus group interview was conducted to gather information about the participants' personal views and perceptions of their collaborative academic writing experiences. The focus group interviews were conducted after the last multi-drafting writing session and were audio recorded. The interviews were conducted by a non-participant observer of the research team and each interview lasted between 15-30 minutes. All 38 students were interviewed in

their own writing groups. The students were given the opportunity to check the transcripts for accuracy. In this study, the researchers view the focus group interview responses as retrospective reflections. Three researchers analysed the transcribed data using an open coding system. The recorded responses were transcribed and analysed verbatim. The data were divided into categories and scrutinised for commonalities. Here, the researchers identified lexical and thematic patterns within the data (Brice, 2005; Glaser, 1998; Strauss & Corbin, 1990). Emerging trends and patterns were identified and then subjected to inductive content analysis (Elo & Kyngas, 2008). All excerpts and quotes are assigned pseudonyms R1 – R38.

Guided Reflective Journal

Farrell (1998) claimed that 'reflective practice is becoming a dominant paradigm in the ESL classroom' and 'maintains that reflective sessions provide opportunities for students to reflect on their work' (p. 10). The students were given guidelines to help guide their reflections on their writing experiences in order to maintain standardisation, ease of data coding and analysis. The guided reflective journal provided students with a clear direction of what to reflect on. The students were asked to reflect on (1) the aim of the written assignment, (2) the learning that has taken place, (3) their progress or lack of progress, (4) their opinions regarding the process of multi-drafting in groups including explaining their opinions on how the group members worked together to complete their assigned tasks, and (5) the

challenges encountered and the benefits gained when engaged in drafting their term-paper. They were asked to write a reflective commentary of about 100 words.

The students' written commentaries from the guided journal reflections were analysed using open coding by the three researchers. The data were analysed using inductive content analysis, where emerging themes, trends and patterns were identified (Elo & Kyngas, 2008).

RESULTS AND DISCUSSION

The findings discussed in this paper are drawn mainly from the focus group interviews and triangulated with data from students' reflective journal commentaries and group observations. The current study identified a number of themes from the data but we describe and discuss four prominent themes: (1) the challenge of in-text citations and referencing; (2) The learning capital inherent in the multi-drafting of the term-paper; (3) Translation as a support for learning, and (4) The impact of student and instructor feedback.

The Challenge of In-text Citations and Referencing

In-text citations and referencing are important elements in academic writing and many ESL students find this aspect to be a challenge (Romova & Andrew, 2011; Al-Khasawneh, 2010; Abasi et al., 2006; Newfields, 2003). The majority of the respondents (36 respondents) found in-text citations, referencing techniques and conventions to be the most challenging

aspects in the writing of the academic term-paper and this was clearly evident from the focus group interviews and the journal entries. In-text citations and referencing techniques appeared to be new to these respondents. An interesting revelation was the fact that the respondents felt that it was 'acceptable to lift from other materials without acknowledgment and this is reflected in R32's journal commentary, where he said that "I never thought it was an offence to lift from other materials without citing coz we always do it in our other courses and nobody says anything."

One respondent (R 16) shared that "Term-paper writing course give a lot of emphasis to in-text citations and references. In other coursework and reports, we were not given much insight on this. We would just copy ideas from various parts of the articles to complete our assignment. The in-text citations or acknowledging the authors were not emphasised." R32's reflection and R16's comments are representative examples of similar responses by the majority of the respondents (30 respondents). R14 and R22 said similar things during the interview, where R14 said "I often copy paste from PDF files," and R22 explained that "It takes too long to paraphrase and rewrite and cite so I just copy and paste because I often do last minute work. But now I cannot submit my term-paper without acknowledging my facts."

This above finding corroborates with Leask (2004), who highlighted that students copy paste but do not provide proper source because they are not aware of academic referencing conventions.

The respondents also found paraphrasing an arduous task. During the interview, R27 said, "We have learnt summary writing in our secondary school so we somehow managed to summarise. But, it is very difficult to paraphrase ideas as we did not learn to do this." Another respondent, (R29), agreed with R27 when she revealed that she was often tempted to just 'lift' from the article because paraphrasing is too difficult. She added that "it is easier to 'lift' as everything is well written, and so easy to just copy. Sometimes, I wonder why I have to struggle to reword the same content." These respondents' dilemma concurs with that of McGowan (2005) study which revealed that students are enveloped in plagiarism because of their incompetence in paraphrasing and referencing conventions.

During the multi-drafting stage of the term-paper, students began to realise the importance of in-text citations and referencing conventions. R11 said, "I just realised that I must note down details of the articles read, name of author, page number, and the source of information." Thirty five (35) respondents admitted that they had the habit of copying especially when they wrote a report or any academic paper without realising that they were in fact committing an academic offence. R6 said, "Referencing following the APA format is a 'head-ache' especially with referencing and in-text citations about writing the authors' full name or just the surname." R30 admitted that, "I still have problems with referencing and still learning from my friends and the instructor.

This is new. I am often so confused *lah.*"

The students in this study appeared to be struggling with the challenges of referencing because firstly, they are for the first time learning about in-text citations and referencing techniques in AW and are gradually becoming more aware of the importance of referencing. Secondly, they appeared to be confused with its usage because other academic courses do not emphasise the importance of referencing. Finally, the interview and journal commentary data reveal that students problem stem from their inability to summarise and paraphrase well, as pointed out by R24 where she states that "I think my friends will agree with me that one of our biggest problem is knowing how to summarise and paraphrase properly so that we don't copy and paste" (Five other students echoed her sentiments during the interviews by saying: 'yes, we agree'). This was further exemplified by fifteen (15) respondents' journal commentaries. A report prepared by the University of Adelaide (2004, p. 17) explicitly highlighted that inadequate knowledge in referencing and academic writing skill as the contributing factor for plagiarism.

The Learning Capital Inherent Multi-drafting the Term-paper

The recursive process of drafting and redrafting the academic term-paper produced interesting results, wherein some respondents in this study commented on what they had gained or what was 'capital'. We interpret learning capital as learning that has brought about transformation and is beneficial for the students (Romova & Andrew, 2011). Our study identified three key subthemes within this theme: editing and proof reading, planning and reflectivity (includes retrospective reflections from focus group interviews). These subthemes corroborate with those described by Romova and Andrew (2011).

We observed all the ten groups during the two-hour academic writing session. Groups 2, 4, 5, 6 and 9 took between one and a half to two hours brainstorming the outline and organisation of the term-paper including editing and proof reading their drafts. Groups 1, 3, 7, 8 and 10 spent less time planning the term-paper but took more time to edit and proof read their drafts.

Editing and Proofreading

As pointed out earlier, groups 1, 3, 7, 8 and 10 paid closer attention to editing and proofreading the drafts of their term-paper, and in the process, they discovered the importance of editing and proofreading. R3 said "I normally rush through writing my term-paper but now I take more time to edit and proofread my drafts using my friends and instructor's feedback. Most importantly, I also now know how to edit my own work and do my own corrections. I find this exciting." When probed further about what she meant by 'exciting' she explained "… I know how to edit and teach other friends how to edit …uum now easy for me to see mistakes." R25 shared the same sentiments as R3 when he said "I am more conscious of making sure that my sentences make

sense and I am using the right connectors and also I keep going back to check my grammar, spelling and overall organisation of the text because I know that if I can correct my work, I can get better grades." R3 and R25's realisation of the importance of being able to self-edit and proofread their drafts is representative of a majority of the respondents (27 respondents).

The journal entries revealed similar comments. R19, who belonged to group 5, wrote that "I spend less time editing and always rushing towards the end to correct my mistakes. Big mistake! I should spend more time because my instructor gave so many comments and so many red marking on my draft. This make me sad. So I must do better." Here, we see a realisation of the importance of editing and proofreading in AW and a yearning to do better.

Li and Lin (2007) point out that editing and proofreading make student pay more attention to the same mistakes they had also made in their own texts and they would perhaps think over their correction and discover different ideas that had not occurred to them.

R19 further elaborated that she noted that friends who spend more time on editing their drafts received better grades. She wrote "Hanna and gang got good grade because they told me they spend more time working on editing and correcting their work. The next time I want to spend more time with my instructor's help-maybe I can learn from my friends." This shows that R19, like R3 and R25, sees the benefits of editing and proofreading which

is consistent with Chandler (2003) who highlighted the value of editing. Seventeen (17) respondents equated editing to a process of 'discovery' and excitement. This emerged from 17 journal commentaries, where the respondents said that each time they read and re-read their drafts they found something to correct, change, restructure or rewrite and they found this exciting. For example, R33 wrote "Every time I re-read my work I always find something to correct - it is like *perjalanan baharu* (new journey). *Jumpa benda baharu* (discover new things) - exciting." Similarly R15 wrote "it is like a game so it becomes fun, you keep going back to look for something-to find something that maybe *kita tertinggal* (we left out). R27's entry echoed R15 and R33's thoughts where she noted that "editing and proofreading is like going on a journey to find mistakes and it is fun." Li and Lin (2007) advocated such outcomes from editing and proofreading of peers' work.

Planning

Students found planning and organisational skills such as topic development, outlining, prewriting, brainstorming and drafting which is part of the composing process (Hayes, 1996) assets in AW. This finding supports previous studies which investigated the process approach to writing involving multiple drafts (Lee, 2007; Rohayah & Naginder, 2006; Kim & Kim, 2005).

R25, R26, R27 and R28, who are members of group 7, agreed with each other that systematic planning of the term-paper was really important. They were driven

to spend time brainstorming the outline and organisation of the draft of their term-paper including the generation of ideas. R26 said, "I found that it was important to begin with a thesis statement before starting any planning. Then from there, our group organise what we want to say and what information we have to find. Like that we can organise our ideas better and we take shorter time to write." R25 agreed that beginning with the thesis statement was important when he said "the thesis statement helps to guide the outlining of the term-paper and then it gives me direction for prewriting because I can control my ideas *supaya saya lebih fokus* (so that I can be more focused)." Another member of the group R27 said "I have learnt how to organise my ideas and I must take time to think about what I want to write. Before, I just write without planning. Now I know thesis statement is important."

Brainstorming the outline emerged as a valuable activity when R28 said, "during the drafting time I learnt brainstorming, asking questions, give focus for outlining and prewriting. I can see what the important idea is and what is not important idea." She added that "brainstorming help me to organise my ideas clearly so that I can write without wasting time."

Triangulating data from the journal commentaries showed that 28 respondents wrote that brainstorming, planning, outlining and drafting is the key to writing a good academic term-paper. For example, R35 shared what she learnt when she wrote that "brainstorming make me to be focus on the thesis statement and I use this as a guide to

prepare my outline. From there, I started to plan my term–paper draft." The value of brainstorming, planning, outlining and drafting in AW is further supported by R38's journal entry. R38 wrote "outlining is very important. My outline guided my writing so that I can write with better control. Now I know when I redraft I can go back to my outline and improve it." This suggests that the respondents learnt that planning at the initial stage of writing the term-paper is crucial as revealed by previous studies (Arumugam, 2011; Brown, 2008; McGarrell & Verbeem, 2007; Mariam, 2004).

Importance of Multi-drafting Collaboratively

This study confirms that collaborative multi-drafting in AW helps to reduce anxiety (Arumugam, 2011; Mason, 2006; Iwai, 2004) for students are able to support each other as they go through the recursive process of writing a term-paper. R32 said "I don't feel stress when I work in the group to write many drafts. I think if work alone then very stress. In the group, we can joke and laugh about our not so good work." Another student R4 said "We laugh a lot in our group at our silly mistakes. We can talk in Malay *lah* also but we also learn from each other to understand AW when do many draft. So, work in group *tak gila* (don't go mad)…not stress. If work alone very stress."

Our observations show students laughing and joking at their silly mistakes as they work in groups. In addition, the students point out that multi-drafting collaboratively is important to them. Twelve

(12) students commented in their reflective journals that multi-drafting collaboratively helped them to see the value of working together to make sense of AW conventions and to produce better work. For example, R12 said "Without the group I don't think I can work confidently. Our group share a lot with each other like how to correct a paragraph, how to paraphrase…also we brainstorm the topic together then plan the outline together and we discuss how to do better." Then we revise and revise to come up with good writing." This sentiment was shared by R17 who said "When we multi draft, the group members help each other to see the mistakes and how to write better from the instructor feedback."

The students' comments suggest that students feel very strongly about working in groups on their multi-drafts as AW is still new to them. Students maintain that during the multi-drafting stage, they are able to revise the content and organisation of their writing to produce a better writing task when they are supported by their peers. This is consistent with a previous study by Fong *et al.* (2008).

Reflectivity

Our findings suggest that students found reflecting on their experiences of going through the multi-drafting process in writing the academic term-paper as beneficial. This finding is similar to that of Romova and Andrew (2011). R10 said that the process of reflecting on what she had learnt was new for her. She said "learning to think about what I did or what I was doing is new to

me and it made me think about why I keep having the same problems with the way I organise my ideas." R2 further expanded R10's opinion during the interview. She said "I now consciously look for mistakes or unnecessary information in my writing before I submit to my instructor."

Interestingly, two students' journal commentaries showed critical self reflections. For example, R6 wrote "I thought that I am already good at writing a term-paper because I am always getting high marks in my business course. But in this AW class I learnt that my writing is not good enough because I don't think much about my outline - now I become more aware of starting my writing with an outline." Another respondent, R25, wrote "I always thought that my English was good because in school my teacher use my writing as an example but now this AW class my friends and my instructor are always correcting my style of writing, my vocabulary and my organisation. This shocked me and I learnt that academic writing conventions is different from general writing where I have to do a lot of referencing. So, now when I write I try to remember about referencing." This was an unanticipated finding.

The students' reflections of their experiences during the drafting stages suggest that they have become more aware of their problems and were now learning how to write better. In short, they were learning how to develop academic literacy. The findings suggest that reflectivity helps students to re-evaluate original assumptions, relate new data to what is already known, and seek relationship among information

apart from creating opportunities for learning (Selvester & Rich, 2007; Mezirow *et al.,* 1990; Boud *et al.,* 1985) and finally help them to become autonomous learners.

Translation as a Support for Learning

The analysis of the recorded group discussions revealed that translation played an important role in helping the ESL students to identify and generate appropriate vocabulary and to clarify meaning during the multi-drafting stage.

The following is an example of meaning clarification involving vocabulary from group six (R21, R22 & R23). R23, who is a member of group 6, asked "What is hypermarket and sundry shop in Malay?" R21 explained "I think hypermarket is *pasaraya besar* (big supermarket)", and R22 said "sundry shop" is *kedai runcit* (grocery shop). Another example of translation for clarification of meaning is that of group two (R5, R7). R5 asked, "What is passive smoking?", to which R7 replied and explained "passive smokers means *orang yang tak merokok tapi dia duduk bersama-sama orang yang sedang merokok* (people who do not smoke but sit among smokers). These people are called passive smokers." Our findings showed that there were students who needed translation to support their AW process. R27 wrote in her journal "*Saya minta rakan tolong terjemah perkataan atau frasa dari Melayu ke Inggeris, Inggeris ke Melayu bila saya tak faham atau keliru dengan maksudnya*" (I often have to ask my group to help me translate from English to Malay or Malay to English when I am not sure of the meaning of some words or phrases).

Translation enabled the respondents to understand the assigned work better. This also encouraged the passive learners to attempt writing without feeling ostracised, as pointed out by Canagarajah (2005) and Kow (2003).

The Impact of Peer and Teacher Feedback

The most striking result to emerge from our data is that of feedback. Feedback is an important process in AW (Depaz & Moni, 2008; Nassaji & Swain, 2000) as it provides students with detailed information on how to revise and improve the drafting of their term-paper. In our study, students had to write a minimum of three drafts during the monitoring phase of the writing of the term-paper. Multi-drafting of the term-paper involves evaluative feedback from not only the peers but also the instructor. These feedbacks provide students with information of their strengths and weaknesses in certain specific aspects. For example, the instructor's feedbacks on a student's use of articles help change that student's perception of his grammatical ability. R32 said "The multi-drafting of the term-paper help to improve my AW skill. I learnt when to use the articles 'a', and 'the' based on my friends and instructor's feedback. Previously, I would always not use them." A clear benefit of feedback that emerged in this study is that of how useful instructor feedback was for the students. The findings are consistent with those of Romova and Andrew (2011).

R26 said, "My instructor gave me immediate feedback on my use of subject-verb-agreement use of tenses. This was very useful for me as she showed me where my errors were and how l could correct them. I now know how to use 'is - are' and 'was -were', past, present and future tense markers."

In her reflective journal, R26 wrote "practise of correcting errors from my instructor's feedback and my friends' feedback help me to understand grammar and also identify what words to use or not to use. The feedback gave me more confidence to write the term-paper." Another respondent, R17 for example wrote in her reflective journal "I write the sentence, *'Teenage pregnancy is because of parents free thinking. Many teenagers to go out with any people'* and the instructor write on my feedback the suggested correct sentence, '*Teenage pregnancy is on the rise because of some parents' liberal thinking. They do not monitor who their teenage daughters friends are and allow them to go out with anyone. In addition, parents today are too busy and do not have time to provide their daughters with sex education'.* I learn sentence structure, how to use connector 'in addition' how elaborate my topic sentence. This really made me excited and motivated."

Our data showed that 23 respondents wrote in their reflective journal that both the peer and instructor feedback were very useful but pointed out that they benefited most from the instructor's feedback and that the instructors feedback had profound impact on them because the instructor provided clearer explanations regarding their problem areas. As R37 said "I prefer the instructor feedback as it is more reliable I think and when the instructor show me my mistake it has more impact for me and I want to learn more."

The data revealed that the instructor's feedback enhanced students' confidence in redrafting the term-paper and as seen from the students' comments. The recursive process of drafting along with the feedback, ensured engagement in the learning process, enabled language and knowledge transfer and increased awareness and consciousness of the importance of academic literacy. Depaz and Moni (2008) pointed out that feedback is vital to the success of students and suggested that instructors should give constructive feedback encouraging students to act on to sustain increased learning outcomes.

Our data also revealed negative reaction towards instructor and peer's feedback in multi-drafting. R36 and R20 did not find instructor and peer feedback useful. For example, during the interview, R36 disclosed that "I found multi-drafting to be time-consuming and stressful because I have to revise the same term-paper three times. He explained "it will be better for me to get feedback from the instructor directly and continue with a new topic. I feel that I could learn more when I start with a new topic. Not revise… revise." R15 shared the same sentiments as R36. He explained that "this process take so much of time and I feel *bosan dengan* (bored of) the same topic for three sessions." Negative

reaction on instructor and peer feedback were found in five journal commentaries. This finding demonstrates that there were respondents who did not enjoy the multi-drafting process. However, the number is small.

The instructor in this course found that during the monitoring and feedback stage her workload increased and she felt most overwhelmed with having to give feedback for each draft. She said "it was really challenging and time consuming for me to give quick and good feedback to the students during the class hour. You can really see that the students really want to learn and it was not just giving comments on the drafts but also verbally explaining to them where they went wrong. At the end of the day I am really exhausted." Here, the instructor is aware of the importance of her feedback on students learning but found the task of providing feedback on multiple drafts too tiring. In order to overcome instructor fatigue and to ensure that students get the most out of their AW course, we suggest team-teaching.

CONCLUSION

Our findings imply that multi-drafting of the AW term-paper enhances students' AW skills and in the long term help them to develop academic literacy. The findings indicate that peer and instructor feedback during the generative process appear to be effective in improving students' AW skills as well as enhancing their confidence (Hamp-Lyons & Condon, 2000), where students revealed that they were more confident in writing their term-paper.

Our study also suggests that students become more aware of the importance and ethics of in-text citations and referencing although they found this to be very challenging. In addition, students began to develop paraphrasing and paragraphing skills, thus indicating that the students' knowledge of what constitutes academic literacy was further enhanced during the multi-drafting of the term-paper.

Writing the multi-draft of the term-paper within the context of AW sharpened their awareness of the importance of developing good process writing strategies. This can be seen in the students' comments where they reported that they were not only aware of the importance and benefits of acquiring the ability to edit and proofread their work but had also gained confidence. An implication of this is the possibility of designing a course to teach students not only editing and proofreading skills but also referencing skills to empower them to write more confidently.

The students also reported that it was important to systematically plan the term-paper in order to devote time to brainstorm the outline, and organising information before writing. On the whole, students reported that they realised that brainstorming, prewriting, outlining and drafting are key strategies in writing a good term-paper. In addition, the findings also suggest that students found peer and instructor's feedback useful and that they learnt that it was important to pay attention

to grammatical problems and text structure.

A major finding which emerged from our data is that of feedback, where students reported that receiving and responding to feedback from their peers and instructor, helps them to learn how to improve their own writing and at the same time they co-constructed new knowledge through group collaboration and discussions (Vygotsky, 1978). This co-construction of knowledge and understanding was also seen in the use of translation to support students understanding of meanings of words and phrases. In general, therefore, it seems that when students work collaboratively, peer support plays an important role. It is an unexpected positive outcome of the integration of the reflective journal in AW session, creating avenue for students to express their predicaments in preparing the term-paper. The finding suggests that students should be guided to learn about AW through multi-drafting in groups in the initial learning stages. Apart from this, students also commented that working collaboratively on the multi-drafts created a stress-free environment because they received support from their peers.

Although the use of multi-drafts and recursive writing process brought about positive changes in the students work, it also had its drawbacks. Students reported that multi-drafting was time consuming. In addition, the instructor reported that her workload increased especially during the monitoring and feedback stage. It is important for institutions to look into introducing team-teaching for AW courses so that students can be given close guidance as a single instructor who has to teach large classes of more than 20 can be overwhelmed and may not be able to provide a more focused feedback.

The results of this research support the view that instructors and students at tertiary level should be exposed to early multi-drafting approach of AW (Hamp-Lyons & Condon, 2000). In short, the value of providing students with empirically validated multi-drafts to teach AW to improve students' writing skills cannot be over looked. A pedagogical focus on the process of managing the term-paper assessment suggests that students have co-constructed new knowledge from the multi-drafting experience. Thus, multi-drafting of the term-paper seems to be an effective pedagogical tool to help students elevate their academic writing literacy.

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APPENDIX A

Structured Focus Group Interview Questions

GENERAL QUESTIONS

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1. What have you learnt from this academic writing course?

2. Do you think feedback from your peers and the instructor enabled you to write better? Why? And how did it help?

3. Do you think multi-drafting of the term-paper helped you to write better? Why?/ If so in what way?

4. In your opinion, has the process of writing the term-paper given you the confidence to write independently? Please explain.

5. What challenges did you encounter while preparing the term-paper?
    Depending on the response(s)- why is this a challenge? or Why are these challenges?

GROUP COLLABORATION

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6. How did you feel about working in groups collaboratively on the term-paper? Can you explain your feelings?

7. Do you think working collaboratively on the term -paper is a good way to learn about academic writing? Why?

8. Were you able to help your friends who faced problems in preparing the term-paper? If yes- How were you able to help them? What aspects were you able to help them with? If No-Why?

GENERIC SKILLS

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9. Did multi-drafting and revising enhance your communication skills?

10. Did multi-drafting and revising enhance your understanding of academic writing? If yes - How? In what way? If No-Why?

WRITING PROCESS

---

11. What did you learn about the academic writing process?

12. What did you learn about the planning, drafting, revising and editing stages?
    Did you encounter any problems at any of these stages? Please explain/

13. What did you learn about referencing skills? Did you encounter any problems?

14. Was the reflective journal writing helpful for you in thinking about academic writing? If Yes – Why?, How was it helpful?; If No, Why?

NEGATIVE ASPECTS

---

15 Do you feel that you have wasted time revising and explaining the process to your group members?

16 Do you think multi-drafting is time consuming? If Yes –Why?, If No, Why?

Adapted from Ingleton (2000)

APPENDIX B

Group Observation Checklist for Academic Writing (AW) of Term Paper

Group No: Observed by: Date:		1st hour			2nd hour		
No.	Categories/ Theme	10 mins	20 mins	30 mins	10 mins	20 mins	30 mins
1.	Work and discuss in group						
2.	Work individually						
3.	Work individually then come together for discussion						
4.	Plan the paper collaboratively						
5.	Brainstorm ideas before writing						
6.	Organise ideas before writing: AW conventions: Topic sentence, supporting details, elaboration, conclusion						
7.	Outline for term-paper before writing						
8.	Write draft						
9.	Revise draft						
10.	Edit draft (point out grammatical errors: verb tenses, subject-verb agreement, organization, text structure)						
11.	Ask questions						
12.	Ask friends for feedback						
13.	Ask instructor for feedback						
14.	Appear to be thinking (then ask questions/discuss) * Reflective aspect						
15.	Use AW writing convention checklist						
16.	Discuss referencing techniques						
17.	Joke, laugh and argue						

SOCIAL SCIENCES & HUMANITIES

PERTANIKA
JOURNALS

Challenges before Engineering Education – Role of Humanities and Social Sciences

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ABSTRACT

The recent global changes and lack of sustainable development have thrown open many challenges as well as opportunities. The material and economic development processes of last two centuries have increased social inequalities among nations and communities and led to unsustainable activities that are associated environment damages, global warming, climate changes and threats to security on food, health, shelter, water, air and society. These challenges demand a change in the way we think and act. The issues like renewable energy sources, conservation of resources (including water, adoption of technologies which are clean and have lower carbon foot-prints) are coming to the forefront. So are the issues of social behaviour and value system. The current way of evaluating success based on economic parameters and balance sheets needs to be changed to capture parameters like social inequalities, changing value system, increased corporate social responsibilities, lower green house gas emissions and improved ecological impacts. The teaching process has to stress on the changing scenario and to meet the challenges of quality of living, social justice, equality, sustainability, in addition to techno economic feasibility. Agriculture, Agro forestry, energy, food, communications and industry sectors need changes in the way things are being currently practiced. The needs include greater stakeholders' participation, responsive industry, private-public partnership and voluntary disclosure. The new generations of students need inputs on sustainable operations, resource conservation, renewable energy resources, clean technologies, new value system, climate changes, as well as environment protection and carbon foot-print and societal issues. Education looks at the new concepts of environmental, societal sustainable feasibility to ensure a sustainable development and improved standard of living. Meanwhile, the approach to investment decision making on developmental issues has to change. This includes Humanities and Social Sciences (HSS) teaching in engineering education

which needs a fresh look to provide holistic inputs. Thus, HSS has to play a key role in engineering education quite differently from the way it is being managed today.

Keywords: Engineering education, environment, sustainability, competitiveness, social inequity, humanities and social sciences

CHALLENGES OF DEVELOPMENT AND SUSTAINABILITY

The globe has seen unparalleled material development with severe stress on our interdependent economic, social and environmental systems. With global population likely to touch eight billions by 2025, with associated excessive consumption and poverty, a state of environment more fragile and degraded, we are in a state of severe crisis. The alarming trends include:

- 2 billion hectares of soil (with 15% of the earth's land) is degraded as a result of human activities.

- Half the world's resources are severely depleted/polluted.

- 1130 mammals (24%) and 1183 (12% of bird species) are regarded as threatened.

- Ozone layer depletion is high and ozone hole is greater than 28 million sq km.

- CO_2 concentration stands at 25%, which is higher than 150 years ago.

- Every year, over 11 million children die of preventable causes.

In addition, the global meltdown has given a wake-up call to the world's economy to review its developmental activities. The economic growth and sustainable development do not seem to move hand in hand. In addition, over 50% of the global population is plagued by poverty, hunger and disease. Around 10% of the world's richest own 65% of world's household wealth. The widening inequalities serve as a source of wide spread discontentment and social alienation. Social unrest and terrorism today threaten every corner of the earth with a large number of people living on the edge of despair and insecurity (UNDP, 2010).

The decades of developmental process has paid scant respect to replenishing the rich natural resources leading to losses of biodiversity and natural resource regeneration capability. The world is living beyond its means. Global warming and climate change are impending catastrophes. The future has been severely compromised. The present economic models of competitiveness based on rewarding on financial returns, expanding consumer franchise, enhancing shareholder value and using profit and loss as means of measuring success, have failed to capture the social inequalities and ecological destruction. Clearly, the current economic model of development is not sustainable. The future has been compromised. There is a need to look at new methods to ensure our common future faces the challenges of over consumption of earth's resource and stop the grinding poverty. The requirement is a developmental process that meets

the demands of the present without compromising on the needs of the future. Over consumption of resources, social value system and ecological balance have to be addressed (Marquita, 2004; Rao, 2011; Azapagic *et al.,* 2004).

NEW PARADIGMS OF COMPETITIVENESS

The new paradigms of competitiveness should reverse the unsustainable trends of development, revive growth, meet the essential needs and aspirations of the people, conserve and enhance resource base and reorient technologies to manage risks. Sustainable development includes sustainable agriculture, agro forestry, industry practices to provide security in food, energy, health and overall well-being of society. This calls for low carbon business environment, green business, green livelihoods, greater equity and sustainable practices. There is a need to improve energy efficiency, reduce specific consumptions and green house gas generation and improve eco-efficiency. Sustainable technologies will be dependent on information and communication technologies, biotechnology, nanotechnology, renewable energy technology, based on close cycle operations with life cycle analysis, safety and security. Adoption of clean technologies, changes in value system, increase of product service life, increased use of renewable resources, reduction in specific consumptions and reduced generation of wastes will be the needs of the day. The ecological footprints of today's developmental process will impact the future generations and hence need to be greatly reduced and monitored (Soares, 1999; McKinney *et al.,* 2007; Manahan, 2007).
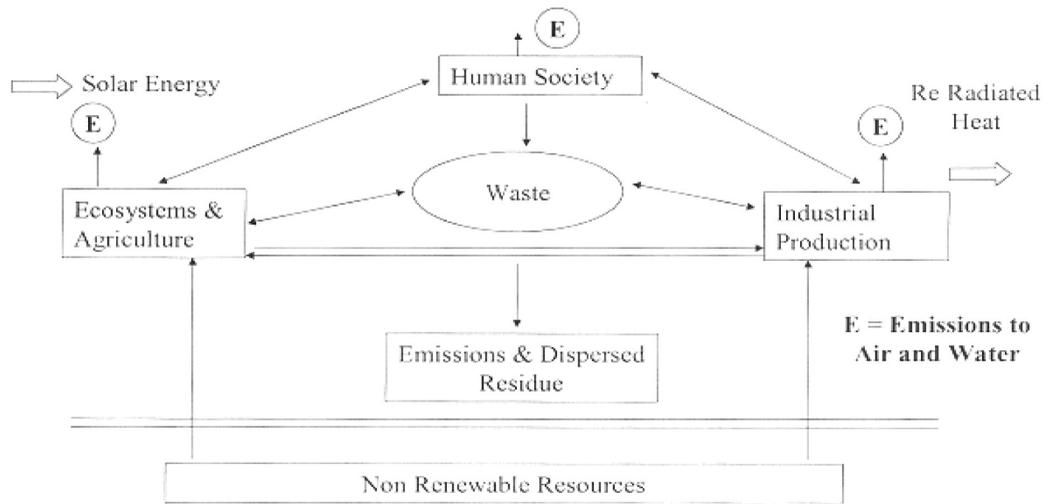
Fig .1: Resource Flows in Human Economy

NEW MODEL OF TEACHING PROFESSIONAL ENGINEERS

The practice of sustainable development needs to be embodied in the approach of engineers and scientists to the problem solving. The practice of open decision processes need to be encouraged with professional engineers working as "Honest Brokers". The new paradigm of teaching should encompass the constraints on natural resources, techno-economic capabilities and societal needs in the sustainable world. The answer would be the holistic approach to teaching. New pathways need to be explored with active learning via problem based learning process. The professionals will be required to take new responsibilities to use the talent to modify nature in which sustainability is not neglected. The capacity of modifications can be thought of as a series of resources flow, energy flow and waste flow, as shown below:

The teaching and learning processes have to take into consideration the four basic questions:

1. What are the skills and attitudes required of the new model expert? The ability to capture sustainable decision making skills to transform him from technology advocate to the role of an "Honest Broker" of technical information.

2. What are the implications of the new model of expertise for the accustomed structures and cultures in science and engineering? Sustainability calls for an exploration of the new models of professionalism and a capacity to work with different concepts of rationality.

3. While active learning is necessary for teaching and learning, a new model of expertise is required. The connection between practice and the attributes needed has to be developed.

4. How can fore-sighting and back-casting assist in shaping our new approach? Case studies can demonstrate the significant opportunities available and synergies possible in complex problems.

Human society requires various inputs for its needs, be it food, shelter, health, comfort or well being. These needs are met by using various natural resources including solar energy both renewable and non-renewable. The resources are transformed into useful value-added products. Such transformation process is done through agriculture and ecosystem or through industrial processes produces wastes, emissions, residues or re-radiated energy impacting the environment. The general material flows, including wastes and emissions, are parts of the economy (Fig.1). The new model expert is required to learn to live within constraints and this is the new responsibility to be acquired. The need is to look at how to reduce wastes and how to use wastes by studying a complete supply chain within the economic system through lifecycle analysis. The process intensities in using materials and energy need to be captured by benchmarking ecological footprints and looking at reduction in specific resource consumption.

Consequences of the environmental damages are global warming and climate change, which have become mother of all challenges. The aim is to look at options where we control Green House gas emissions and use this as a new parameter of competitiveness.

The business in general takes decisions for investment based on technical feasibility and likely economic gains. This is the Techno-Economic approach. These decisions when implemented will lead to consumption of natural resources, generation of wastes and emissions, destruction of ecological balance. These are the "Eco (Ecological) concerns." The consequences will impact the society at large and influence human resource and their expectations.

These are "Socio Centric" concerns. We get the sustainability region, the region of overlap of these concerns, as shown in Fig.2. These three form the core of dimensions of sustainability. The shaded portion in Fig.2, i.e. "Sustainability Region," will satisfy these three concerns. Hence, we need to identify this region in our decision making process.

The creative business of future will talk of societal and techno-economic parameters with sustainability and climate change as other factors (see Fig.2). The new dimension will include carbon footprints, water footprints, recycling practices and system closure, energy efficiency and renewable energy use.
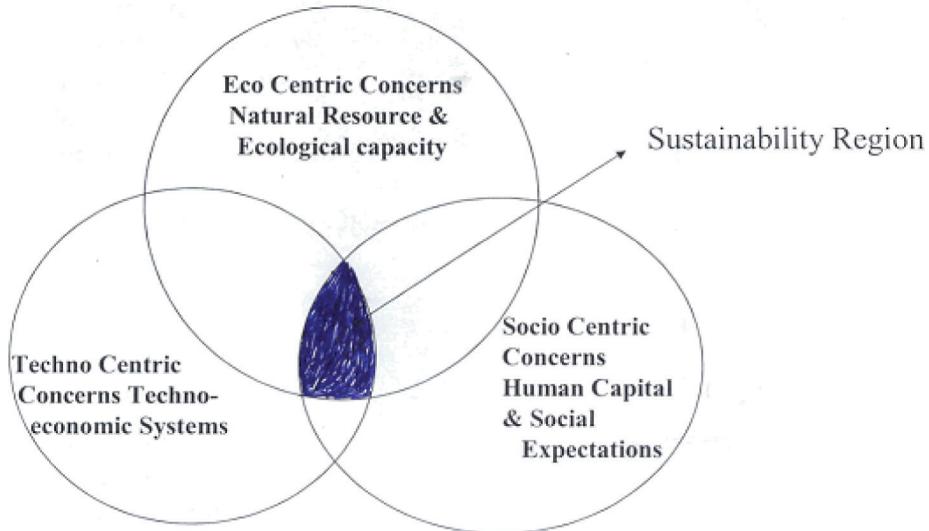
One needs to move away from the current techno/techno-economic centricity in decision making to sustainable decision making which includes techno-economic, eco-centric and socio-centric concerns (Soares, 1999; Funtowics & Ravetz, 1993; Ravetz, 1996; Singh, 2005).

Fig.2: The 3 – Dimensions of Sustainability

The three dimensions of sustainability will then include techno-centric approach [with human expertise and ingenuity], eco-centric approach [with the ability of the planet to sustain] and socio-centric approach [human expectations and aspirations] for satisfying lifestyles and quality of life for everyone. The sustainability region would then be one which encompasses techno-economic, ecological and social expectations.

MEANS TO END HIERARCHY – NEW EDUCATIONAL APPROACH

The means to end hierarchy is a transformation process in three steps. Science and technology transform natural capital into build human capital [intermediate means]. Meanwhile, the society's political economy transforms these intermediate means into intermediate ends of human and social capitals through philosophy and ethics. These intermediate means need to be transformed to our ultimate goal of "well being".

Scientists and engineers transform natural capital into built capital and human capital. The new education will help the engineers to look at transforming built up capital into human capital and human capital into well-being. This is the challenge. The current decision making based on cost-benefit analysis looks at the sole criteria of long- and short-term economic gains and shareholder value. In regard to the latter, some environmental parameters are being included in this analysis for decision making. The decision making objectives based on a single matrix of economic developments is not adequate. Moreover, the impacts of social, environmental and sustainable parameters is a rarely accounted for. The single matrix conceals information and leads to suboptimal decision making particularly in complex systems. In strategic decision making, accounting uncertainties as a basis is necessary. We need to define the objectives and the criteria as a part of decision making process. This is the new role of a professional engineer. Setting environmental standards, use of land and other natural resources, management of facilities and wastes, and accounting for social needs are the areas of training for tomorrow's engineer needs.

Decision making in the face of uncertainties, missing information, requires new skills. The need is to involve divergent stakeholders to decide on the criteria for decision making. In complex systems, the outcome of decisions with regard to sustainability is unpredictable and stakes are high. The methodology for managing complex system decision making, involving uncertainty and plural values, is known as "Post Normal Science".

When the stakes of the uncertainties are high, special skills on judgment are needed with a willingness to involve stakeholders. That is the role of an honest broker. Transit from one right solution to a range of technical solutions, with multiple stakeholders, is what one calls as consultative decision making for optimal solutions. The consultative decision making includes, among multiple stakeholders, informing,

bargaining, deliberations, participation, compromises and consensus. Ecological demands may be integrated with social contract and business orientation. A bond between society and profession becomes the core code of ethics. The teaching process should lay stress on evolutionary participation process with clients and stakeholders (Ravetz, 1996; Miller, 2004; Chokar *et al*., 2008).

IMPLICATIONS ON TEACHING

Science and engineering are essentially objective in nature. The need is to bring subjectivity to capture social and environmental contexts. An honest broker has to be taught to see design as an evolutionary participatory process. One has to move away from one simple problem – one simple solution to complex uncertain problems with more than one right answer by capturing the diverse nature of subjective and objective parameters. This leads to a search for optimal solutions.

The four principles of learning and how to learn are as follows:

i. Help learners to understand why the consideration of sustainability is in their interest. This is the motivational aspect.

ii. Use appropriate pedagogies for active engagement with issues.

iii. Help learners gain plural perspectives in understanding the transformation of "natural capital" to "well-being".

iv. Encourage learners to continue thinking about such issues beyond their formal education, namely, the concepts of

ecological, socio-political, techno-economic constraints.

Active learning - active teaching processes should be built on rapidly changing expectations of professional competence. Dynamic interactions will lead to developing the art of enquiry. Problem based learning is an approach to active learning. There is a need to utilize the extended peer review community for active learning and also identify stakeholders, define the problem and develop objectives and criteria for solutions, identify potential solutions, analyze the solutions to reach at optimal solutions. The learners should be able to identify and embed lessons learned, experiences gained, and gaps to be bridged. These are the steps in Post Normal Science.

The new inputs in teaching of engineering should lay stress on:

- techno, social and sustainability parameters.

- significance, impacts and evolution techniques.

- holistic approach to activities (Rao, 2010a, 2010b; Kulkarni, 2011; Hu & Wang, 2011; Indo-US Summit on Higher Education, 2010; Kumar, 2011; Chopra, 2010; Biswas *et al*., 2010).

CHANGES IN COMPETITIVENESS EVALUATION

The current business decision making process, based on techno economic evaluation, should give way to a complex evaluation process, which includes performance/productivity indices, social

responsibility indices, sustainability based indices, beside techno-economic indices. While current teaching talks of techno-economic indices for decision makers, the other three need to be dealt with in a manner befitting this specialization in which the student trains himself. The parameters mentioned above should be included in the teaching-learning process. The various factors in these three parameters are briefly listed below:

Performance productivity based indices –

- specific consumption norms
- operation efficiency parameters
- waste generation quantity and quality
- value addition/ turnover per unit GFA [gross fixed assets]
- manpower productivity
- capacity utilization and
- manpower used

Sustainability parameters –

- Ecological footprints for carbon, raw materials, water
- Material used efficiency parameters
- Material conservation initiatives
- Energy quantity from renewable resources including waste energy recovery
- Water from rainwater harvesting and degree of closure
- Quantity of waste generated and percentage waste recycled/reused
- Supply chain management

- Environmental pollution - quantity and quality, disposal including toxic and hazardous wastes
- Handling of toxic, inflammable, hazardous materials
- Disaster management practices
- LCA data and Green practices data

Societal parameters –

- Corporate social responsibilities [CSR]
- Corporate responsibilities for environment protection [CREP]
- Transparent environmental and social reporting
- Stakeholder involvement in decision making
- % gross earnings spent on CSR/SHE (Safety, Health and Environment)/ Greening/Resource conservation/ Education/Social infrastructure
- Initiatives to reduce the social and economic inequities
- Initiative to bring security in food, water, energy, health and well-being to the society around (Rao, 2010a, 2010b; Kulkarni, 2011; Hu & Wang, 2011; Indo-US Summit on Higher Education, 2010; Kumar, 2011; Chopra, 2010; Biswas *et al*., 2010).

THE ROLES OF HUMANITIES AND SOCIAL SCIENCES (HSS) IN HOLISTIC DEVELOPMENT OF ENGINEERS

The new engineering professional as an "Honest Broker" has to follow open decision

making process, along with the other stake holders. The role demands knowledge on transforming 'Natural Capital' to 'Human Capital' through the interface with professionals from diverse HSS-domains like economics and commerce, psychology and sociology, law and culture, philosophy and ethics. There is a need to sustaining innovations by institutionalizing the same in teaching and learning processes. Open-ended projects and problem-based learning provide the avenues for the institutionalisation of innovation. In fast changing global scene, the concern for ethics and values has grown. The ethical issues in academic, scientific, research and professional fields have to be included in education. Another major issue that needs attention from HSS angle is to bring parameters on society, security, sustainability and transparency into professional education. Similarly, the areas pertaining to investment decision making have to shift from 'Economic Decision Making Criteria' to more wider concepts of 'Multi-Stakeholder Participation Criteria'. This would mean the inclusion of Techno-Centric, Eco-Centric and Socio-Centric parameters in decision making. The concepts of 'Corporate Social Responsibility' and its obligations should become integral to HSS teaching and learning processes.

A holistic development of professional engineers should include 'Green Accounting' 'Social Connect' and 'Inclusive growth'. There is a need to develop professionals as 'Citizen Engineers' and HSS has a definite role to play in this regard.

So far, HSS inputs in engineering curricula have been mostly through the "Compulsory or Core Subject Mode'. Their teaching methods, effectiveness and acceptance by engineering students have left much to be desired. The situation can become interesting with the adoption of student centric "Flexible Credit System" in engineering education. Flexible credit system will have lean core subjects and compulsory HSS courses will be very few (about half the present subjects). Thus, many subjects will get into the 'Elective' list and each course has to fight for a place in the students' choice of elective courses. While a student chooses an elective of his choice, he has to be helped to include HSS getting a 'Minor' specialization status. This will help him in becoming a "Honest Broker".

Otherwise, relatively less popular subjects may even get marginalized. This is a major challenge to many subject areas including some of HSS. The real challenge is to formulate a wide range of HSS electives to motivate an engineering student to pick up HSS Elective subjects and get a minor specialization. This will go a long way in enabling 'Holistic Development of Engineering professionals' (Biswas *et al.*, 2010; Rao, 2010b; Pitorda, 2009).

CONCLUSION

The new concept of teaching will include – concepts of societal needs and sustainability, stakeholder's participation, responsible and responsive industry, public private partnerships in developmental process,

transparent and trustworthy operations based on value system and resource conservation with sustainability as core drivers. The new education process needs to change the present methodologies so as to meet the needs of the future. This will enable creation of a manpower that is capable of seeding new ideas, germinating new thought processes, creating new innovations to ensure sustainable development. Hence, the author suggests the matrix below to show how investment decision making can move from Techno-Economic parameters (Profit) to the Principles of 3- S, P, E, R, M (SPERM), which will lead to multi-stakeholder multicriteria decision-making.

SPERM

Society	**S**ecurity	**S**ustainability
Production	**P**rofit	**P**roductivity
Energy	**E**nvironment	**E**fficiency
Resource	**R**ecovery	**R**ecycle
Materials	**M**oney	**M**anpower

HSS has stakes in all the 3-S (Society, Security and Sustainability), and 2-M (Money and Manpower). This will be the essence of sustainable development, in which all care and share one Earth. The need will be to have green, clean and close cycle operations so that a healthy adequate contended lifestyle for all is possible as areas needing careful attention. The human resource of tomorrow should be dynamic, forward looking, competent, innovative and ahead of its time. That is the challenge which engineering education has to address.

HSS can provide a strong means of creating 'Citizen-engineers' of tomorrow who act as "Honest Brokers" in discharging of their duties.

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An Investigation on the Colossal Success of Larsen and Toubro Limited: Human Resource Management Perspective

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ABSTRACT

Larsen and Toubro (L&T) Limited is India's largest construction conglomerate. L&T's expertise is harnessed to execute high value projects that demand adherence to stringent timelines in a scenario where disparate disciplines of engineering are required to be coordinated on a critical path. However, no company can acquire such a feat without systematic management of its human resource. An investigation on the human resource management practices in orienting L&T's success can help to identify some of the ethical human resource practices, especially in the context of Indian market. Accordingly, a well-designed employee satisfaction survey was conducted for assessment of the HRM practices being followed in L&T. Unlike other companies, L&T aims to meet the long-term needs of its employees rather than short-term needs. There were however few areas of concerns, such as yearly appraisal system and equality to treat the employees. It is postulated that the inequality to treat the male and female employees is primarily a typical stereotype due to the fact that construction is conventionally believed to be a male dominant activity. A periodic survey intended to provide 360° feedback system can help to avoid such irregularities. This study is thus expected to provide healthy practices of HRM to nurture the young talents of India. This may help them to evaluate their decisions by analyzing the complex relationship between HRM practices and output of an organization.

Keywords: Human resource management, India, Larsen and Toubro Limited

INTRODUCTION

While few individuals believe that technology is a means to an end, Larsen and Toubro (L&T) believes that technology represents endless possibilities. L&T's

continual colossal success over the past few decades has been primarily due to its employees who have contributed significantly during its technologically driven global operations (www.Lntecc.com, accessed on 9/08/2011). Moreover, HRM practices have been realized to play a key role in driving the performance of a firm and governing the organizational effectiveness (Dyer & Reeves, 1995). For this reason, an acute need to improve the theoretical and analytical framework on three thrust areas of HRM, namely, the nature of HRM, nature of organisational performance and linkage between HRM and performance, has been greatly realized (Guest, 1997). From a careful analysis, it is ostensibly evident from Fig.1 that HRM practices within an organization are the fundamental drivers which regulate the position of an organization in the modern competitive market.

Nevertheless, cultural values are also identified to play a key role in governing the HRM practices which lead to the emergence of International Human Resources Management (IHRM) (Ngo, Turban, Lau, & Lui, 1998). As firms are getting globalized, HRM issues are becoming more sensitive resulting in the transformation of the roles of HRM shown schematically in Fig. 2.

In modern scenario, both industrialists and academicians are interested to understand the relevant HRM policies and practices for different types of organizations, i.e. public/private sector, manufacturing/service sector in different geographic locations of the globe as it could be a good training

tool for expatriate managers (Budhwar & Boyne, 2004). Also, strategic HRM literature suggests that HRM indirectly affects the firm's performance through a casual chain of mediating variables like employees' attitudes, employee's behaviour and employee's performance which are compounded by the fact that employees' perceptions of how and why HRM is implemented throughout the organization has a considerable impact on their attitudinal and behavioural responses. However, not only HRM practices but the role of two HR actors, namely, line managers and HR department, also determine employees' affective commitment (Gilbert, De Winne, & Sels, 2011).

India, in this context, has now liberalized its economic policies and has emerged as one of the foremost economies contributing significantly through technical minds in all aspects of business. The evolution of Larsen and Toubro Limited (L&T), as the country's largest construction conglomerate, is among the most remarkable success stories. Beginning with the import of machinery from Europe in 1938, L&T rapidly took over and begged some of the outstanding major contracts both within and outside India. This enabled L&T to set global engineering benchmarks in terms of scale and complexity of construction projects. This is also the reason that Mr. P. Chidambaram (Former Finance Minister of India) has stated L&T as the India's only company in the "National Sector" while Dr. APJ (Former President of India) has lauded L&T as "Salt of Nation". A more detailed

Selection
Socialization
Training and development
Quality improvement programmes (QIP) ⟶ Skills and ability (Quality)

Single Status
Job security
Internal promotion
Individualized reward systems ⟶ Efforts motivation/commitment

Communication
Employee involvement
Team working
Job design
Flexible job descriptions ⟶ Role structure and perception (Flexibility)

HRM strategy	HRM practices	HRM outcomes	Behaviour outcomes	Performance outcomes	Financial outcomes
Differentiation (Innovation)	Selection Training	Commitment	Effort/motivation	High productivity	Profits
Focus(quality)	Appraisal Rewards	Quality	Cooperation		
Cost (cost-reduction)	Job design		Involvement	Low: absence Labour turnover conflict	ROI
	Involvement	Flexibility	Organization citizenship	Customer complaints Labour turnover	
	Status and security				

Fig.1: Linkage between HRM practices and associated outcomes (Guest, 1997).

history of evolution of L&T over the years has been described elsewhere (www.Lntecc. com, accessed on 9/08/2011).

L&T's broader areas of business are shown in Fig.3. L&T–ECCD is the biggest division with operations spanning mostly at the site while the HRM practices are implemented from the Regional offices having additional support staff to assist the site based staffs. This makes L&T a true and

i.e. job climate, boss/supervisor relation, recruitment and selection process, the appraisal system, benefits and compensation and the quality of training provided. The study was conducted at one of Regional offices based at New Delhi, India.

As far as the survey and sampling method is concerned, simple random technique was used to design the sample. From the available total staff list, one out of every 10 employees was randomly selected as a part of the sample. From a total of 800 employees (comprising both of technical and clerical staff), a sample size of 80 was designed to administer the employee satisfaction questionnaire. The questionnaire was consisted of 33 questions (all close-ended) and a likert scale of 1-5 was used to quantify the response, in which scale 5 refers to a high degree of agreement or satisfaction and scale 1 refers to a high order of disagreement or dissatisfaction. Accordingly, intermittent values of 4, 3 and 2 represents an agreement, neutral response and disagreement of an employee respectively. Likert scale is an ordinal scale and hence, only degree of difference in the responses can be known rather than the specific amount of difference in the

responses. Therefore, it is better to adjudge the mode of the responses to interpret the data.

RESULTS AND INTERPRETATIONS

The statistical bar chart represents the data collected from the questionnaires indicating the percentage of employees on ordinate and their responses on abscissa. The interpretations made from the various charts are discussed in the subsequent paragraphs.

Job Climate

In the response of a question concerning job climate about individual differences being felt by the employees of L&T, the response of various participants is shown in Fig.4. It can be seen that the maximum mode belongs to neutral response signifying no individual difference exist as such.

However, a careful interpretation shows that the total mode of strongly agree or merely agree is quite large signifying that the participants do feel the individual differences. Taking this into account, the mode of facing individual differences (Strongly agree + agree) exceeds the neutral response. Hence, it will be unambiguous to say that the majority of employees
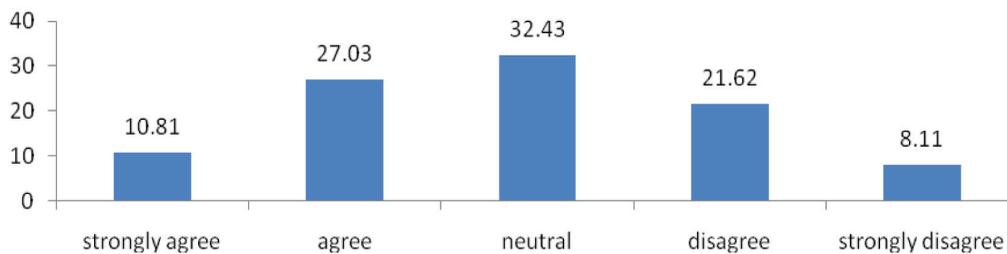
Fig.4: Experience individual differences (gender, race, background etceteras)

(10.81%+27.03%=37.84%) feels that an individual differences on account of gender, race, educational background etc. are often experienced. Based on a personal discussion with various participants, the authors noted that this is particularly true with female employees. Hence, the authors postulates that the inequality to treat the male and female employees is plausibly due to the fact that construction is always thought to be a male dominant activity, which is not the case in modern scenario. Since, this was the convention, it has become a typical stereotype in L&T which needs to be carefully dealt with.

Fig.5 shows that a high majority of (51.35%+10.81%) = 62.16% employees stated that the amount of work is reasonably assigned to them. This signifies that work load is fairly distributed and the majority of employees are not considering the work load as a potential problem for them.

The word KAIZEN is synonymous to "constant quest for improvement". It originated from the Japanese language, which means "improvement", or "change for the better". A very significant difference between neutral and agreed responses

(Fig.6) exists as far as promoting innovation within the company is concerned. In a nutshell, the majority (10.81% + 35.14% = 45.95%) agrees that innovation in the work is rewarding. Moreover, it could eventually be the reason that although employees are not recognizing the importance of KAIZEN in short term, but it could potentially be a reason of L&T's success because the implementation of KAIZEN is always a long-term goal for an organization to excel in its field.

Based on the bar chart shown in Fig.7, the two separate interpretations can be made as follows:

i. The margin between satisfaction and dissatisfaction is very low. In fact, the majority of the samples were found to be neutral on their responses.

ii. No extreme satisfaction or dissatisfaction exists among the employees regarding the job.

Boss/ Subordinate Hierarchy Relation

Interpretation from Fig.8:

Managerial cadre employees were asked to give their opinions on the Likert scale about their sub-ordinate's know-how
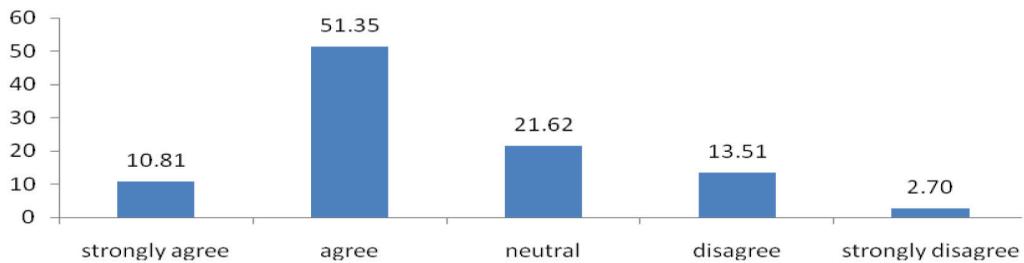
Fig.5: Work load is reasonable

on the work assigned to them. As evident from the bar chart, a very positive response was received. In fact, 89.18% of them felt that their sub-ordinates are cognizant about their work.

Recruitment/Selection

Interpretation from Fig.9 and Fig.10:

Recruitment is an integral part of an organization that reflects company's growth over the period of time. Since a recruitment process consumes both time and money, companies prefer to select skilled employees in the first instance itself. In fact, finding the right person for the right job ensures high productivity. This was also seen to be true with L&T, as 54.06% of its employees are happy with the L&T's process of attracting new employees.

However, it is equally important to retain the talent within the organization, failing which the efforts to train the employees to make them perfectionists could go in vain as the competitors could virtually be benefited by hiring such skilled employees. Although it was found that high quality employees were attracted by L&T, no substantial efforts are being made in retaining them. A majority of the employees (18.92%+21.62%= 40.54%) still think that L&T needs to pay more attention to care for its employees in order to retain them. This percentage margin however is in very close competition with 32.43% of the respondents who were neutral.
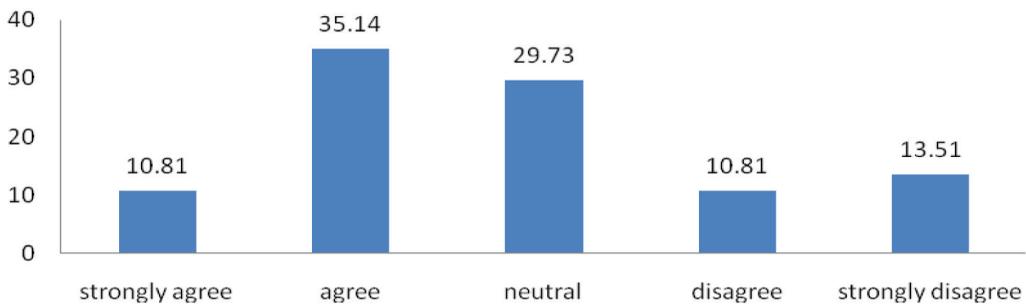
Fig.6: Management encourages innovations, creativity and KAIZEN
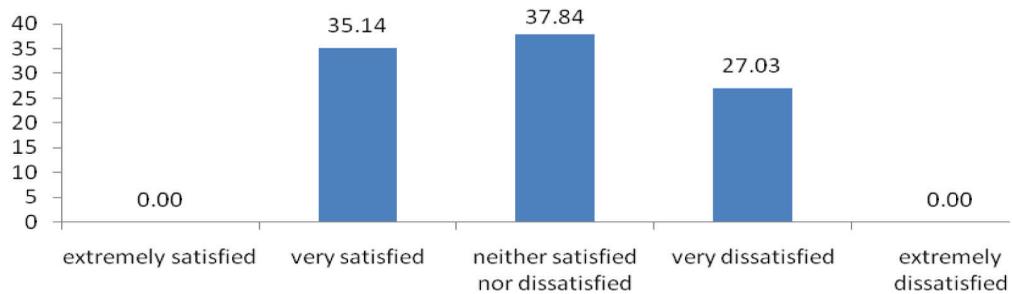
Fig.7: Overall, how much satisfied are the employees with the job

Performance Appraisal System (Fig.11 and Fig.12)

As much as the retention of talent in an organization is concerned, equally important is to be very accurate and fair in evaluating the performance of an employee in a yearly appraisal system. An employee puts all his efforts over the year to make his good reputation among peers, colleagues and boss. A wrong evaluation of the performance on account of leniency errors, Halo effects, affective reactions, attribution bias, similar-to-me Errors and stereotyping could lead to frustration in employees' minds towards the organization. Such a scenario is unfavourable.

In order to continue to grow as a whole, it is important for an organization to make unbiased evaluation. It was found that the majority of employees (around 56%) were
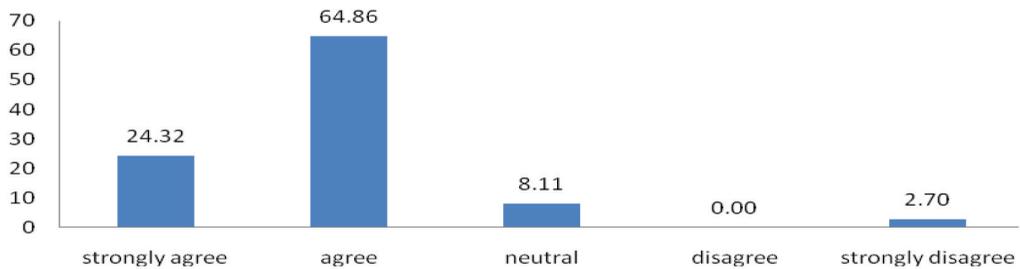
Fig.8: My supervisor is having knowledge of the work
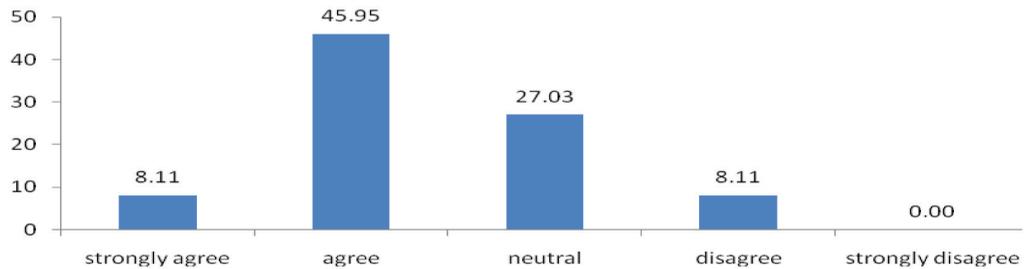
Fig.9: L&T do a good job in attracting high quality employees
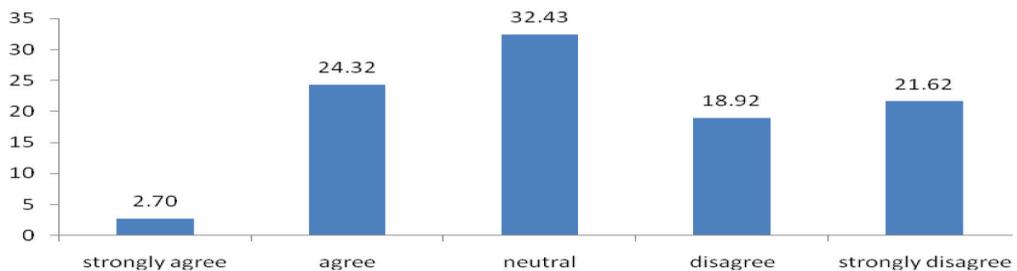
Fig.10: L&T cares for its employees and puts efforts to retain them

happy to inform that their previous year's appraisal system was accurate reflection of their work/performance.

However, on the transparency of the appraisal system, 52% of the respondents stated neutral responses while 32% showed disagreement. The authors believe that although the employees were promised of anonymity of the research data, they might have had fear about their names being highlighted to their boss for revealing the true facts and so they might have preferred to be neutral. However, a major group of about 32% stated that there is no transparency in the appraisal system. This is in contrast to the previous observation that their previous year's appraisal system was fair. However, it is likely that it is only the current boss who was fair in evaluating the current appraisal unlike previous evaluations done so far. This is again an example of a typical stereotyping effect in the minds of the employees towards the organization which needs due attention.

Benefits and Compensation

Interpretation (Fig.13):

About 70.27% of the employees were found content with the currently implemented leave policies.

Training and Development (Fig.14 and Fig.15)

One of the popular things which is very well-known about L&T is that it pays ample attention on proper training to nurture its employees. Despite the fact that training is being given a huge attention, it was
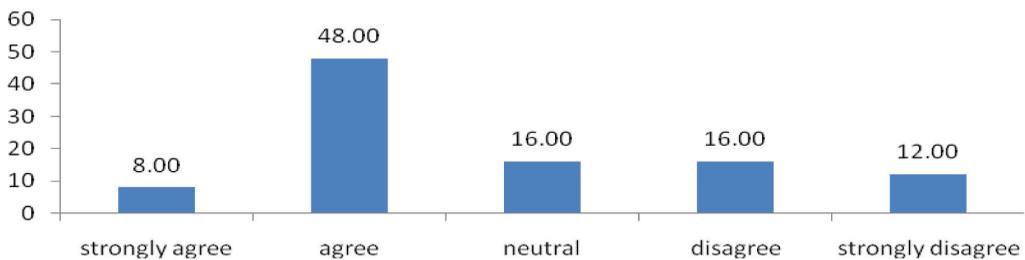
Fig.11: My last appraisal accurately reflects my performance
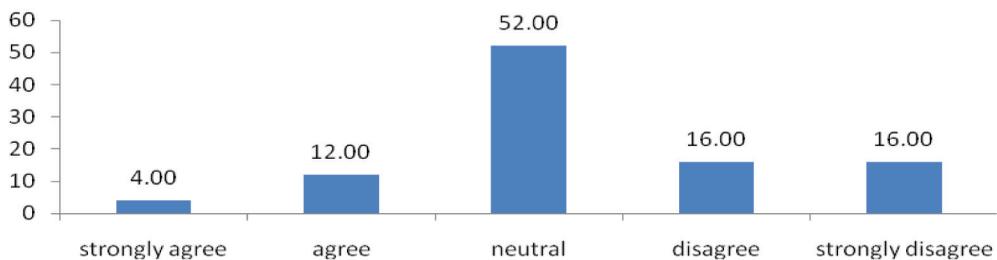
Fig.12: Appraisal system is fair

surprising to see earlier that minimal efforts were put to retain its employees. This is further compounded by the fact that the competitors of L&T, like Shapoorji Pallonji and TATA, will always be in a hunt to capture L&T's employees, realizing that they are highly trained workforce. Accordingly, L&T should put more efforts in retaining its employees. It was ostensibly clear from the bar chart that no dissatisfaction exist on the quality of training rather a very high percentage of satisfaction prevailed.

However, employees think that the process of training can slightly be modified by adjusting the amount of time spent on the training. Precisely, majority of employees (45%) believes that ample time should be spared for training and development, albeit, the quality of training is excellent.
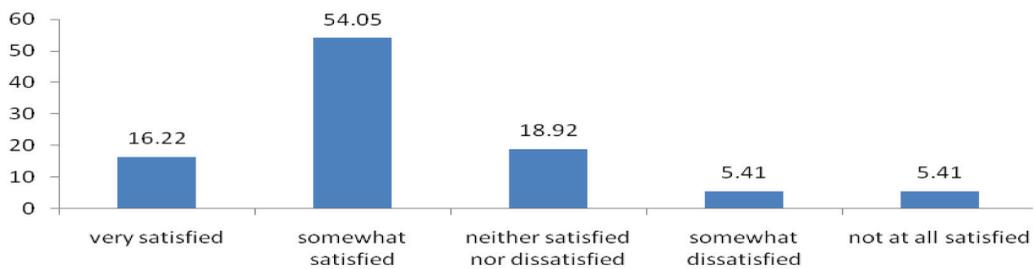
Fig.13: Content with the quantum of leave.
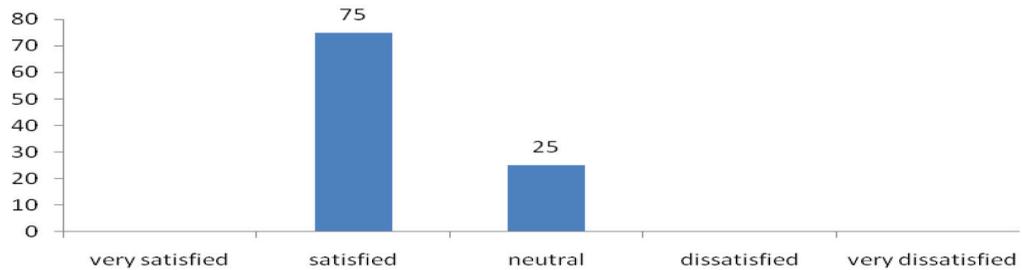
Fig.14: Quality of training and development
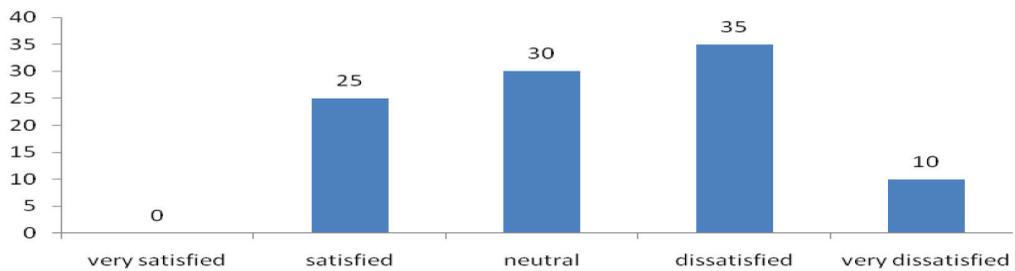
Fig.15: Amount of time spent on training and development.

HR Services

Interpretation (Fig.16 and Fig.17):

In a vibrant and gigantic organization like L&T, communication with HR department is the only feasible option for an employee to communicate his views to the organization. Lack of attention or mismanagement in communication could lead to great discomfort to its employee, which could further cause a conflict in the mind of an employee. This could potentially bring a suspect in the employee's mind which could enforce him/her to think to switch to another job. Thus, HR services play an important role by moulding the employee's mindset through their managerial and technical acumen.

In the current case, a large number of the respondents (8.11% +27.03% = 35.14%) showed satisfaction, while 32.43% were neutral, and almost 32% of them (18.92%+13.51% = 32.02%) were dissatisfied with the HR services. This is a typical response where all the responses were of virtually equal magnitude. A more detailed survey, with a large group of employee can probably help to clearly identify a better answer to this problem.

DISCUSSION AND CONCLUSION

Human Resource Management (HRM) Department of L&T has set some of the global benchmarks by following ethical practices to satisfactorily meet the long-
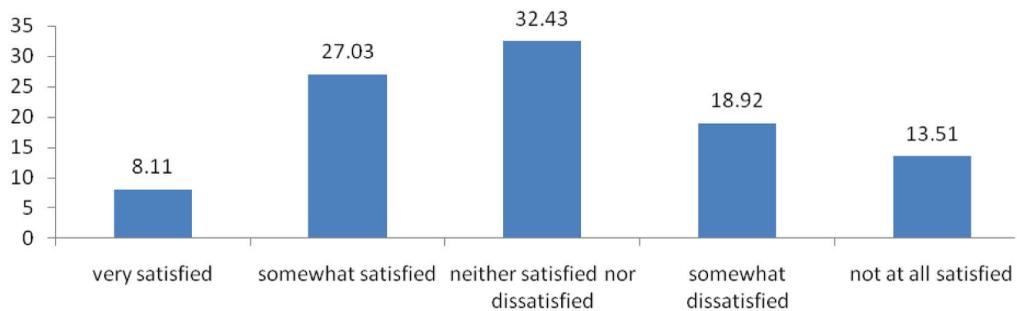
Fig.16: HR portal system is transparent and provides sufficient information.
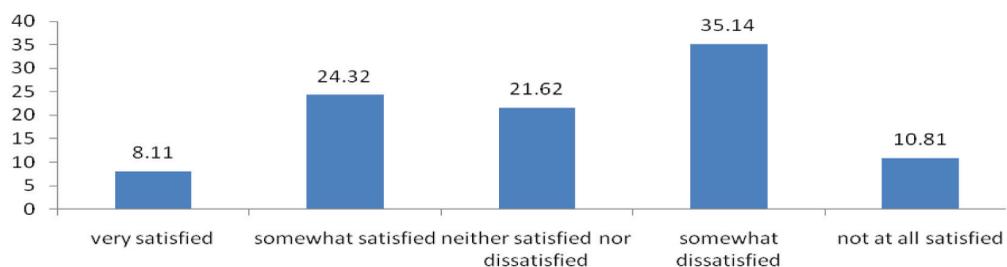
Fig.17: HR related queries are attended on time.

term needs of its employees. It has been established from the available information and primary data collection that the Personnel and Organization Development (P&OD) Department's performance in managing its resources and HR functions is good and has met the major needs of its employees to date. It is also evident that the employees share a great deal of pride in their work and are glad to be associated with the company. However, the following majors concerns have been found and they need

due attention and can be improved using an effective tool like 360° feedback system:

Based on the negative feedback on various responses as indicated in the above conclusions, the following recommendations can be incorporated for implementation:

- Development and implementation of a policy to ensure that the individual differences like gender, race or educational background are not experienced by the employees.

Conclusions of the survey

HR Function	Positive feedback	Negative feedback
Job Climate	The amount of work assigned to an employee is reasonable and the management encourages its employees to put forth novel and innovative ideas into work.	Individual differences based on gender, caste, background, etc. are felt by the employees on major occasions. This is most likely the result of a typical stereotype convention toward females on account of male dominant gender group.
Boss/ Subordinate hierarchy	The management is proud to induct quality of employees who are sincere towards their work.	-
Recruitment	L&T does attract the right quality of employees and select the right person for the right job.	L&T needs to put more focus on retaining its employees as this is one of the weaker areas identified. Virtually, with highly trained workforce that L&T has, competitors will always pose a great threat in attracting the employees of L&T.
Performance appraisal system	The employees do believe that the appraisal does reflect their past performance.	A transparent appraisal system needs to be developed. On a personal note, it is noted that the appraisal sent through lower channel is sometimes overruled by senior officer on the account of individual differences which is unjustified.
Benefits and compensation	Major satisfaction exists.	-
Training & development	Sound quality of training programmes are well implemented in L&T to ensure the regular development of the employees.	The time spent is slightly short which makes it difficult for its employees to realize and absorb the content of the training immediately.
HR Services	A large group of sample population is required to be surveyed to make more detailed and accurate interpretation.	Timely response of HR department in handling day-to-day queries is one of the weaker sections.

- A sound programme should be implemented with immediate effect to retain L&T's highly skilled workforce.

- It was found that the concern over transparency in appraisal system is the major source of discontent. So, the existing method of appraisal system can be modified.

- Although, ample training and development programmes are designed but their mode of communication can be customized for satisfactory implementation. Further, training programmes can be planned to allow sufficient time in order to grasp the topics well.

- HR departmental staff needs to be more flexible in handling HR related queries and provide timely responses in a courteous manner.

- An employee satisfaction survey can be conducted periodically to design HR improvement plans with the evolving needs of the employees.

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The Roles of Social Sciences in Engineering Education

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ABSTRACT

Engineering, particularly in India, is a very technical form of education, with very little emphasis on social science and liberal arts related subjects. It produces a large number of quality engineers from different institutions every year, who are highly capable of solving engineering problems in their chosen fields, but quite often find its difficult to effectively participate in the developmental activities in the country as they are unable to comprehend correctly the societal needs. The present society and the education system do not provide enough opportunities to explore nature and the society at large and thus quite often, the experts in various engineering fields become isolated and are unable to understand the real needs of the people. One option to bridge the gap is to introduce a few humanities, social sciences and ethics related courses in the engineering curricula. The paper discusses various possible methods to implement such a plan, evaluates them and concludes that at this point of time, the most appropriate solution would be to make these topics in-built into the engineering subjects. However, in order to implement this, the engineering professionals must get convinced about the need and the initiative should come from them.

Keywords: Education, Social Sciences, Humanities, Engineering

INTRODUCTION

Technical education is instrumental in making tremendous contributions to the economic and social growth of a country. It helps in producing quality engineers who can understand a problem, generate appropriate solution, implement the project and maintain and evaluate performance. This is more important in a developing country such as India, which faces gigantic problems and scarce financial resources. India has laid a great deal of emphasis on the development of appropriate quality of scientific and technical manpower to undertake the task of building the country, which is evident from the tremendous increase in the number of technical institutions in the recent times,

both at the government as well as private sector. However, with the opening up of the economy and the opportunities to compete globally, it has been understood that countries with higher and better levels of knowledge and skills will respond more effectively and promptly to the challenges and opportunities of globalization. Keeping in view the fact that there would be tremendous needs of qualified engineers during the fast developing stage of the country, efforts have been made not only to expand engineering education to create sufficient number of engineers but also to ensure that they are flexible, analytical, adaptable and multi-skilled through quality improvement programmes.

The technical education system in India can be broadly classified into three categories, namely, central funded, state government funded and self-financed institutions. It had been targeted that by the end of the eleventh plan, there would be 49 central universities, 15 Indian Institutes of Technologies (IITs), 30 National Institutes of Technologies (NITs), and 24 Indian Institutes of Information Technologies (IIITs). A large number of engineering institutions have come up in the private sector in the last two decades or so. The Government of India has also implemented Technical Quality Improvement Programme (TEQIP), with the assistance of the World Bank, to improve the quality of education and enhance the capabilities of the technical institutions. The reforms include faculty development, examination reforms, regular curriculum revision, with the focus on research and giving autonomy with accountability.

It is natural that questions be raised about the quality of education vis-à-vis the national needs and expectations in a fast-developing country like India. Not only is the actual learning and its relevance to the needs of the country important, but also equally important is the impacts that the engineering education has on the overall development of personality, thinking and sense of values in the graduates. Engineering students spend the most impressionable years of their lives in engineering institutions. Their perceptions of the national and societal developments and their roles in achieving them are initiated while they pursue their education. Quite often, the term development is misunderstood as economic development only and thus, the curricula are prepared mainly focusing on that aspect. However, after the initial phase of economic growth oriented development in India, the focus has now shifted towards *inclusive development* which includes *social development*, *development of the people* and *social mobilization.* It is therefore very important that the educational system meets this broader objective in today's world.

THE NEED OF SOCIAL SCIENCES IN ENGINEERING EDUCATION

Historically, the development of engineers with both a social vision and an instilled obligation to serve has not been a priority in engineering education. The technical focus attracted students who were serious and intelligent, but not necessarily interested

in human relations, social science, public affairs and cultural subjects. Engineering education meant providing students with analytical tools to understand problems and to create products and systems. The syllabi in the schools are usually quite heavy and the present system of school education does not provide enough opportunities to the students to explore science for the betterment of the society. The whole focus of the students is on doing well in the various nation-wide entrance examinations conducted for admitting students in professional programmes. Whatever spare time they get after attending school is usually spent on undergoing coaching for appearing for those entrance examinations. Such examinations test only the knowledge in the science subjects and English language and do not ask questions to test the level of awareness on human relations and the society at large. Thus, the students usually study these subjects just to score decent marks in the examination but do not feel the urge to go deeper to understand the concepts and their implications. The engineering discipline exploits fundamental sciences, namely, Physics, Chemistry and Mathematics to create practical applications for the society. Though the technical aspect of engineering has been covered reasonably well in Indian institutions, real education is much more than just technical knowledge. It should enable the professionals to have deeper understanding of their own roles and responsibilities towards the society and the environment. In many cases, the role of technical professionals remains peripheral in

formulation and implementation of policies for developmental activities as a vast majority of them have poor understanding of social, political and economic issues and thus are unable to relate themselves to the real needs of the society.

The question of how to educate engineers about the social implications and ethical issues of their work is a perplexing one. When the students are not challenged to think about the social, political and environmental influences and consequences of technology, implicit boundaries are generated within their minds that are not easily crossed in their professional practice. This may be attributed both to the syllabi and the quality of teaching at the school level. The teaching is aimed more on completing the syllabi and less on the learning of the students. The syllabi of the Science subjects cover a large number of topics and there is not enough time to learn on the relationships among the subjects and also the human side of sciences. If one goal of the profession is to serve society, then such boundaries can prove as significant obstacles. Thus, it is felt that a study of the social sciences can be of great help in providing engineers with a broader perspective and understanding of themselves and human behaviour. This knowledge can enable them to have a better appreciation of social processes and how they can contribute more effectively to the betterment of society. Essentially, the aim of engineering education is to inculcate in the students a vision that enables them to connect social and ethical responsibility so as to best serve the society. While the

aim of any education is ultimately to serve the society, it is particularly applicable for professional educations such as engineering and medicine as their services impact the society directly and almost instantly.

Even though the importance of social sciences in engineering education had been recognized in the developed countries long ago, in India, it has been understood quite late. There has been a realization to broaden the education of engineering and thus prepare them to serve the society with an awareness and sensitivity of the cultural, political, economic and social dimensions of their work. If engineering is to be practiced as a profession, and not just a social craft, engineering must learn to harmonize the natural sciences with human values and social organization (Wenk, 1996). In a sharp contrast to the attitudes and practices that prevailed earlier, engineers today are required to design sustainable systems, keeping in mind, the environmental impact of their manufacturing and use, their accessibility to people of diverse ethnicity and physical abilities, their safety and their recyclability. A number of instances from the recent past showcase how technical and socio-political issues are intertwined with each other. The question of reducing Delhi's environmental pollution was not just about replacing diesel with CNG but also the livelihood of the auto-rickshaw drivers and their capability to invest for incorporating the change. Similarly, the construction of a motor-vehicle plant had to be shifted from West Bengal to Gujarat was not due to some problems related to engineering, but the

social problem caused by the acquisition of land from the farmers. Both these cases underline the fact that if the planners and engineers would have considered the possible social impact of these projects, they could have incorporated appropriate measures during the planning stage itself. There are many such instances where social issues have overpowered the implementation of engineering projects taken up for the development of different regions. Thus, the solutions to many problems require not just a deep understanding of technology, but also the requirements of the society.

The society is increasingly getting into a technological world and the natural world almost does not exist particularly for those who live in urban areas. Even the rural society is getting more dependent on technology. Thus, very often human beings do not get the opportunity to adapt themselves to nature and to try to get adjusted to the technical world that surrounds them. Even the school education system in India does not provide any opportunity to the students to explore nature or the society at large. A logical consequence of such a situation is the isolation of the individuals and the creation of experts in narrow fields of specialization. However, there is no guarantee that the people who are experts will really make correct or optimal decisions which will be beneficial to the society. It would not be possible to take into consideration all the conflicting or otherwise aspects while making a decision.

Similarly, community participation has been recognized as very important

for the sustainability of any infrastructure or service. Thus, for taking a pragmatic view of a problem, engineers need to learn how to interact with the community and understand their needs and aspirations. However, the situation was quite different in the earlier days when the engineers were more attached to the society and understood the culture of the day. This may be observed by visiting historical places that in earlier days, human settlements, temples, forts, cemeteries were designed and constructed with defining elements of every civilization. The engineers and builders in those days were able to understand all the consequences of their projects. It came naturally to them as they were close to nature and the society. The present Indian society, particularly the urban population, is almost detached from the nature and the lifestyle makes it even more difficult to understand the society at large. Hence, the social responsibility does not come naturally in most cases. Even in schools and professional degree programmes, the students mainly get the opportunity to interact with a class of population and the academic loads, peer pressure and high expectations from the parents do not leave them with time to understand the society and the societal needs and responsibilities. This gives a strong justification for the introduction of a few courses related to social sciences and ethics in the professional degree programmes.

CONNECTING THE TECHNICAL TO THE SOCIAL NEEDS

While it has been widely accepted that there is a need to connect technical education to the social and ethical values, the difficulty, however, is in the implementation. It is necessary to change the culture so that engineering professionals understand the need and the importance of non-technical courses. In the actual curriculum planning, social sciences are considered relatively unimportant in the education of technical intelligentsia. One way to achieve the connections between the two is increasing liberal arts contents and spreading it out over the four years of the curriculum. Some of the universities in USA have engineering courses that provide students a theoretical framework and a historical perspective for ethical engineering practice, which is certainly crucial in developing engineers, who can ethically address broader considerations in practice. Keeping in view the importance of connection to engineering education, Wenk (1996) suggested that upper division technical courses be redirected toward problem orientations rather than discipline perspectives by taking a "top-down" or "case study" approach. Meanwhile, Bordogna *et al*. (1993) suggested that engineering problems should also emphasize on lateral thinking, experimental learning, integration-connecting the parts, correlating chaos, handling ambiguity, the design and manufacturing process, the formulation of problems, the implementation of ideas team work, social context, and above

all, recognition and incorporation of design as the final core of engineering. While integrating various aspects, the need of the people must be understood clearly and the concept of participatory planning must be taken into consideration, which is only possible if the engineers have the understanding of social issues. Unfortunately, an academic programme is still evaluated based on the courses taken by students, rather than assessing the outcomes of teaching in terms of technical knowledge and understanding societal needs and priorities. The institutes/ universities should try to show that students know the material they have studied rather than a list of courses and credit hours the students have taken. In particular, engineering programmes must demonstrate that besides the knowledge of core disciplines, their graduates have an understanding of professional and ethical responsibilities. The students should be able to understand the impacts of engineering solution in a global and societal context and must be able to take into account economic, environmental, sustainability, manufacturability, ethical, health, safety and other social and political considerations into their designs. Accordingly, engineering programmes need to be evaluated and efforts must be made to reorient them for meeting societal objectives.

In an average engineering college, the amount of time a student spends in learning applied sciences make it almost impossible for him/her to study the most fundamental ideas and the problems of humanities or social sciences. The present four-year engineering degree course teaches the student a great deal about technicalities of his/ her field, but very little about society. A study conducted in 2002 (Sarkar & Das, 2002) showed that the percentage of humanities and social sciences related subjects in premier engineering institutions such as Indian Institute of Technology varies between 6.74 and 10.06, which is low as compared to those of the universities in the USA where the percentage is about 20%. In order to mitigate this problem, a new approach was introduced in McMaster University in Canada by introducing a five-year engineering and society degree programmes which makes the bridge between technology and society both broader and longer (Hudspith, 2001). The main objectives of the programme are: (1) to enable students to better understand the relationship between technology and society; (2) to enable students to better understand how technology/ engineering might better serve humanity, (3) to broaden the education of the students through courses taken outside of the engineering curriculum, (4) to develop the art of inquiry into socio-technical problems, and (5) to provide an opportunity to be a part of a community that takes the social responsibility of engineering seriously. However, such a model may not be suitable for a developing country like India at this point of time as professional education is considered as a means to improve economic condition and thus both the students and the parents are likely to oppose a move to increase the time duration of undergraduate programme

from four to five years. Moreover, even if the duration is increased by the All India Council for Technical Education (AICTE) and the University Grants Commission (UGC), the engineering disciplines would try to introduce more subjects from their own areas as in each field the knowledge is growing rapidly. Another method would be to develop a curriculum that has a deeper and more analytic treatment of social science than what is at present. Instead of offering various courses, the different branches of humanities like sociology, political science and economics may shed their traditional isolation from one another and provide the students with an integrated vision and framework through which they can get a comprehensive view and understand the society better.

STATUS OF SOCIAL SCIENCE RELATED SUBJECTS IN ENGINEERING CURRICULUM IN INDIA

Many questions have been raised in the recent times regarding the quality of engineering education in India. However, the concern is not unique to this country only. Worldwide, there is deep introspection about what the future courses of engineering education should be. In less developed countries, it is even more relevant because of the special socio-economic problems and severe resource constraints. While there is no denying the fact that the technical content in the curriculum in most of the engineering institutions in India is of world standard, the question maybe asked if the system is producing engineers with concern for the

society and with ethical values. On a wider sociological level, it has also been claimed that the need to develop as a balanced individual and to understand the impact of technology upon daily life requires a broader understanding of the social context in which engineering operates (Florman, 1997; Jelen, 1997; Ruprecht, 1997).

There is also a view that the knowledge instantiated within the humanities is necessary to the civic and moral development of students (Johnston *et al.,* 1988). In many countries, accreditation bodies have formulated requirements that are relevant for preparing students for social responsibility, even though the term itself is not always mentioned. For example the Accreditation Board for Engineering and Technology (ABET), USA accreditation criteria requires that engineering programs must demonstrate that the students receive the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental and societal context and attain an understanding of professional and ethical responsibility *(*Zandvoort, 2008)*.

A study conducted by Webb (2008) showed that the average proportion of humanities credits for the US universities surveyed was 22.86%, with a standard deviation of 3.82 as compared to 19.49% and a standard deviation of 1.98 in the Gulf countries. It has been suggested by the All India Council of Technical Education (AICTE) and the University Grants Commission (UGC) that the share of Humanities and Social Sciences related subjects should be around 8-10% in the

engineering curriculum (Mathur, 1994). It is quite evident that the component is very low in the curriculum of engineering courses in most of the Institutions/Universities in India. A study of a few well-known engineering institutions in the country showed that the components of Humanities and Social Science related subjects in the curriculum of Civil Engineering is quite low as shown in Table 1 (Sarkar & Dash, 2002). The situation is not different in other branches of engineering.

New developments are taking place at a fast rate in every discipline in engineering. There is already a perception among the academicians of different streams that more discipline-related courses need to be introduced so as to keep the students up-to-date with the new developments in the respective disciplines. Even though they may appreciate the need of humanities, social sciences and ethics in engineering curriculum often they feel that the knowledge of the recent developments in a discipline is more important and useful for the students. Thus, it would be difficult to introduce such

courses until and unless the teachers in the engineering disciplines get convinced about their needs and utility. They may argue that it is enough to train engineers in science, mathematics, engineering theory and practice, whereas ethics, morality and societal needs would be picked up by the students at home and the surroundings. It might have been true earlier, but is not applicable any more as the society and social structures have changed tremendously over the years.

Another justification is often put forward that in any engineering curriculum; there are always a few slots as free electives and students may take humanities related courses if they wish to. It is forgotten that the purpose is not that the students take a few courses of their choice, but to ensure that the courses are identified and the syllabi are developed in such a way that they form a package and become part and parcel of the engineering curriculum. The identification of the courses must come from the engineering fraternity, who through their experiences, would be the right person to

TABLE 1
The percentage of Humanities related courses in the course curriculum of Civil Engineering Programmes at a few selected Indian institutions

Name of Institutions	Percentage of compulsory HSS subjects	Percentage of maximum possible HSS subjects
Indian Institute of Technology Chennai	6.74	6.74
Indian Institute of Technology Guwahati	6.68	8.36
Indian Institute of Technology Kanpur	8.50	8.50
Indian Institute of Technology Kharagpur	7.55	10.06
Indian Institute of Technology Mumbai	5.37	8.95
Birla Institute of Technology and Science, Pilani	2.14	23.57

(After Sarkar & Dash, 2002)

know the components of Humanities and Social Science related subjects needed in an engineering curriculum to make a complete all-rounded engineer. For example, it is widely accepted now that professional ethics should be taught to the engineering students and this realization is a moderately recent phenomenon. Over the years, it has been appreciated that each profession should have its own code of ethics that enable members to gain trust and faith in each other, without which, they cannot function and hence, the need of the course has been realized and implemented.

POSSIBLE MODELS FOR A BALANCED CURRICULUM IN INDIA

Keeping in view the present needs of the country, it would be beneficial if the All India Council for Technical Education (AICTE) and the University Grants Commission (UGC) revisit the prescribed percentage of Humanities and Social Science related subjects in the engineering curriculum. This is more relevant in the present time as the inclusive growth and sustainable development have been recognized as two key factors for the overall development of the country. There is also a scope to increase the knowledge and awareness of the students regarding their country, society and its needs within the existing curriculum by introducing the concept of social training during summer and other holidays in collaborations with Non-Government Organizations (NGO) and local government institutions. This will help future engineers

to gain first-hand information about the problems of the people, their needs and expectations. Guest faculty from such NGOs could also share their practical experience in dealing with issues at these institutions. Therefore, it is suggested that within the present curriculum, a few elective courses may be earmarked for humanities related subjects and the students are given the option to choose from a pool of subjects.

In line with the experiences of Canada, another option is to offer longer duration under-graduate programmes with sufficient number of courses in history of Science and Technology, Social Sciences and professional ethics. To make it attractive, the students may then be allowed to graduate in two disciplines: engineering and society. This option would be difficult to implement as there would be legitimate resistance from the students and the guardians if the duration of the programme is increased. However, the most effective way would be to educate the teachers in the engineering subjects about the need of Social Science, environment and ethics related topics in the curriculum and then ask them to redesign their courses to incorporate these topics as far as possible. For example, the knowledge of economics and finance is quite important for an engineer, but in many institutions in India, it is not included in the curricula as suitable slots are not available. Therefore, the relevant topics are sometimes included in the core engineering subjects so that the students get exposure on the subject. It must be appreciated, particularly by the faculty members of engineering disciplines, that

Humanities and Science are not rivals to technical subjects, but are complementary to each other. In particular, Humanities will help engineers to look at the same problem from different point of views and this will help in coming up with sustainable solutions for the benefits of the society at large.

Another option would be to develop flexible education and training system that will provide a foundation for learning at the secondary and tertiary education and there will be a scope to develop required competencies through a lifelong learning process. This implies that if an interest in social sciences is awakened at the basic education stage, it can be kept alive through lifelong learning.

CONCLUSION

India, being a rapidly developing country, is in need to produce a large number of engineers that are not only technically sound but also concerned about the needs of our society. An engineer in today's world should be extremely sound in his technical education as well as fully aware of how his skills would be of use to nation building, factoring in societal, economical and ethical needs. Unfortunately Indian engineering students study in an environment where social science and ethics related subjects are given low preference, as evident from the small number of subjects a student needs to complete to graduate. This has led to a divide between what is taught in the classroom and how the same cannot always be implemented in society. Education is not just learning formulas and laws from textbooks. It is also about learning how to utilize those skills in the real world. Crucial steps have to be taken to help bridge the gap between engineering and humanities. One way is to increase the number of Social Science and ethical courses in engineering curriculum by making policy decisions at the AICTE and UGC levels. Another is to increase the duration of the degree programme and also to introduce more subjects related to humanities and ethics. However, this option would be difficult to implement as there would be legitimate resistance from the students and the guardians. The best possible solution at this point of time is to make the topics of Social Sciences and ethics in-built into the engineering subjects. Finally, it is essential to remember that whatever skills and knowledge an engineer acquires is only of true value when it can be used for the betterment of mankind, of the society and of the nation.

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Cross-Cultural Conflict Management in an Age of Globalisation

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ABSTRACT

The Twenty-first Century is often hailed as the Pacific Century. In economic and trade terms, it is already evident with the rise of China and India as major players. Conflicts are inevitable in commonplace human interactions. The crucial question as we move towards an age of globalisation is to ask ourselves if we are competently prepared to manage cross-cultural conflicts given the diversity of habits that occupy our respective words, thoughts and deeds in multicultural environments. This paper seeks to examine the major cultural paradigms that underpin East-West behaviours in the context of conflicts. It will demonstrate, for example, how the primarily collectivist East will perceive and manage conflicts vastly different to Western individualistic ways. It will then conclude that cross-cultural conflict management skill is an essential acquisition to meet contemporary challenges.

Keywords: Cross-cultural values, sino-western conflict resolution, mediation

INTRODUCTION

It is now trite to say that the advent of technology has impacted the world in unimaginable ways. Certainly, it has globalised the world, making it borderless in cyberspace and, at the same time, shrinking our physical world. Inter-dependence has become a fundamental and key feature in the conduct of international relations, trade and

commerce, and environmental management. More than ever before, technocrats in an age of globalisation need to re-think and re-train in communication skills and strategies, particularly in handling and managing conflicts. A globalised environment cuts across the diversity of cultures. In the context of conflict management, technocrats in the age of globalisation will require to be cognisant of, and equipped with a new understanding of cross-cultural awareness and competency (Hofstede, 1994). Challenges abound as, very often,

culture is described as the unconscious and silent communicator (Hall, 1959; Goh, 1999).

This paper focuses on the cross-cultural, essentially the divergent Asian (mainly ethnic Chinese) and Western (mainly of Anglo-Saxon background) cultural values and how they impact on communication, which will in turn influence disputing behaviour. It is to be noted, for instance in Asia, that the Chinese and the Indians share fundamentally similar cultural values based on collectivism. However, for the purpose of this paper, Chinese cultural observations are mainly be drawn upon to contrast with Western ways. The reference here to the 'Chinese' bears an ethnological reference rather than a political or nationalistic one (Goh, 1996, 2002). A reference to the 'Western' focuses primarily on the persons of Anglo-Saxon or Anglo-Celtic background who subscribe predominantly to individualistic ideals (Triandis, 1990; Gudykunst, 1994; Goh, 1996). An analysis in cross-cultural (i.e. Sino-Western) conflict management is both relevant and necessary as we increasingly move towards the Pacific or the Asian Century and as we move about in the age of globalisation.

As a useful starting point, conflicts are an inevitable part of everyday life. In the West, they are not necessarily considered as a bad thing (Goh, 1996; Jia, 2002; Boulle, 2011). The positive aspects of conflicts can lead to creative generation and innovation of ideas, as can be seen in hotly-debated issues on contemporary topics like climate change. That said, the general perception of conflicts

bears negative connotations. More so, such a negative perception of conflicts is more prevalent in Asian collectivist cultures like the Chinese, for example (Jia, 2002).

This paper is premised on the idea that the context of conflicts finds shifting grounds in accordance with one's embedded culture. How the participants of one culture engage in conflicts can be vastly different from the participants of another culture. For instance, in broad terms, the Chinese culture may prefer to avoid conflicts, especially inter-personal conflicts, as far as possible. The Chinese culture is generally perceived of as litigation-averse (Goh, 2002). Indeed, the highpoint in the Chinese culture is conflict dissolution rather than conflict resolution, with the former preventative and the latter remedial in nature (Goh, 2001). By way of contrast, generally speaking, the Western culture views conflict confrontation as normal and not something to be shunned. On the contrary, as a general observation, the Western individualist culture may seem to thrive on conflicts (Goh, 2002; Boulle, 2011). As such, open debate and confrontationist behaviour become their cultural norms. Although face-saving element is present in the Western culture, it does not attain the same cultural imperative as in collectivist cultures, a point to be dealt with below. Indeed, in the words of Boulle (2011):

> *People from individualistic, egalitarian and low-context cultures, such as many Australians, tend to be confrontational in conflict situations and to favour*

direct negotiation with the other side. People from collectivist, hierarchical and high-context cultures such as many Aboriginal Australians and some recent migrants tend to avoid confrontation in conflict situations and to favour indirect forms of negotiation (p. 104).

THE ROLE OF CULTURE IN CONFLICT MANAGEMENT

At this juncture, it is appropriate to ask the question: What is culture? Simply put, culture can be construed as 'the habits of our ways' (Goh, 1996, p. 18). Culture propels and drives our thinking and our actions in unconscious ways (Hall, 1990; Goh, 1996). Indeed, culture can help or hinder communication, depending on one's cultural fluency in a given cross-cultural environment. The following simple and true social case scenario highlights this point. A recent migrant to Australia will be surprised and will experience culture-shock when asked to 'bring a plate' to an informal, social function like the barbeque. Many migrants have interpreted this request quite literally, and have often wondered why the local hosts concerned would invite guests and yet be short on crockery. In fact, the Australian bring-a-plate is for the guest to bring something to share with other guests. Although this little cross-cultural scenario may appear insignificant, it no doubt demonstrates that culture plays a part in communication. A lack of appropriate awareness can result in misunderstandings.

In turn, such misunderstandings may potentially give rise to unintended conflicts. Naturally, such a lack of communication can be a fertile bed for misunderstandings and conflicts to arise, leading to the development of ill feelings between parties due to cultural ignorance. Very often, cross-cultural participants fail to identify the cultural traps at stake on account of ignorance, or fear of appearing silly for asking 'obvious' questions. Hence, conflicts, or potential conflicts, are likely to abound.

In conflict management, even in a mono-cultural setting, we often find that conflicts are generated out of unspoken triggers founded upon assumptions, expectations, misguided or unarticulated perceptions. Furthermore, what is spoken may be misinterpreted, misheard or misunderstood by the listener. Unwittingly, conflicts can occur as a result. Transposed to the cross-cultural conflict context, these issues are compounded by the embedded and often unconscious cross-cultural rules at play. As a natural consequence, misunderstandings can easily arise. One has to be ever so mindful, conscious and vigilant of one's thoughts, actions and words lest they unwittingly cause cross-cultural blunders leading to unnecessary conflicts.

As an example, Professor Roger Fisher of Harvard Law School recounted the following personal experience to me when I met him in 1993 (see Goh, 1996, p. 18-19). A number of years ago, Professor Roger Fisher was in Pakistan to set up an official meeting with a minister. He met the minister at a separate event and approached him

with this meeting request. To his pleasant surprise, he received a positive response of 'Anytime'. He took this quite literally and turned up at the Pakistani minister's office the next morning only to be turned away as the minister was otherwise engaged. An embarrassed and frustrated Professor Fisher learnt a cross-cultural lesson the hard way (Goh, 1996).

Below is an overview of the major dimensions in cross-cultural paradigms which can play a pivotal role in understanding social behaviour pertaining to conflicts. As a starting point, it is important to note that the collectivism-individualism paradigm does exist in both cultures; it is the degree to which it may pre-dominate. In the words of Gudykunst (1994):

Individualism and collectivism both exist in every culture, but one tends to pre-dominate. Cultures in which individualism tends to pre-dominate include, but are not limited to: Australia, Great Britain, Belgium, Canada, Denmark, France, Germany, Ireland, Italy, New Zealand, Sweden and the United States. Cultures in which collectivism tends to pre-dominate include, but are not limited to: Argentina, Brazil, China, Costa Rica, Egypt, Ethiopia, Greece, Guatemala, India, Japan, Kenya, Korea, Mexico, Nigeria, Panama, Saudi Arabia, and Venezuela. Generally, most Arab, African, Asian, and Latin cultures are collectivists (p. 43).

The statement above further suggests that although generalizations can be beneficial in providing glimpses into particular nationalistic cultures, we still need to avoid stereo-typing or to become too rigid with our culturally pre-disposed views. Eventually, we must take the persons as we find them (Goh, 1996).

COLLECTIVISM AND CONFLICT MANAGEMENT

Collectivists, as the term suggests, share fundamentally a group-oriented culture. Collectivism prevails among Asian and African societies, and some major characteristics of such group or family-oriented culture can be seen in Italian or Greek cultures although these latter cultures pre-dominate towards individualism. Collectivism essentially negates the self, and views the group as its central functionary. Evidently, such a culture promotes 'We' instead of 'I' (Triandis, 1990; Gudykunst, 1994; Goh, 1996, 2002).

Membership of the group is further differentiated by whether one belongs to the in-group or the out-group (Triandis, 1990; Gudykunst, 1994; Goh, 1996, 2002). Often, the characteristics that move one into the in-group or out-group can be traced by one's immediate associations with the work group, education or a particular social group like the Chinese village clan. However, such differentiation may be perceptual. By this is meant that an out-group person may become the member of an in-group as a result of a change in the social tie or network. More importantly, an in-group culture shares

certain common values and its members become privy to privileges enjoyed by the in-group (Goh, 1996).

In the field of conflict management, it is important to recognise particular communicative styles. Collectivists tend to profess a relational style of communication (Goh, 1996). The emphasis of this particular style is on relationship-building (Chen, 2001). Hence, trust is a critical element in building successful relationships and maintaining communication. As a corollary, trust is also highly important in managing conflicts. In the event of a dispute, a collectivist feels comfortable if the dispute-resolver is someone she or he could trust (Goh, 2002).

Collectivists are prone to high-context communication (Hall, 1976; Goh, 1996). In high-context communication, much that is meant is hidden or embedded within the context of the speech. It is then up to the listener to decipher the real meaning of the exchange of conversation. That is what makes it hard, for it is very likely for miscommunication, misinterpretation or mistakes to happen. As collectivists are pre-occupied with preserving harmony, and ever anxious about face-saving behaviour, engaging in high-context communication serves these ends and purposes. High-context communication is indirect, and as such, it promotes face-saving by the speaker being able to circumvent blunt remarks.

Face-saving behaviour is regarded as important to the collectivists. For the collectivists, face-saving behaviour contains two aspects: one is self-related and the other one is other-related (Goh, 1996). The former is associated with saving one's own face, while the latter deals with saving the face of another. In the collectivist cultures, the concern for other people's welfare is ever present and regarded, at times, more important than saving one's own face. Hence, it is critical that one is vigilant about avoiding making remarks that may cause another to lose face. In individualist cultures, although face-saving behaviour is also present, it is in reference to saving one's own face than another person's. Indeed, in egocentrism, one cares little about the face of another (Goh, 1996, 2006).

Harmony is particularly crucial to collectivists. This is because in group behaviour, nothing is really personal and almost every aspect bears a communal nature. This is similar with conflicts. For example, a family dispute is not just limited to the disputing couple in question. The extended families and the community at large all see to it that inter-personal harmony is eventually restored. As a consequence, compromises are a valid outcome of disputes involving collectivists. In fact, the hallmark of a collectivist behaviour is the maintenance of harmony. See, for instance:

> *"The most eminent influence of Chinese belief on establishing a harmonious relationship in human communication is the effort to avoid being involved in conflict" (Chen, 2002, p. 8).*

"Collectivist cultures place a premium on the maintenance of harmony and the absence of discord" (Barkai, 2008, p. 70).

INDIVIDUALISM AND CONFLICT MANAGEMENT

By way of contrast, individualism places emphasis on the 'individual'. In other words, the self is the primary actor. This also means that its trademark is self-centredness or egocentrism (Triandis, 1990; Gudykunst, 1991; Goh, 1996). In the Western culture, individualism is pre-dominant among people with an Anglo-Saxon or Anglo-Celtic background. By and large, individualists cherish personal freedom, independence, autonomy and individual justice. What is highly valued is creativity and change. They uphold the principles of equity, equality and opportunity. Tradition and stability are regarded with suspicion in individualist cultures.

Quite naturally, individualists tend to prefer a transactional style of communication (Goh, 1996). By this, it means that the transaction, i.e. the matter at hand, gains primacy over the people involved. This also means that in their communicative behaviour, they seek transparency and efficiency. A paper-centred approach is desired. This does not mean to say that relationships are not valued in individualist cultures. Relationship-building is important, too, but only in a secondary manner to deal-closing. Relationships in the individualist culture also tend to be characterised by being short-term, and purposeful. A social

injunction, 'out of sight, out of mind' illustrates this point.

When conflicts arise, individualists will not think twice about being confrontational. They tackle the differences by directly approaching the parties concerned, and are not afraid to yell at them if necessary (Bedi, 1991). They regard such behaviour as normal, and required in sorting out inter-personal differences. In contrast, such a behaviour is normally shunned by the collectivists who tend to refrain from direct confrontation and value inter-personal harmony (Bedi, 1991; Zhang & Baker, 2008). Consequently for individualists, adversarial justice in the form of litigation is a natural and logical choice. It also concords with their tendency to be confrontational and to readily engage in open debate. The notion of justice, therefore, bears particular significance for the individualists. In the resolution of disputes, individual justice takes precedence over group harmony. For individualists, the idea of group harmony is of little consequence since the very thing about egocentrism necessarily precludes its relevance (Goh, 2002).

Generally speaking, individualists engage in low-context communication (Hall, 1969, 1976; Goh, 1996). Low-context communication places little on the context, and emphasizes on the content of communication. Communication is, therefore, direct, explicit, with content delivery largely verbal. Little concern is placed on whether matters under discussion can be of a personally sensitive nature. Social injunctions such as 'Go straight to

the point', 'Say what you mean' and 'Don't beat about the bush' bear testimony to this communication tendency.

CROSS-CULTURAL VALUES AND MEDIATION HALLMARKS

There are several approaches to conflict management. Inter-personal negotiation, mediation, arbitration and litigation are some possible avenues (Menkel-Meadow, 2001; Spencer & Brogan, 2006; Spencer & Hardy, 2006; Condliffe, 2008; Tillett & French, 2010; Spencer, 2011). For effective cross-cultural conflict management in the age of globalisation, as exemplified in this section of inquiry by mediation, the role of the cross-cultural mediator as well as mainstream Western mediation hallmarks require some scrutiny and critique (Goh, 2010).

One would find that even though we use the same word 'mediation', its meaning differs in the Chinese mediation as contrasted with the Western mediation. A Chinese saying sums this up, 'We may share the same bed but we dream different dreams' (Goh, 2002). Further, as Jia puts it, 'Chinese mediation aims not only to respond to a conflict when it breaks out, but also to prevent it from happening' (Jia, 2002, p. 289). The idea of prevention is a strong element in the Chinese conflict management, concordant with collectivist ideals (Goh, 2005). Appropriately, one may observe the Chinese-style mediation more in the nature of conflict dissolution, rather than conflict resolution which is after-the-event (Goh, 2002).

As a preliminary point, it is important to deal with the concept of trust in cross-cultural conflict management. For individualist-disputants, trust is important but its relevance is to do with process. In the Western mediation, they need to trust the process, especially its transparency. They care little, if at all, about the idea of personal trust vis-à-vis the mediator. In fact, as their communicative style is transactional, their main preoccupation is to get the matter resolved as expeditiously as possible. Consequently, what they value highly is the mediator's competence. Ultimately, their goal is justice.

For collectivist-disputants, on the other hand, trust is highly significant but in relation to the person of the mediator (Goh, 2002). Collectivist-disputants need to be able to trust the mediator in order for them to have confidence in the mediation process. Being relational people, they need to feel comfortable with the person entrusted to manage and resolve their disputes. Trust here is seen as personal. They know that so long as they are able to trust their mediator, he or she will be seen as doing the right thing by them. Consequently, they can trust and have faith in the mediation process. Bearing in mind that although their dispute may be personal in nature, it is almost always communal in character, given that there are often wider social implications. Individual justice is, as such, made secondary to the attainment of group or communal harmony. A mediated outcome, which may be a compromise solution for these disputants, will simultaneously serve the communal

goal of keeping the peace. As Jia states (2002):

> *To compare with the West, a Chinese mediator plays a role that combines the functions of counsellor, educator, pacifier, unifier, problem solver, arbitrator, negotiator, litigant, therapist, and consultant. In contrast, the primary job of a Western mediator is to ensure peaceful, constructive, and proactive communication through which disputants are expected to work their own solutions to the conflict. The Western mediator is not supposed to teach disputants or make suggestions for how to resolve the conflict. However, a Chinese mediator serves as an active agent to shape and cultivate members of the society to turn into junzi (gentle personhood), which is stipulated by Confucianism (p. 290).*

As a further point, a Western mediator will be guided by the principles and norms of a principally Western-style mediation. Such a style views matters like confidentiality, neutrality, voluntariness and award enforcement, just to name some, in culturally divergent ways as compared to the collectivist mediator. These comparisons will be undertaken below.

Confidentiality

For the Western individualist-disputants, the preservation of confidentiality is crucial (Goh, 2002; Boulle, 2011). This is hardly surprising. For individualists, a consequential trait of self-centredness is the protection of privacy. Individual disputes belong to them and them alone. The common social injunction, 'This is none of your business', is testament to this point.

Conversely, for the collectivist-disputants, culturally speaking, there is no such thing as an 'individual' dispute. A dispute almost always bears a communal dimension (Goh, 2002). Take, for instance, a family dispute in a village. A couple proposing a divorce there will find that their problem is shared by the extended family at large, which naturally filters through to the immediate village community. Parents, grandparents, aunties and uncles all take an interest in the dispute – a facet of collectivist behaviour. Like it or not, the extended family members will interfere, whether or not the couple has invited such intervention. A so-called personal dispute easily escalates to communal proportions, inviting the community to solve the problem in the interest of overall group harmony (Goh, 2002; Jia, 2002). Given such a context, a cross-cultural mediator, who is ignorant of the collectivist-disputant tendencies, may be appalled when the 'private' mediation attracts relatives in attendance. The culturally non-sensitive mediator can do worse than dismissing the gathering crowd.

Neutrality

In Western-style mediation, quite typically, the idea of mediator neutrality is seen as a cornerstone of Western mediation practice

(Boulle, 2011). Neutrality means that a Western or Western-trained mediator must act with complete impartiality. It would be taboo if any suggestion of bias is present. As such, if a potential mediator can trace links to the dispute at hand, any prior involvement pertaining to the dispute, personal knowledge or relationship with the disputant, the mediator would be required to decline to mediate in the interests of preserving mediator neutrality. By way of contrast, the collectivist-disputant perceives no such problem. In fact, one would go farther by asserting that collectivist-disputants would prefer that some measure of mediator connectedness be present (Honeyman, Goh, & Kelly, 2004). In the words of Barkai below, when referring to the Japanese as collectivist-disputants:

> *In Japan, the next best thing to having a mutual friend as a mediator is having a person who knows one of the parties well, even if they do not know the other person at all… I know one negotiator who once purposely selected as a mediator a lawyer who represented his opponent. This negotiator was counting on the fact that the mediator would be able to influence and persuade the opposing party because of their past relationship (p. 71).*

Voluntariness

In Western individualism, we have seen from the foregoing that the free exercise of individual will is an important element. Personal liberty entails free choice. In the area of conflict resolution, Western individualistic persons will need to consent to submit to mediation. After all, in the Western mainstream mediation, voluntariness is a hallmark (Goh, 2002; Boulle, 2011). There should be no compulsion or external forces compelling them to mediate their disputes. In contrast, such behaviour is almost absent in the collectivist cultures. If we refer back to our example of the collectivist village, we would recall that a dispute always bears a social dimension, irrespective of the origin of the dispute being personal in nature. Villagers claim certain ownership of the personal dispute, particularly in the sense of wanting a harmonious group outcome. As such, the idea of voluntariness is illusory in the collectivist context of conflict resolution. Collectivist-disputants will be drawn to mediating their disputes, even if it is against their personally declared will of dismissing mediation as a method of settling their disputes. They will literally be compelled by their group goals to suppress their personal desires, submit the dispute to village mediation in the hope of obtaining a socially harmonious result (Goh, 2002).

Award Enforcement

Concordant with individualism, the mediated award is regarded as consensual (Boulle, 2011). Parties enter into the process of mediation in good faith and with the idea of settling their differences. Inevitably, when the mediated award is concluded, it is likely that even if they have purportedly

reached agreement, usually in the form of a compromise, a party may regard the outcome as unsatisfactory. In such a case, it is probable that the disgruntled party may be reluctant to abide by the award. Furthermore, a compromise award runs counter to the belief in justice by individualists as they naturally cherish a zero-sum approach to conflict resolution (Goh 2002). In the Western individualistic culture, a mediated award can suffer the fate of non-enforcement as a result.

By way of contrast, in a collectivist culture, a mediated award is more likely to be implemented due to the compelling social rule at play (Goh, 2001). A strong social sanction is the concept of face. As raised earlier, the concept of trust, tied to face-saving behaviour, is highly important for the collectivists in placing their confidence in mediation. Significantly, in trusting the person of the mediator to mediate the dispute, the Chinese-style mediation is inextricably bound to giving and preserving the mediator's face (Goh, 2002). As Jia describes (2002), it has been known in the Chinese mediation that a mediator may admonish the fighting disputants by telling them, 'For the sake of my face, stop it' (p. 291). Consequently, a mediated award is enforced for fear of making the mediator lose face, which has far wider implications for the community, and in the case of China, the state as well (Jia, 2002).

CONCLUSION

Needless to say, cross-cultural conflict management in the age of globalisation poses many challenges to us all, whether or not we are technocrats. It is, therefore, essential to be aware and to recognise that, first of all, acquiring cross-cultural competency in managing conflicts is an indispensable skill. There is no longer any defence in pleading cultural ignorance in our inter-dependent world.

As we have seen from the foregoing, generally speaking, the paradigmatic collectivists and individualists think and act differently, which are usually motivated by unconscious cultural factors that can then unwittingly lead to misinterpretations, misguided assumptions and, therefore, to unintended conflicts. And because participants carry their cultural baggage in ignorance, cross-cultural competency acquisition must first begin with cultivating awareness that there are differences in behaviour which we must heed. Otherwise, conflicts can unwittingly ensue.

Human communication can definitely be enhanced when participants are aware of underlying cross-cultural differences, and be more discerning. In such small yet significant ways, inter-personal communication can be vastly improved and conflicts can be minimised. After all, acquiring cross-cultural literacy and competency in managing conflicts will better serve human understanding and good relations.

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Process Drama: Bridging the Arts and the Sciences

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ABSTRACT

Process drama involves participants using improvisation techniques in role-play to enact real-life scenarios. It focuses on the process rather than the final product and therefore allows students and teachers to simulate actual situations experientially and, in the process, develop problem-solving skills. It has been used as learning and teaching strategy in various disciplines in the arts and the sciences. Students enjoy situated learning through contextualisation of concepts within their fields, acting out scenes that deal with issues pertaining to their fields of study. Process drama is, in essence, learning by doing while at the same time creating a real-life environment in the classroom that makes the educational process organic. It is a useful tool with which to help develop the social interactional skills of people of the sciences.

Keywords: Process drama, role-play, situated learning, sciences, social interaction

INTRODUCTION

Having been an English-language instructor most of my working career, I approach this technology-based discussion with a sense of challenge. As a product of English literature and Applied Linguistics education, and as a practitioner of English-language teaching, my knowledge of engineering, medicine and most other science-related fields is, at the most, extremely limited. However, my experiences with drama-based language teaching, and the observations I have made and feed-back I have received provide me with the scope to look at possible ways process drama, and in particular, role-play (adopting the persona of someone else and acting out a scene), can be applied to the sciences. This paper looks at the application of such arts-based experiential strategies aimed at developing the oral-interaction skills of students of science, technology, engineering, medicine, and so on. Process drama has been getting increased attention

over the past few years as a pedagogical tool that gives students somewhat-free rein to create drama worlds in which issues relevant to them are tackled (Kao & O'Neill, 1998; Liu, 2002; Stinson & Freebody, 2006; Stinson, 2008). Graduates and undergraduates of disciplines associated with science and technology are quite often stereotyped as generally not part of the mainstream of society in terms of their social and psychological outlooks on life (Butler, 1989; Chan & Fishbein, 2009; Eugster, 2011; Seat & Lord, 1999; Solomon, 1996). They appear to show limited interest in social matters because of their apparent focus on issues pertaining to their academic/ professional pursuits or expertise. Role-play can contribute towards developing their interactional and interviewing skills and can provide an impetus for them to participate more actively in events outside study or work (Andersson & Andersson, 2010; Jackson, 2003; Nestel & Tierney, 2007; Pearce, 2001; Prince, 2006; Seat & Lord, 1999; Sturges, Maurer & Cole, 2009).

IMAGE PROBLEMS

Fairly or unfairly, scientists and engineers have, generally speaking, sometimes been portrayed as being less proactive than those who have had training in the humanities. More than half-a-century ago, it was observed that "science attracts men whose temperament is grave, awkward and absorbed" (Bronowski, 1956, p. 76). According to Solomon (1996), engineers generally lack "... strong interpersonal skills needed to forge consensus in a large organization and to deal effectively with customers and vendors" (p. 7). He also mentions the fact that many engineers, in addition to having difficulty with cultural nuances in a broad sense, have problems in the area of verbal and writing skills, basically because their exposure to the humanities is restricted. Bronowski (1956) suggests that scientists' interest in the arts is rather peripheral, a reality that appears to be still in evidence today. For example, Eugster (2011) states that scientists are still being portrayed in the movies as loners with unorthodox habits who find integrating into society comfortably a difficult proposition. In fact, they have even been referred to as living in silos "...often disengaged and disinterested in challenges that are not completely within their field..." (Chan & Fishbein, 2009, p. 6). Butler (1989) describes science students as being somewhat dissociated from the real world, while Seat and Lord (1999) refer to the field-independent quality of students of Science, Math, Engineering, and technology which makes them effective in analysing and structuring but poor in interpersonal relationships. They further state that members of the technical world lack performance skills such as "… communication abilities, interpersonal interaction, conflict mediation, team-performance, understanding of technical culture, and sensitivity towards diverse populations" (p. 384).

It is not unusual for an engineer to be portrayed in cartoons as "a nerdy-looking character, with thick glasses, short hair,

several pens and pencils in his shirt pocket, perhaps in a plastic pocket protector, wearing clothes that are never quite up to fashion" (Braham, 1992, as cited in Beder, 1999, p. 13). Such an uninspiring image can result in research funds not being readily made available, children being dissuaded from looking at science as an attractive career, and the general public knowing little or nothing about them (Eugster, 2011). Similarly, the gender-stereotyping of engineers as being male can lead to female students not being attracted to engineering studies, particularly if there is little space in an engineer's life for marriage or a family (Steinke *et al.*, 2008). There also appears to be a lack of interest in the fields of science-related education among non-whites in western societies because scientists are traditionally depicted as white. Howes and Cruz (2009) provide samples of their students' written responses which indicate their awareness of the marginalised status of non-whites and women in the field of science. According to Steinke *et al.* (2007), it is necessary to change the image of science and scientists in order to "...encourage traditionally nonparticipants (e.g., women, people of colour) to consider careers in science and engineering" (p. 56). Such a change can be initiated through integrating process drama into curricula.

PROCESS DRAMA

Process drama is a creative, presentation-based learning and teaching strategy involving a number of activities, role-play being one of them. For it to work effectively, all those participating in it should have knowledge of, and experiences with, the subject matter, in order to add veracity to their role-play (Stinson & Freebody, 2006). It basically refers to what occurs during the *process* of role-play. The eventual fate of the *product* (the scene which is being enacted) is not a cause for concern as it is "...an ephemeral and unrepeatable event" (Stinson, 2005). In other words, the focus is on what goes on during a process drama activity and not on an eventual staging of the item before an audience. The content is more important than the production (Weltsek-Medina, 2008). To put it differently, the performing is more relevant than the performance, regardless of whether the role-players are arts or science students. Butler (1989) refers to role-play for science students as being less about voice-quality and costumes and more about exchanging opinions and expressing attitudes, a central consideration when applying process-drama methodology.

Situated learning, in which activities take place within authentic environments and learning occurs in context, is an important facet of this technique. It works on the premise that knowledge can be attained through simulating an environment that reflects what goes on in actual situations. So, for example, engineering undergraduates could be trained to handle relevant situations like discussing a building project or solving structural problems through situational role-play. Similarly, medical students could role-play doctor-patient interviews. Unlike a playwright-written piece of work, where

the motives, actions and oral output of the players, and the outcomes of the play, are predetermined, a process drama evolves and unfolds as organically and as fluidly as the role-players want it to. Role-playing is an integral part of process drama but, unlike normal role-playing activities in which each participant takes on a role and sticks to it right up to the culmination of an enactment, process drama allows some of the players to take on two or more roles, if necessary. A performance can also be stopped mid-way for a performer to step out of his or her role to make a comment or seek clarification. The instructor/professor, for example, might realise that the drama is getting out of control or is straying from its objectives and therefore wish to suspend it momentarily to set things right again.

A careful pre-planning is necessary, but once it begins, it develops in a natural, wholesome fashion, going where the hearts and minds of the players take it interactively. It should not be hindered by a script written by someone with an individualistic, personal vision. Its most laudable characteristic is that it takes the focus away from the instructor and puts it on the students, making it an ideal learner-centred pedagogical tool. There is evidence to show that by creating a student-centred atmosphere that resembles the world outside the classroom rather than one involving teacher-centred lessons, oral output increases (Kagan, 1995; Long & Porter, 1985). It is by speaking that we impart knowledge, make our thoughts and feelings known, and convey our values and attitudes to those with whom we interact, receiving the same in return. The benefit of this to technologists who are less inclined to participate in extended oral-interaction is obvious.

A process drama works effectively, as Liu (2002) points out, with the following: Firstly, there should be context, i.e. a theme or a topic. This is important because "… learning takes place most effectively when it is contextualised" (Simpson & Heap, 2002, p. 47). Next, a pre-text has to be established. This is the starting point or stimulus which activates the performance. Following that, the roles for the students and teacher are finalised and there is a short preparation period. Once the role-playing commences, the tension, which is initially created through the context and pre-text, starts to build. Tension here refers to the excitement and involvement of the participants due to the inter-play between what they know and what they do not know, and what they anticipate and what eventually transpires. During the performance, there should be oral output and physical involvement. Finally, at the end of the performance, the instructor should generate a reflective discussion on what happened, what worked, what did not work. Such reflection benefits both the students and their instructor/professor, the former learning about themselves, their peers and the learning process, and the latter getting insights into how effective his or her teaching style is and what changes need to be made (Liu, 2002).

APPLYING PROCESS DRAMA

In one of my ESL (English as a Second Language) classes in March, 2011, I conducted a process drama with 15 students from various disciplines (Law, Business, Humanities, and Information Technology). These non-English-speaking-background students were from Malaysia, China, Japan, Kuwait, Pakistan, and Taiwan. The scenario (or context) involved building a highway to connect the Central Business District of a city to a small township. The stimulus (or pre-text) stipulated that the highway would expand the township and create a satellite city over time and, in order to do that, parts of a forest-reserve and farms that lay between the city and the town would have to be removed. The students were divided into groups of three, with each group role-playing separate identities, i.e. civil engineers, farmers, greenies, business-people, and politicians. I took on the role of Mayor, thereby aligning myself with the politicians. After about 30 minutes of preparation time, during which each group worked out a strategy to either support or reject the scheme, we enacted a scene whereby everyone sat around a table in the Mayor's office and put forward their arguments. Initially, there was turn-taking, i.e. each group submitted their views, after which there was a general brain-storming. It was interesting to note that most of the students stayed in role throughout. There was a temporary suspension of who they were in real life as they entered the world of their imagined characters and participated actively. The engineers

stated their case in a technical, analytical fashion, the greenies fought passionately for conservation, the business group pointed out the financial advantages, the farmers sought compensation and suitable relocation, and we politicians … well, we played politics! I made sure that, in the midst of their on-going interaction, the role-playing kept expanding and unfolding layer by layer. The dramatic tension accumulated as each party sought to have its views accepted, with relevant subject-specific vocabulary, oral comments and body language being employed to establish control. Once this was completed, the class and I had a post-activity reflective discussion on what had transpired.

While this exercise was mainly to create a non-bookish, anxiety-free environment for English-language learners, with a real-world feel which would encourage the students to speak in English, similar role-play activities for engineering students could be conducted based on technical and industry-specific details. With a few adaptations, a scenario devised by Baiges (2010) for the Online Ethics Centre, which is maintained by the National Academy of Engineering in the USA, is a good example to work with. We could start with a context like "The effects of disposable ink cartridges". A pre-text could then be established, as follows: "A company which manufactures disposable cartridges has decided to convert to the production of non-disposable cartridges because it has been facing stiff competition from other companies manufacturing the disposable variety. Besides financial considerations, such a move will also be environmentally-

friendly. However, it will mean downsizing or closing down the manufacturing plant, resulting in a heavy loss of jobs." Students and the instructor/professor could take on roles like company bosses, engineers, environmentalists, union representatives, members of ethics organizations, and so on. After a given period of preparation in groups, the enactment can proceed with, perhaps, one of the students (or the instructor/professor, because role-changing is common in process drama) playing the role of a TV news-reader who gives a summary of events, or a TV personality who interviews relevant people. The process drama can then unfold in an organic, unscripted fashion with everyone participating in "…a collaborative meaning-making process through the medium of role … to solve problems and to employ higher-order thinking processes" (Stinson, 2005). It will give participants the opportunity to view the scenario from various angles and consider the opinions of others, thus giving the activity an all-encompassing characteristic that a normal lecture may not have. Rather than a situation where knowledge is conveyed by the professor in a uni-directional fashion, the process becomes more student-centred. There is greater participation by the students and learning becomes more purposeful, rewarding and satisfying.

PROCESS DRAMA IN THE SCIENCE ARENA

This humanistic-based form of educational play-acting has been channelled into the sciences for many years (Loui, 2008; Nestel

& Tierney, 2007) to prepare students for working life. Howes and Cruz (2009) mention how trainee Science teachers in the United States get deeper perspectives about science and scientists from role play. Jackson (2003) sees role play in education as serving a number of purposes, among which are helping students learn about science through 'authentic' experiences, enhancing their communicative skills in the process of applying what has been learned, providing them opportunities to learn about themselves and others, keeping them interested in their studies or generating such interest where it's lacking, giving them the motivation to come up with their own ideas and concepts, and giving them the confidence to express their feelings in a safe environment of shared experiences. He also mentions problem-solving, teamwork, time-management, and accountability as factors associated with role-play. Prince (2006) mentions the value of role-play to young engineering students of non-western backgrounds at York University, Toronto, Canada. The role-playing dealt with cultural and ethical values, which were alien to western society and which had the potential to create conflict. It culminated in student-written scripts, which reflected a heightened awareness on their part of the need for professional integration. This is akin to the social function of process drama which helps prepare students for the real world that exists outside the walls of educational institutions (Liu, 2002).

Pearce (2001) contends that students of technology generally do not concern themselves with the social implications

of the development of technology. He found that role play helped raise such students' awareness of this shortcoming of theirs through an exercise for power engineering students, involving a make-believe steamboat explosion. Role-play can also assist students who are having problems with demanding courses. For example, Sturges *et al*. (2009) noted that undergraduate Science students who found Physiology a difficult subject were able to relate better to that field of study through role play. They performed better on the post-test, became more involved in class, and found role play satisfying and enjoyable. However, getting students of Technology or Engineering to participate readily in role play is not always an easy task, perhaps because it is 'unscientific' and unfamiliar. Seat and Lord (1999) state that such students not only feel uncomfortable about participating in make-believe scenarios without relevant training but also tend not to want to indulge in extensive dialogue. According to them "…technical people in academia and industry resist learning performance skills" (p. 388). To tackle this situation, Seat and Lord devised 6 modules which incorporated coaching (to suit the cognitive styles of field-independent learners) and interpersonal communication (role-play). Doubtless, such a project needs time for it to be successfully implemented. It cannot be conducted at one sitting, but process drama can. Once engineering students get the sort of exposure and training that Seat and Lord mention, there is the possibility that they will be able to handle process drama with greater comfort.

One key element in process drama is taking on the persona of others, to get a feel of their thoughts and sentiments. Thus, medical students could play roles of doctors and patients interchangeably. By role-playing doctors, they may be able to experience situations like advising patients, handling tough questions, treating the sick and injured, and addressing moral and ethical values associated with the profession. In the role of patients, they may be better able to understand the extent to which medical help can benefit them, and also the limits and constraints a doctor faces. It could make internalising the Hippocratic Oath more meaningful to aspiring doctors. In a 2003 study involving 284 first-year medical students at Imperial College in London, 77.8% of them reported that role plays had benefited them in relation to patient-centred medical interviewing skills (Nestel & Tierney, 2007). Meanwhile, third-year undergraduate medical students in Germany exhibited improved physician-patient interaction as a result of participating in specially-designed role-play incorporating medical procedure (Nikendei *et al*., 2007).

Stinson (2008) explains that process drama works on the premise that students and their teacher "...work within designated roles to solve problems and investigate issues highlighting the complexity of the human condition in a particular context" (p. 9). An example of how role-play can give participants insights into the complex nature of human psychology can be seen in a journal entry of a student participating in a 2-week-long role-play activity (Loui, 2008). The activity, which dealt with the

impact of new technologies on society, sought to increase the students' awareness of differing perspectives among people. The student wrote:

> *I realize that often times I take what people tell me at face value.*
> *I do not really think about what that [they] did not tell me, which, I have learned can often times say more than what someone tells you. The role-play taught me to think about what people hide about themselves (p. 9).*

The statement above encourages one to believe that drama allows students to use their socially-oriented analysing skills in ways not dissimilar to those of their impersonally-oriented, scientific ones. Indeed, it has been postulated that there are certain points of convergence between the arts and the sciences (Bronowski, 1956; Ødegaard, 2002), particularly in relation to discovery and creativity. Using the poem and the theorem as examples of the arts and the sciences respectively, Bronowski (1956) declares that there is "unity in variety" (p. 32). Didier (2000) makes reference to exhortations in France in the late nineteenth century by the Catholic Church that engineering schools should include elements of the humanities in their curricula, in order to create engineers who were accountable to society. She mentions that in 1995, the French engineering authority (Engineering Title Committee) responsible for accrediting engineering

institutions directed such institutions to include elements of communication and ethics in their curricula. It has been argued that "...engineering students are more interested in solving problems ... than in understanding what happens and why" (Didier, 2000, p. 329); nurturing ethical values, through role play for example, could be the humanities' contribution to their education.

While the impact of drama in the world of science-related education is quite well documented, there is evidence that science can return the favour and give role-playing a new dimension. One example is the application of technology to transform process drama from its physical-world mode to a virtual-world mode, through which training can be provided in a number of areas like patient-doctor communication, negotiation, conducting meetings, culture, and foreign languages (Seif Al-Nasr, 2008).

CONCLUSION

A change in the attitudes of those with technological background is vital if they are to entrench themselves successfully as productive and dynamic members of society. Chan and Fishbein (2009), in discussing the plight of engineers in Canada, state that they have to have effective communicative skills vis-a-vis different languages and cultures if they are to succeed as global engineers. They need to know about social issues that impact on speakers of other languages or practitioners of a variety of cultures. What better way than to implement process drama as a way of helping them become

more sensitive to cultural differences? If they are to become more than just "technical skill-applying automata" (Chan & Fishbein, 2009, p. 5), they need to engage more effectively with the world outside their fields of expertise, acquiring competent communicative abilities and also skills in the area of group-dynamics. The Canadian Engineering Accreditation Board underlined the relevance of these attributes by decreeing, in 2008, that, among other qualities, engineering graduates needed to work as part of a team, have communication skills, understand the impact of engineering on the world, and pay heed to ethics and equity (Chan & Fishbein, 2009). Through role-play and process drama, it is possible to incorporate elements of play-acting into traditional engineering courses. For example, students could enact scenarios based on the characteristics of successful global engineers, or on situations faced by modern-day engineers as they step out into the world beyond their technical boundaries. Andersson and Andersson (2010) suggest that Engineering students can develop their personal and interpersonal skills while learning about professionalism in Engineering through role play involving themselves and professional engineers in an authentic industrial environment. Such a framework reflects the ideals associated with process drama, i.e. the 'expert' figure (instructor, teacher, professor) works with the students in role-play simulations combining the real and the imagined, negotiating and renegotiating views and thought-processes as they unfold while

validating or restructuring personal values and assumptions. There is no specially-selected or written script and no audience, other than the participants themselves. Process drama can be described as being less than theatre (in the sense that the lead-up time places less importance on formal, sophisticated production plans and rehearsals) and more than on-the-spot improvisation (in the sense that participants have time, albeit limited, to work out the rules of engagement). There is an element of immediacy in process drama that challenges participants to think on their feet, as they deal with familiar or semi-familiar issues in role-play mode. Learning becomes meaningful, participants start opening up to others because they have to communicate their ideas, values and attitudes, and their motivation in relation to the subject-matter increases (Liu, 2002). Engineers, scientists, doctors and technologists who are tuned in to the world outside their areas of expertise could be the beneficiaries of this humanistic input.

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Indian Youth Inclination towards Unethical Practices in the use of Information and Communication Technology

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ABSTRACT

The Information and Communication Technology has deepened its roots into our lifestyles and become an indispensable power churning machismo, giving one the freedom to do whatever one wills to, at the click of a button. However, most of this freedom leads one to dilemmas, where he/she may find a thin difference between right and wrong. The purpose of this study was to explore and understand the present day youth's inclination towards unethical practices in the ICT Industry. In more specific, their inclination to adopt malpractices, such as plagiarism, digital piracy and social network abuse, have been empirically explored. Based on the survey of 123 undergraduate students, independent sample t-test and simple regression analysis were employed to analyze the empirical data. The findings suggest that these easily available user friendly technologies, which the present day youth is deeply familiar with, also lead to misuse or unethical practices. Demographic variables like gender and education and psychological variables like self-concept clarity too seem to impact their ethical/unethical behaviour. It was expected that the findings would contribute meaningfully towards framing guidelines and practices for developing a better ethical environment and character in youth.

Keywords: Digital piracy, ethics, plagiarism, self concept clarity, social networking ethics

INTRODUCTION

In the present day, Information and Communication Technology (ICT) has

taken over every aspect of our daily lives - from commerce to leisure, and even culture. Today, mobile phones, desktop computers, hand held devices, emails and the use of Internet has become a central part of our lifestyle. ICT has made us a global society, where people can interact and communicate swiftly and efficiently. ICT has even

contributed towards the elimination of language barriers. Formally, ICT may be defined as "A general term for all kinds of technologies which enable users to create access and manipulate information. ICT is a combination of information technology and communications technology."

We are an Information based society with distances on the globe considerably reduced and access to resources becoming easier. All of these, at the cost of exposing the most valued although impressionable part of our society, the youth, to the unchecked power which accompanies the use of such brilliant technologies. Be it the easy access to information (sometimes even classified) over various networks, or the presence of everyone's personal information on Social Networking portals, or even the availability of someone's intellectual property for free (generally without the owner's consent) on such resources, the technologies at hand present dilemmas, where, being right or wrong might not often be very well defined, and hence becomes a matter of one's ethics.

Information and Communication Technology is a double-edged sword that can be used for destructive as well as constructive work. In India, so far, the use of these technologies has been uncontrolled. For example, according to the National Crime Records Bureau India, reported Cyber Crimes (IT Act + IPC Sections) increased by 22.7% in 2007 (refer Table 1) as compared to the previous year (from 453 in 2006 to 556 in 2007). Cyber Forgery contributed the major part, with 64.0% of the cases under IPC (217 out of total 339) and Cyber Fraud, followed by 21.5% of the cases under the same category (73 out of 339). The one fact which is the most worrying is that 63.05% of the offenders (refer Table 2) under the IT Act were in the age group between 18-30 years (97 out of 154).

It is our tendency to blame the advances made in Science for such observations. However, they are not the sole culprits. To further explain this, an excerpt from Mario Morino's address would be appropriate. He remarked, "I also contend, however,

TABLE 1
Incidence of Cases Registered Under Cyber Crimes

	IT Act			IPC		
Year	2005	2006	2007	2005	2006	2007
India	179	142	217	302	311	339

TABLE 2
Person Arrested Under IT Act by Age Group During 2007

Age Group	<18	18-30	30-45	45-60	>60	total
India	179	142	217	302	311	339

that if we make the right choices now, we can substantially change for the better how we and our children learn, and more important, how the young people of today and generations to come are taught to learn. I say that because I am mindful that technology itself is never the reason things change. Rather, it is how people choose to apply technology – and whether they make wise decisions and address real needs – that makes the difference in the long run" (Morino, 1997).

The professionally trained individuals of our country are adequately skilled today. He/she has the knowledge and technical proficiency that is sufficient to create marvels, and at the same time, if he/she wills, to misuse them. The tools available for everyone are the same, but the discriminating factor is the individual's choice on how to use them, which in turn is governed by their personal ethics.

In such a scenario, when the Indian ICT industry is growing at a rate which is worth applauding, it is also paving a way to a widespread unethical use of such technologies. The deterrents to such unethical practice are primarily two - stringent cyber laws, and one's own value system reflected in ethical/unethical behaviour. The focus of this study is on the latter. Given the fact that it is the youths which make the most rampant use of technology, it is pertinent to assess the inclinations towards misuse or unethical use of such technologies. Thus, the specific objectives of the study are: 1) to measure inclination towards unethical practices such

as plagiarism, digital piracy, and misuse of social networks; 2) to explore differences in such inclination with respect to gender and academic/technical background, and; 3) to examine the association between self concept and inclinations towards such behaviour.

ETHICAL BEHAVIOUR AND RELATED ISSUES

In the current decade, there has been a great focus on the outcomes of the present day technology on value systems, lifestyles and behaviour, by both academicians and practitioners. Ethics answer questions related to morality, and hence help one to choose between right and wrong, good and evil, etc. Therefore, ethical behaviour is applying these ethics whenever and wherever required, even when it is inconvenient to do so. The importance of understanding the meaning and value of ethics is much more today, when we can do so much with technology, and not be accountable for it. In an era where information technology changes constantly, a thoughtful response to these rapid changes requires a basic understanding of IT history, an awareness of current issues, and a familiarity with ethics. Michael Quinn's work on ethics for IT society is unique in its balanced coverage of ethical theories used to analyze problems encountered by computer professionals in today's environment. By presenting provocative issues such as social networking, government surveillance, and intellectual property from all points of view, this market-leading text challenges

students to think critically and draw their own conclusions, which ultimately prepares them to become responsible, ethical users of future technologies (Quinn, 2011). In his book on computer ethics, Herman T. Tavani introduces readers to the most current issues in the field of cyberethics (ethics in the computer industry), along with analyzing the practical, moral, and legal implications of all these issues, such as security and privacy in cyberspace, as well as code of conduct and moral responsibility (Tavani, 2006). Ethical behaviour is characterized by honesty, fairness and equity in interpersonal, professional and academic relationships and also in research and scholarly activities. The standards that you set for yourself are applicable even behind your own doors where only you know what to do. Another author to have explored this area is Deborah G. Johnson in her book on computer ethics. She starts by defining computer ethics and explores them on philosophical and professional levels. She also addresses the common issues of privacy, security and accountability and has dedicated separate chapters for internet ethics (Johnson, 1998). Addressing computer ethics from a novel perspective, Luciano Floridi talks about a digital divide in his study. According to him, a "Digital Divide" is the source of many ethical problems emerging from the evolution of two gaps, one vertical and other horizontal. The vertical gap separates ours from past generations whereas the horizontal gap is between humanity, that is, insiders and outsiders (in reference to technical education) (Floridi, 2001).

The sections below present a framework on three aspects related with unethical practices, vis-à-vis ICT- plagiarism, digital piracy and social networking ethics.

Plagiarism-Perceptions and Attitude

Plagiarism is a word which is used in varied contexts. It may be seen as the act of stealing and passing off as one's own; use without crediting the source; use another's production without crediting the source; to commit literary theft, i.e. present as new and original an idea or a product derived from an existing source (Merriam Webster's Collegiate Dictionary). People are often confused about plagiarism, and most of the time, are not aware of the fact, as to whether they are engaged in plagiarism or not. Burke (1997) defines four forms of cheating in his study:

- Cheating is "intentionally using or attempting to use unauthorized materials, information, or study aids in any academic exercise."

- Fabrication is "intentional and unauthorized falsification or invention of any information or citation in an academic exercise."

- Facilitating academic dishonesty is "intentionally or knowingly helping or attempting to help another to commit an act of academic dishonesty"

- Plagiarism is "intentionally or knowingly representing the word of another as one's own in any academic exercise."

This study investigated faculty's (1) perceptions of the extent of academic honesty; (2) perceptions of, and attitudes toward Academic Dishonesty Policy and policy implementation; (3) responses to academic dishonesty; (4) attitudes concerning values education; and (5) attitudes about responsibility for reducing academic dishonesty. The results indicated that the faculty does not perceive academic dishonesty to be a serious problem. The faculty believe that it is familiar with the current policy and procedure, and is not concerned with policy implementation. The faculty also believes that it has a primary role in values education. Of those surveyed, 86% members have suspected, and 65% have been certain of, academic dishonesty in their classrooms. The majority of the faculty members do not regularly follow institutional policy and most handle incidents of cheating and plagiarism on their own. They believe that the responsibility for reducing academic dishonesty lies primarily with students and faculty (Burke, 1997).

Numerous writers have attempted to define the concept of plagiarism. In an excellent bibliography on plagiarism (reviewing articles from 1990 to 1995), Anderson discusses different definitions in the historical, cultural, and disciplinary contexts. The annotated bibliography is organized chronologically, following an extensive Introductory section, and discussed under four sections:

1. trends in definition;

2. follow the money;

3. detection, proof, and punishment; and,

4. protecting one's property (Anderson, 1998).

Ange'lil Carter, in her work on plagiarism, discusses the historical development of the notion of plagiarism, along with copyright. From the British perspective, she tries to convey that plagiarism is an elusive concept and has been treated differently in different contexts. Ange´lil-Carter wrote in her Introduction that she wanted to "understand plagiarism differently," and to communicate that understanding to teachers and writers of academic discourse (Anderson, 2000).

In another scholarly article on Plagiarism of Print and Electronic Resources, author Zorana Ecregovac discusses plagiarism of printed and electronic resources, explores definitions of plagiarism, and provides a literature review. The entry then discusses the following issues: how prevalent plagiarism is, faculty's attitudes towards plagiarism in general, cyber-plagiarism in particular, predictors that correlate with plagiarism, and how to cope with plagiarism along with offering suggestions for future research on the topic of plagiarism. The study suggests a trend towards a significant increase in some published articles on plagiarism since Internet has become widely available in various educational institutions. Also, the faculty knows about the academic dishonesty but is not bothered about the policy implementation. The study goes on to give methods to cope with plagiarism which include Ethical Reasoning, Online Instruction, Software

Detection Programmes, etc. (Ecregovac, 2010).

Meanwhile, Jude Carroll and Jon Appleton came up with a practice guide on plagiarism. They started with introducing the problem and what plagiarism is. They suggested learning based methods for dealing with plagiarism like informing students about institutional policies and programme expectations, using assessment to check authenticity, using electronic detection tools, and implementing a coordinated strategy against plagiarism (Carroll & Appleton, 2001).

The study by Smith and Wendy explored the notion of plagiarism and the Internet from English teachers and students in Australia. The most significant difference in response related to the concept of the Internet is copyrightable space. Teachers in this study regarded cyberspace as a limitless environment for 'cut and paste' plagiarism in students' academic writing, whereas students considered the Internet a 'free zone' and not governed by legal proprietary rights. These conflicting views, it is suggested, relate to differing notions of authorship and attribution. This research highlights the need to make youth aware of plagiarism and the ethics related to it (Smith & Wendy, 2005).

It is evident from the literature studied that plagiarism is mostly practiced among the youth. It may be done knowingly or unknowingly. Even the technically skilled may not be aware of indulging into plagiarism, and some although aware of what they are doing, do not hesitate in

doing so. It is therefore aimed that the same tendencies may be evaluated in this study.

Digital Piracy and Deterrents Thereof

Piracy is obtaining materials without proper rights of their ownership. Digital Piracy, as defined by Sulaiman Al-Rafee and Timothy Paul Cronan, is "the illegal copying or downloading of copyrighted software and media files" (Rafee & Cronon, 2006).

In order to curb piracy, two popular methods are used, namely, preventives and deterrents. Preventives impede the act of piracy by making it very hard to do so. The idea is to make the pirates expend so much effort that it will wear them out and they will abandon it. Deterrents, on the other hand, use the threat of legal sanctions to prevent piracy (Gopal & Sanders, 1997). Instead of relying solely on preventives and deterrents, it is better to understand what influences people to commit piracy. This is especially important because many studies have suggested that individuals do not see piracy as a crime or an unethical issue (Im & Van Epps, 1991; Reid *et al*., 1992). Solomon and O'Brien (1990) examined the attitude towards piracy among business students and found that they view piracy as socially and ethically acceptable, and that piracy is rather widespread among business students.

Robert M. Siegfried, in his framework on attitudes towards piracy, concludes that software piracy is older than the personal computer and has been subject of various studies, which have found it to be a widespread phenomenon in general, and among university students in

particular. Similarly, students generally feel that copying commercial software and downloading music from the internet is acceptable. He has also discussed the reasons for this and also the corrective measures that could be taken by colleges (Seigfried, 2005). Another study which talks about digital piracy and behavioural aspects was carried out by Sulaiman Al-Rafee and Timothy Paul Cronan. The study examined the factors influencing an individual's attitude towards pirating digital material. The results of the study suggest that attitude toward digital pirating is influenced by the beliefs about the outcome of behaviour, happiness and excitement, age, the perceived importance of the issue, the influence of significant others, and Machiavellianism (Rafee & Cronan, 2006).

Another study throws light on consumers' ethics regarding MP3 Piracy states that illegal downloading of music has become an inexorable and rampant activity, particularly among college students who have been minimally deterred by industry legal actions. The results clearly show that downloading continues at a high rate today and this is driven by a strong belief that it is not ethically wrong. Ethical orientation was found to be positively associated with the awareness of the social cost of downloading, consequences of downloading, and the ethical belief in downloading (Durvasula & Lysonski, 2008).

Understanding that piracy, particularly digital piracy, is easily achievable for the technically competent youth today, the current study made an attempt to assess the same in the present day youth population.

Social Networking Ethics

Millions of contemporary young adults use social networking sites. However, little is known about how much, why, and how they use these sites. The study aimed at answering these questions and coming up with results which indicated that the students use Facebook approximately 30 min throughout the day as parts of their daily routine. Students communicate on Facebook using a one-to-many style, in which they are the creators disseminating content to their friends. Even so, they spend more time observing content on Facebook than actually posting content. Facebook is used most often for social interaction, primarily with friends with whom the students have a pre-established relationship offline. In addition to the classic identity markers of emerging adulthood, such as religion, political ideology, and work, young adults also use media preferences to express their identity. The implications of social networking site use for the development of identity and peer relationships are discussed (Calvert, Pempek, & Yermolayeva, 2009).

Social Networking is a technology that allows people to connect with others and to form meaningful personal or professional relationships. However the hacking of various social networking site accounts has highlighted various possible harms of this popular technology. In order to balance these harms and benefits, there is a need to understand what social networking ethics are and what one's take on them is. Ethics are related to morality and thus social networking ethics are related to the sense

of right and wrong, black and white, etc. in context to the various social networking sites like Facebook, Twitter, Myspace, etc.

On her framework about teenagers' use of social networking sites, Sonia Livingstone talks about the explosion in the social networking sites being regarded as an exciting opportunity, especially for the youth. Yet the public response tends to be one of a puzzled dismay regarding a generation that, supposedly, has many friends but little sense of privacy and a narcissistic fascination with self-display. This article explores teenagers' practices of social networking to uncover the subtle connections between online opportunity and risk. While younger teenagers relish the opportunities to continuously recreate a highly-decorated, stylistically-elaborate identity, older teenagers favour a plain aesthetic that foregrounds their links to others, thus expressing a notion of identity lived through authentic relationships. The article further contrasts teenagers' graded conception of 'friends' with the binary classification of social networking sites, this being one of several means by which online privacy is shaped and undermined by the affordances of these sites (Livingstone, 2011).

Another study by Patti M. Valkenburg, Jochen Peter and Alexander P. Schouten found that the frequency with which adolescents used the site had an indirect effect on their social self-esteem and well-being. The use of the friend networking site stimulated the number of relationships formed on the site, the frequency with which adolescents received feedback on their profiles, and the tone (positive versus negative) of this feedback. In particular, positive feedback on the profiles enhances adolescents' social self-esteem and well-being, whereas negative feedback decreases their self-esteem and well-being.

Social networks have become more than just simple ways of connecting to people in our lives. They are a very integral part of our lifestyles today, and this is even more so for the youth. With such a growing number of people using these facilities and sharing delicate information on the same, the ethical practices while using these networks have become a prime concern. Hence, this study evaluated the Indian youth's perception on how to act when using the same (Valkenberg, Peter, & Schouten, 2006).

Self Concept Clarity

Self concept clarity (SCC) refers a structural aspect of the self concept; the extent to which self-beliefs are clearly and confidently defined, internally consistent, and stable. Low Self concept clarity has generally been associated with low self esteem, low agreeableness, chronic self-analysis, low internal state awareness and high neuroticism (Self Concept Clarity: Measurement, Personality Correlates, and Cultural Boundaries) (Campbell *et al.*, 1996).

Within the last couple of decades, psychologists' view of the self-concept has undergone a dramatic transformation (Markus & Wurf, 1987). Early researchers treated self-concept as a unitary, monolithic

entity—a stable, generalized view of the self—and typically focused their research efforts on a single aspect of the self-concept, self-esteem. Contemporary researchers, in contrast, rely on a multifaceted, dynamic construal in which self-concept is defined as a cognitive schema—an organized knowledge structure that contains traits, values, episodic and semantic memories about the self and controls the processing of self-relevant information (e.g., Markus, 1977; Greenwald & Pratkanis, 1984; Kihlstrom & Cantor, 1984; Kihlstrometal, 1988).

The current conceptualization allows a distinction between the contents of the self-concept and its structure. The contents can be usefully subdivided into knowledge components—Who/What am I?—and evaluative components—How do I feel about myself? Some examples of knowledge components include the beliefs about one's specific attributes (e.g., traits, physical characteristics), as well as roles, values, and personal goals. Evaluative components include the positivity of specific self-beliefs and self-esteem, a global self evaluation that is the product of viewing "the self" as an attitude object. Meanwhile, structural characteristics of the self-concept refer to how the knowledge components or specific self-beliefs are organized. For example, Linville (1985, 1987) coined the term self-complexity to represent the number of different or independent dimensions that underlie the organization. Donahue and her associates (Donahue, Robins, Roberts, & John, 1993) focused on a different aspect of complexity, i.e. the extent to which

these dimensions are integrated. Another structural variable can be found in Showers' (1992) work on compartmentalization, i.e. the extent to which positive and negative self-beliefs reside in different dimensions.

While literature focusing on ethics and behaviour in youth with the use of these technologies is readily available, little has been studied on relating this with an individual's self concept. This study made an attempt on the same. In particular, it aimed to empirically explore the association of self concept with the inclination towards such practices.

The purpose of this study was to find the youth's temperament towards ethics in the information and communication industry; hence, the topics most relevant and associated with the youth were given a preference over all the others. While most of the previous research concentrated on these topics individually, this study examined the above mentioned three topics, along with the factors affecting them and relating the corresponding findings to one's behavioural patterns using self concept clarity. By doing so, measures to alter those factors can be implemented and thus influence behaviour indirectly.

METHODOLOGY

The purpose of this study was to make an empirical investigation of youth inclination towards unethical behaviour vis. a vis. ICT. It made a measurement of (1) inclination towards plagiarism; (2) inclination towards digital piracy; and (3) inclination towards unethical use of social network. In addition

to this, it also measures self concept clarity and proposes that self concept clarity is negatively related with the above mentioned constructs. The study also explored the impacts of gender and educational background (technical or non-technical) on these variables. Based on this, the following hypotheses were postulated:

H₁: Student's inclination towards plagiarism differs for (a) male and female students, and between (b) technical and non-technical students.

H₂: Student's inclination towards digital piracy differs for (a) male and female students, and between (b) technical and non-technical students.

H₃: Student's inclination towards unethical use of social network differs for (a) male and female students, and between (b) technical and non-technical students.

H₄: Self Concept Clarity of a student is negatively related with (a) inclination towards plagiarism, (b) inclination towards digital piracy, and (c) inclination towards unethical use of social network.

Operationalization of the Measures

The review of literature revealed non-existence of the scales which specifically measured ethical/unethical behaviour using the present day digital mediums. Therefore, these scales were developed and details are presented below:

Inclination towards plagiarism: A multi-item five-point Likert scale with the following indication was used: (1) strongly disagree ….. (5) strongly agree. A lower value on this scale represents an ethical inclination and vice versa. The five-statement frame, which was a part of this scale, included the inclination towards copying from peers, books and digital resources, acknowledging sources, etc. Co-efficient alpha was used to assess the internal consistency of the scale and Cronbach alpha reported as .690, which deemed the scale as reliable (Nunally, 1978).

Inclination towards digital piracy: A multi-item five-point Likert scale with the following indication was used: (1) strongly disagree ….. (5) strongly agree. A lower value on this scale represents an ethical inclination and vice versa. The three-statement frame, which was a part of this scale, included inclination towards using unauthorized/unlicensed copies of commercial software, music albums, etc. Co-efficient alpha was used to assess the internal consistency of the scale and Cronbach alpha was reported as .678 which deemed the scale as reliable.

Inclination towards unethical use of social network: A multi-item five point Likert scale with the following indication was used: (1) strongly disagree ….. (5) strongly agree. A lower value on this scale represents an ethical inclination and vice versa. The five-statement frame, which was a part of this scale, included inclination towards faking one's identity over the internet, misusing someone's

personal information on social networks, etc. Co-efficient alpha was used to assess the internal consistency of the scale and Cronbach alpha was reported as .543, which deemed the scale as reliable.

Self concept clarity: The scale used in this study was formulated by Campbell et al. The included study (Self Concept Clarity-Campbell et al) contained an initial pool of 40 items designed to measure clarity. Some of the items assessed the perceived certainty, temporal stability, and internal consistency of self-beliefs, whereas others tapped fairly direct ramifications of SCC, such as decisiveness and clearly articulated goals. The initial 40-item pool was generated both by culling (and sometimes revising) items from published scales measuring related constructs (e.g., Rosenbergs, 1965) and by constructing new items. The same twelve questions were used for the purpose of this study. The co-efficient alpha was reported as .860 for the original study. When used to assess the internal consistency of the scale for the purpose of this study, the Cronbach alpha was reported as .694, which deemed the scale as reliable.

Sample

A structured questionnaire was used in the data collection. The questionnaire consisted of statements that were designed on the Likert scale to measure (1) inclination towards plagiarism; (2) inclination towards digital piracy; and (3) inclination towards unethical use of social network. The questionnaire also included descriptive measures including gender and educational

background. Data for the study were gathered from Solan and Shimla districts in Himachal Pradesh over a period of two months (August and September, 2011). Convenience sampling was used as the sampling technique. The resultant sample of 123 consisted of male respondents (55%) and female respondents (45%). About 55% were students from technical background (i.e. Engineering) and 45% from non-technical streams (such as Commerce, Pharmacy and Physics). The mean age of the sample group was 19 years.

RESULTS

The study explored the youth disposition towards ethical behaviour related to plagiarism, digital piracy and unethical use of social networks. The findings from the study revealed that youth have a moderate inclination (as the values are bordering the mid value-3) towards unethical practices (see Fig.1). The mean value for the inclination towards plagiarism is 2.97 (SD = .60), while for the inclination towards digital piracy is 2.91 (SD = .98), and that for the inclination towards unethical use of social networks is 2.04 (SD = .64).

The study also investigated gender difference and the difference in the academic background in relation to inclination towards plagiarism. An independent sample t test was performed to compare the mean score (inclination towards plagiarism) for the male students (M = 3.07, SD = .60), with that of the female students (M = 2.84, SD = .57). The test was found to be statistically significant, whereby t (121) = 2.131, p

= .035. Thus, H$_1$(a) stands supported. Similarly, comparing the mean score for the technical students (M = 3.18, SD = .51) with that of the non-technical students (M = 2.70, SD = .60), the difference was found to be statistically significant, with t (121) = 4.76, p = .000. Thus, H$_1$(b) also stands supported.

Next, the study investigated gender difference and the difference in academic background on inclination towards digital piracy. An independent sample t test was performed to compare the mean score (inclination towards digital piracy) for the male students (M = 2.56, SD = .91) with that of the female students (M = 3.30, SD = .90). The test was found to be statistically significant, with t (121) = -4.70, p = .000. Thus, H$_2$(a) stands supported. Similarly, the comparison between the mean score for the technical students (M = 2.46, SD = .83) with that of the non-technical students (M = 3.46, SD = .87) revealed a statistically significant difference with t (121) = -6.4, p = .000. Hence, H$_2$(b) also stands supported.

The study also investigated gender difference and the difference in the academic background on the inclination towards unethical use of social networks. An independent sample t test was performed to compare the mean score (inclination towards unethical use of social networks) for the male students (M = 2.17, SD = .66) with that of the female students (M = 1.89, SD = .59). The test was found to be statistically significant, with t (121) = 2.37, p = .019. Thus, H$_3$(a) stands supported. Similarly, comparing the mean score for the technical students (M = 2.13, SD = .63) with that for the non-technical students (M = 1.94, SD = .64) showed a statistically significant difference with t (121) = 1.612, p = .110. Therefore, H$_3$(b) does not find support in this study.

In addition to exploring the inclinations towards unethical practices, vis-à-vis ICT, the paper also sought to measure the self concept clarity of the representative sample of youth population. The study
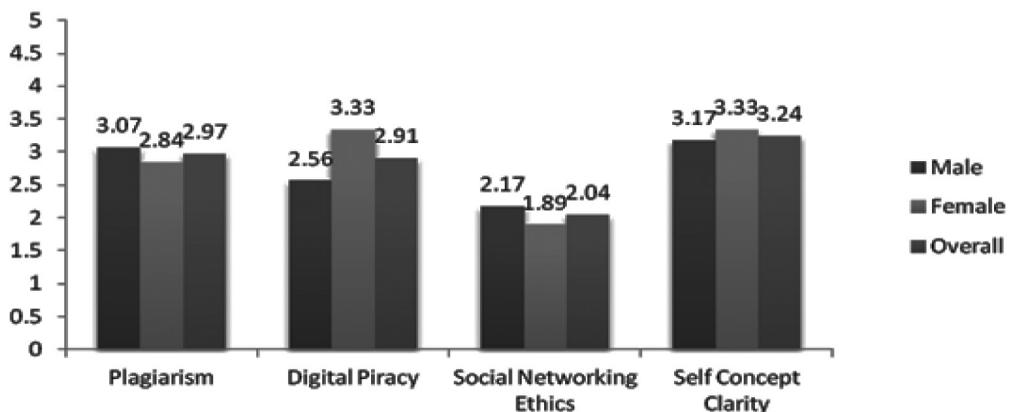
Fig.1: Gender-Wise Pattern on Key Construct
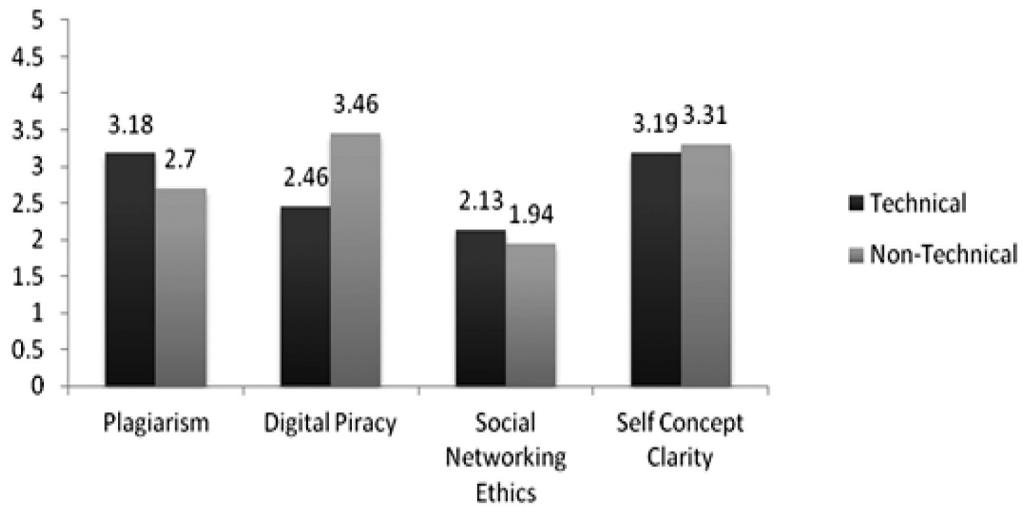
Fig.2: Education-Wise Pattern on Key Constructs

also investigated the association of self concept clarity with the inclinations towards unethical practices, as has been specified in $H_4(a)$, $H_4(b)$, and $H_4(c)$.

A simple regression was carried to investigate these hypotheses. Self concept clarity significantly predicted the inclination towards plagiarism score, β =-0.21, t (121) = 11.05, p = 0.000. Similarly, self concept clarity also explained a moderate proportion of variance in the inclination towards plagiarism score, R^2 = 0.04, F (1,121) = 5.77, p = 0.02. Hence, $H_4(a)$ stands supported, i.e., the higher the self concept clarity, lesser the inclination towards plagiarism is.

Similarly, the simple regression was also used to evaluate $H_4(b)$. Nonetheless, this test did not find statistical significance with β = 0.059, t (121) = 0.654, p = 0.514. Hence, $H_4(b)$ did not find support in this empirical study.

The regression analysis was also used to evaluate $H_4(c)$. It was seen that self concept clarity significantly predicted the inclination towards unethical use of social networks score, β =-0.30, t (121) = -2.60, p = 0.010.

Self concept clarity also explained a moderate proportion of the variance in the inclination towards unethical use of social networks score, R^2 = 0.05, F (1,121) = 6.786, p = 0.010. Hence, $H_4(c)$ stands supported. Therefore, it could be stated that the higher self concept clarity, the lesser the inclination towards unethical use of social networks will be.

CONCLUSION

The findings in this study are consistent with the belief that these easily available user friendly technologies, which the present day youth are deeply familiar with, also lead to misuse or unethical practices. In this study, the representative sample of youth was found to have a significant inclination to unethical use these technologies. It was also

found that the greatest inclination is towards plagiarism, and this was followed by digital piracy and social networking ethics.

Further, the study also explored whether gender and technical competence impacts inclination towards unethical practice. The findings suggest that gender does affect these inclinations as the male respondents were found to have a higher inclination towards unethical practices than the female respondents. Similarly, the respondents with technical background or training had a greater inclination towards unethical practices. These findings suggest that apart from imparting technical education and learning, there is a need to greatly sensitize the youth on the negative outcomes of their unethical behaviour. In view of the fact that gender differences persist with such inclinations, the programmes may be differently targeted at young male and female technocrats.

The study has made a pioneering attempt to assess the association of individual's self concept clarity with the inclinations towards unethical practices. The study found that self concept clarity does impact inclination towards plagiarism, and unethical use of social networks. Once again, it has highlighted the need to provide a holistic education and environment to youth.

The findings from the study have implications on the following: 1) academicians; 2) law enforcement agencies; and 3) technology developers. Firstly, as has been suggested earlier on, holistic learning and training must be provided to the present day youth. Curriculum design and teaching pedagogy need a radical change to align well with the need of the hour to promote ethical behaviour and practices among them.

Secondly, better or greater awareness of the state laws regarding misuse of such technologies needs to be created among the youth. There is a need to undertake promotional campaigns to appraise the youth on the negative legal outcomes with the misuse of such technologies.

In addition, future technologies should inherently have designs which are detrimental to their misuse. For example, Microsoft ensures that their copyrighted operating system, Microsoft Windows, is not pirated by distributing a one-time key to unlock the software with every purchase. Further, it performs a check on the authenticity of a user's operating system whenever a user visits the Microsoft's website, effectively deactivating any unauthorized/unlicensed copies of the same, if found. Another example is the use of digital watermarks/signatures in any kind of digital media, which proves the ownership of the author of that particular media over its contents and authenticity.

Although the study suffers from the limitation of being geographically concentrated and focusing on limited aspects, it is expected that the study may have provided meaningful insights on issues related with unethical practices and youth disposition.

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Stress and Anger Management among Police Personnel through Indian Psychological Techniques

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ABSTRACT

The police fulfil an essential role in the society and since their job is demanding, it is also stressful. Constant and unmanaged stress potentially reduces the effectiveness and efficiency of the personnel. The stressed police officers pose a threat to themselves, their colleagues, offenders and/or to public safety and thus it is a matter of urgent concern for psychologists in particular and mental health researchers in general. There are endeavours to reduce, eliminate or modify stress and anger among police personnel using psychological techniques based on the western model. The present study is unique as it uses stress and anger management techniques based on Indian psychological models. The multidimensional psychological interventions used in this study were chosen on the basis of indigenous psychological viewpoints embedded in Yoga and meditational techniques. The volunteers were chosen from different ranks of police personnel, namely constables, head constables, as well as assistant sub-inspectors and inspectors, who were divided into different groups. However, only the control group was exposed to physical relaxation technique to reduce their stress level and anger. In order to assess the efficacy of these multidimensional psychological interventions, scores on stress and anger were taken prior to and after the intervention (pre-test and post-test design). A repeated measure analysis of variance was applied to compare the experimental and control groups. It was found that the multidimensional psychological interventions were significant in reducing job stress, anger-in, anger-out as they enhanced the anger-control of subjects. The study highlighted the role of stress and anger management techniques developed from Indian psychology theory.

INTRODUCTION

Job stress is a universal phenomenon which is part of mankind's work environment. It is widely viewed as a product of mismatch between the individual and his/her physical or social environment (Beehr & Newman, 1978; Harrison, 1978). The phenomenon of stress has been examined in several disciplines, i.e. psychology, physiology, anthropology, medicine and management. However, Selye was probably the first to use the term stress in Psycho-physiological context. Selye (1974) defined stress as a "non-specific response of the body to any demand made upon it". It was reported that for every activity (task), there is an optimal level of stress that is required to perform that activity; both before and beyond this point, the level of stress is either too little or too great. This is most often illustrated using Yerkes and Dodson's (1908) inverted "U" curve. When the level of stress exceeds the optimal level, it has the potential to be harmful and damaging to the individual. According to Thoits (1996), stress is experienced when people are faced with undesirable life demands that disrupt their ability to engage in everyday activities. Stress is presumed to arise when this appraisal produces the judgment that demands are about to tax or exceed the individual's resources for dealing with them, thus threatening well being (Holroyal & Lazarus, 1992). According to Pestonjee (1987), stress occurs in a person when he/she is faced with demands that tax his/her adaptive resources.

The modern day, life style has created severe stress which is increasing every day. The police personnel are one of the most stressed groups of people in the society. In fact, stress has led to many problems in both personal and professional life. In today's fast-paced world, police personnel are experiencing more stress at every stage of their life than ever before. Law enforcement tends to impose a higher degree of stress and a multiplicity of stress situation on the police personnel than other professions (Violanti & Marshall, 1983; Colwell, 1988; Raiser, 1974; Kroes, Margolis & Hurrell, 1974, 1976; Selye, 1978; Somodevilla, 1978; Reilly & DiAngelo, 1990; Horn, 1991; Violanti, 1992; Brown & Campbell, 1994). Although the presence of stress among policemen is always felt, it is not recognized as the major enemy (Mathur, 1994). Stress appears to be the inevitable price of a career in police force (Barry, 1978; Colwell, 1988), in which high incidences of stress related illness, mortality, divorce and suicide, as compared with other occupations, have been observed (Capland, 1984; Mayers, 1982). Social change, economic conditions, police organizations, total criminal justice system, the demands made on policeman's time with their families all contribute towards high stress level (Grencik, 1975). In particular, insufficient time for the family has been the top ranking stressor (Kumar, 1995; Kroes *et al*., 1974), while work overload has been observed as the second highest ranking job related stressor (Mathur 1993). Meanwhile, the highest job stress related to structure and

climate, co-worker relationship and their managerial role has been observed among police personnel, whereby boredom and monotonous duties have been reported to be the stressful aspects for police officers (Alexander, 1991; Brown *et al.,* 1996).

Police work often places officers in situations where reaction, speed, coordination and the capacity to make rapid decisions and accurate judgements under pressure is critical, and inefficient mental and emotional responses to stress can significantly impair these abilities (Arnsten, 1998). At the extreme level, stress can cause officers to lose balance and composure to the degree that they employ inappropriate or excessive force in dealing with subjects (Moore & Donohue, 1976). At the psychological level, the stress of police work may result in chronic negative emotions such as anger, anxiety or depression. Police officers operating under severe and chronic stress may well be at greater risk of error and over-reaction that can compromise their performance and public safety. The unrealistic expectations imposed by this occupational culture discourage officers from admitting feeling stressed and openly expressing negative emotions. Violanti (1992) reported that police officers are one of the most highly stressed populations. In more specific, they experience a variety of physical and psychological health consequences, including cardiac disorders, death at an early age, suicide, depression, alcoholism, as well as family and marital problems (Sarason *et al.,* 1979; Territo & Vetter, 1981). Sarason

et al. (1979) proposed two types of stressors that police officers experience, and these are those that engender anxiety and those that arouse anger and hostility. Anger-related stress is particularly important, and its negative effects are heightened because officers are prohibited by the decorum of their job from publicly expressing anger and hostility (Pate & Spielberger, 1979). Abernathy (1995) has written that these unusually stringent demands for self-control represent an additional stressor for police.

When the amount of pressure becomes too great, individuals may begin to show breakdown of physical or psychological system that does not only impede their work capability but also results in physical and/or mental illness. Police officers typically suffer a variety of physiological, psychological and behavioural stress effects.

Anger has also been found to have negative impacts on emotional as well as the physical well-being of the people (Carmody *et al.,* 1989; Engenbretson *et al.,* 1989; Gosh & Sharma, 1998; Mood *et al.,* 1990; Sharma *et al.,* 1996). Friedman (1992), Mearns and Mauch (1998), as well as Miller *et al.* (1996) observed that anger and hostility predispose people to serious health problems. Mearns and Mauch (1998) also observed that police officers who reported more anger also reported more distress.

In the present study, the objective was to follow a holistic approach to mental health, which takes into consideration the physical (environment), social, mental and spiritual dimensions of individuals. There is an emphasis given on the fourth dimension,

i.e. spiritual well-being, as it has been the major goal of indigenous techniques such as Yoga. The policeman's work environment is highly prone to various kinds of stressors - physical, social and mental. A broader view of stress is that it is not just the traumatic stressful events that effect them, but also the many events of daily life that elevate activities of physiological system to cause some measures of wear and tear. This is known as the wear and tear "allostatic load". However, individual habits such as diet, exercise, substance abuses, and developmental experiences also set life-long patterns of behaviour and physiological reactivity. Hormones associated with stress and allostatic load protect the body in the short run and promote adaptation, but in the long run, allostatic load causes changes in the body that lead to disease.

Moreover, it would be more appropriate to use the contemporary concept and allostatic load (Sterling & Eyer, 1988) in this case. These people undergo various kinds of wear and tear of the body in their highly stressful working conditions. In turn, mental health or well-being is defined on the basis of these three components - physical, social and mental. This dimension involves those interventions which positively contribute to the well-being of policemen. The various techniques used to alleviate stress and anger take only negative aspects of the mental health, i.e. smoking and/or moderate amount of drinking, heavy smoking and drinking, use of sedatives, tranquillizers, shopping and other ways of spending money, along with consuming more food,

and complaining to others, etc. Meanwhile, the techniques explored in the present study are effective in coping with stress and anger, as well as in enhancing the positive aspects of their mental health.

METHOD

Design

A three factor mixed design 4x2x2x (AxBxCx), with repeated measure on the third factor trials (C), has been used in this study. In this design, factor A consisted of four different ranks of police personnel taken from the ranks of police of Constables (A_1), Head Constables (A_2), Assistant Sub Inspectors (A_3) and Inspectors (A_4). Factor B type of intervention consisted of two levels, namely, multidimensional intervention (B_1) and only relaxation intervention (B_2). The group receiving only relaxation intervention was regarded as control group. Factor C (trials of assessment) consisted of two levels (C_1-pre intervention trials and C_2-post intervention trials), which were taken immediately after the completion of each intervention.

Multidimensional Intervention

Multidimensional intervention was prepared for the purpose of the present study. It comprised of 3 sessions of one hour each with at least one day gap between each session for homework assignments. Since emotional states are often expressed in terms of bodily reactions, phase-I consisted of the stress management session including relaxation training plan; phase-II self management

and mood management techniques and phase-III was the rehearsal of all the phases before a formal termination of this particular multidimensional programme. The police personnel were also asked to apply the coping skill they had learned in an imaginary situation during meditation stage of relaxation training plan. The relaxation training programme, which formed the first phase of multidimensional strategy, was also given to the control group for one day in the same way as it was done in the 1st phase of multidimensional intervention, so that they would not feel left out.

Sample

Only volunteer police personnel were selected for the present study. A notice was circulated in the various police stations to inform them about the upcoming stress management workshop. Those interested in attending the workshop were requested to give their names to the researcher on the date mentioned in the notice. Out of these volunteers, 20 officers from each of the following ranks (constables, head constables, assistant sub-inspectors and inspectors) were selected and 10 police personnel from each of the four ranks were assigned randomly to each of the two treatment conditions.

Tools

Police Stress Questionnaire: The scale was developed by Ranta (2004) for the purpose of the present study. A pilot study was conducted to identify the type of stressful events that police personnel experience on

their job. A sample of 280 police personnel from different categories were asked to list the most stressful events they had experienced at work. The questionnaire originally included 90 items, which was rated by 10 senior police officers. Finally, a 45 items questionnaire was developed to assess job related stressor for police personnel.

Hindi Version of Anger Expression AX/EX Scale: For the purpose of facilitating cross-cultural research and to build on the scale for measuring anger in, anger out and anger control, the three sub scales of the English Anger Expression scale were translated into Hindi by Krishna (1988), following the procedure outlined by Spielberger and Sharma (1976).

The AX-Scale comprises of 24 items. The range of possible AX/EX (i.e. total anger expression) scores varies from 0 to 72 and the range of possible score for three the sub-scale varies from the minimum of 8 to the maximum of 32. The alpha reliability of Hindi scale in respect to total AX, AX/in, Ax/out, AX/Con is 0.89, 0.88, 0.62, 0.82 respectively for the females and 0.96, 0.92, 0.92 and 0.82 respectively for the males.

Procedure

Police personnel were called in a small group for the workshop. Before starting the workshop, they were asked to report their level of job stress and anger on the Police Stress Questionnaire and Hindi Version of Anger Expression Scale. Then, they were exposed to the Multidimensional intervention that included strategies for

dealing with stress and anger, along with group discussions and brief home assignments. Before the commencement of the next phase, the intervention of previous phase was rehearsed. After the completion of all phases, both the questionnaires were given out again. During each phase, effort was made to make sure that the police personnel were clear about the procedures to be able to apply the strategies on their own. The relaxation training programme was given to control group for one day, and the pre-post measures on dependent variables were taken, prior to and after the intervention.

RESULTS

The *t*-test performed on the pre-treatment scores of the two intervention groups on all the dependent variables revealed no significant between-group differences

among the police personnel of different ranks prior to the treatment. For the purpose of the present study, the scores were analyzed by 4X2X2 ANOVA (four ranks of police X two type of intervention X two assessment trials) with repeated measure on one factor. All the post-hoc comparisons among means were made by Newman Keul's Multiple Range Test (Bruning & Kintz, 1987).

Job Stress Scores

With regard to between the group difference, the main effect of treatment turned out to be significant (df=1/72, F = 8.046, p<.001). Post-hoc comparison reveals the efficacy of multidimensional intervention (mean=79.92) over relaxation intervention (mean=98.15) to be significant (p<.01) levels, which is independent of the ranks of police personnel.
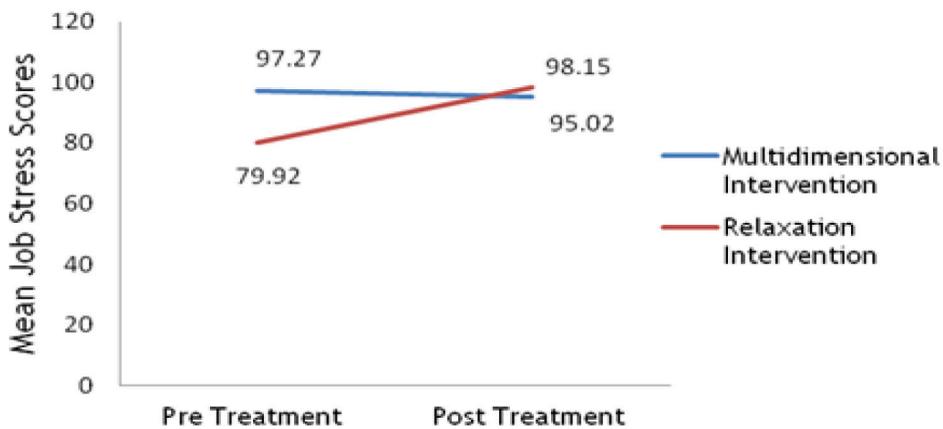
Fig.1: Interaction of assessment trial X treatment in job stress

TABLE 1
Mean Stress Scores under Two Treatment and Two Assessment Trials

Trials	Pre Treatment	Post Treatment
Multidimensional Intervention	97.27	95.02
Relaxation Intervention	79.92	98.15

With regard to within group changes the main effect of trials turned out to be significant (df=1/72, F=38.436, p<.001), and this was further qualified with a significant trial X treatment interaction (df=1/72, F=79.630, p<.001). Perusal of Table 1 and Fig.1 reveal that at the pre-treatment trial, multidimensional intervention (MI) group, as well as only relaxation intervention (RI) group do not differ significantly from each other. On the job stress, the scores of multidimensional intervention group were significantly lower (p<.01) than their only relaxation counterparts. On the contrary, non-significant increase in job stress scores is evident for relaxation intervention group.

Anger Scores

The scores of the three aspects of anger were separately analyzed. With regard to between group differences, neither of the main effect of rank and treatment, nor their interaction with each other turned out to be significant for anger control, anger out as well as anger in.

TABLE 2
Mean Anger-control Scores under Two Treatment Conditions and Two Assessment Trials

Trials	Pre Treatment	Post Treatment
Multidimensional Intervention	24.97	25.80
Relaxation Intervention	29.27	26.35

As for within group change on anger-control, the main effect of trials turned out to be significant (df=1/72, F=36.98, p<.001). This was further qualified with a significant, trials X treatment (TR X T) interaction (df=1/72, F=22.107, P<.001). The perusal of Table 2 and Fig.2 reveals
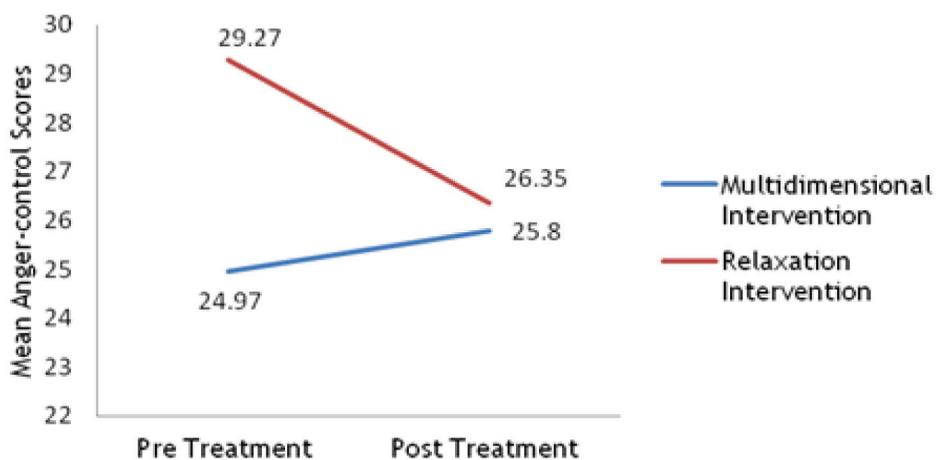
Fig.2: Interaction of assessment trial X two treatment (TR X T) in anger-control scores

that the prior to the treatment anger-control scores of multidimensional intervention as well as only relaxation intervention group were not significantly different from each other. At post-treatment level, the mean anger-control scores of multidimensional intervention group are significantly higher (*p*<.01) than their counterparts under relaxation intervention.

For the within group changes for anger-out, only trials X treatment (TR X T) interaction turned out to be significant (df=1/72, F=7.811, p<.001).

TABLE 3
Mean Anger-out Scores under Treatment and Assessment Trials

Trials	Pre Treatment	Post Treatment
Multidimensional Intervention	14.37	13.95
Relaxation Intervention	13.22	14.75

The perusal of Table 3 and Fig.3 revealed that while at pre treatment trial, the anger-out scores of police personnel under multidimensional intervention and relaxation intervention did not differ significantly from each other. At post-treatment trial, the anger-out scores of police personnel under multidimensional intervention are significantly lower than their counterparts under relaxation intervention.

Further, with regard to within group changes on anger-in, the significant main effect of trials (TR) (df=1/72, F=4.186, *p*<.05) revealed significant pre-(mean=14.83) to post (mean=13.82) trial reduction in anger-in scores, regardless of the types of intervention or ranks of police personnel.

DISCUSSION

For police personnel, the inability to effectively manage stress has its most dangerous consequences during the line of duty. Although the police force receives ample training in the theoretical knowledge and technical skills required to perform their jobs and take effective action in an
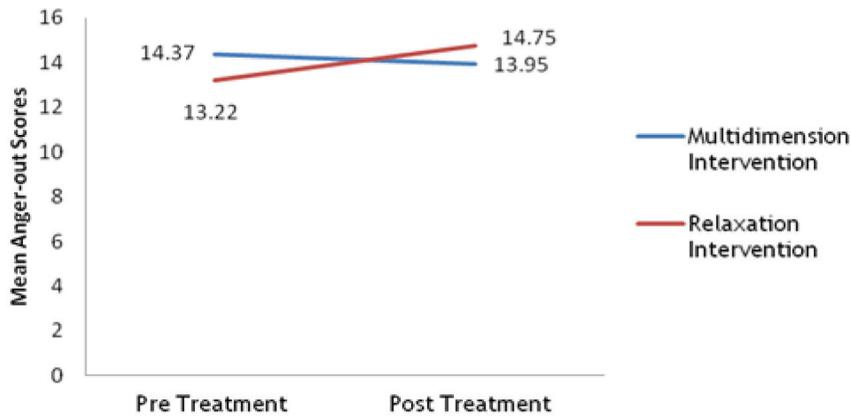
Fig.3: Interaction of assessment trials X treatment (TR X T) in anger-out scores

emergency situation, most receive little if any training in self-management skills needed to help them quickly regain psychological and physiological equilibrium after the intense challenges of their work. Similarly, they are generally not provided with the tools to help them manage the emotions they may process internally long after involvement in a traumatic incident. The unusually stringent demand for self-control, compounded by the unavailability of effective strategies for inner self-management, has become an added stressor in its own right for police personnel (Abernathy, 1995; Ganster *et al.,* 1996). In order to help officers remain more balanced during and after the acute stresses of their jobs, and enhance their ability to manage and seek real solutions to the chronic stress related to organizational and family issues, a multidimensional intervention was prepared and used in the present study. The efficacy of the multidimensional intervention as a coping strategy for the management of job related stress is clearly evident for police personnel of all ranks in the present study.

In the present study, a significant enhancement in the anger-control scores of police personnel from pre- to post-trials clearly highlights the efficacy of multidimensional intervention in this regard. This shows that they have been able to use this intervention effectively. This happened because the need was there. While at pre-treatment levels, their scores were already towards the higher side of the range of scores, the significant enhancement in the scores even after the intervention seemed to support the contention that perhaps their

occupational culture discouraged the officers from admitting to the feeling of stress and openly expressing their negative emotions. Pate and Spielberger (1979) pointed out that officers are prohibited by the decorum of their job from publicly expressing anger and hostility.

Anger directed outward, expressed in physical acts such as assaulting other individuals, or in the form of criticism, insult, verbal threats or the extreme use of profanity are not uncommon among police personnel. Anger out generally involves both the experience of state of anger and manifestation of aggressive behaviour. Pre-to post-treatment reduction in the anger-out scores of police personnel also highlight the efficacy of multidimensional intervention for the present sample. However, the lack of support evidenced in this regard highlights the need for much further research.

In research on anger expression, Averill (1982), Funkenstein, King and Drolette (1954), and Tavris (1982) state that individuals are typically classified as "anger-in" if they tend to suppress their anger or direct it inward toward the ego or self. This process results in the feelings of guilt and depression (Alexander & French, 1948). However, significant pre- to post-treatment reduction of anger-in score of the present sample is independent of the type of intervention. Thus, it appears that just anything to relax them can effectively reduce anger-in scores.

Many of us are taught not to express or show our anger (Pate & Spielberger, 1979). Mearn and Mauch (1998) observed

that officers are prohibited from expressing anger-in and hostility. Unexpressed anger often leaves us feeling frustrated and unable to express how we feel inside. The danger in this type of response is that if a person is not allowed outward expression, the feeling of anger can turn inward on the person. Anger turned inward may cause hypertension, high blood pressure, and depression or attempts toward suicide and alcoholism. These symptoms are highly apparent among police officers (Curran, Finlay, & McGarry, 1988; Davidson, 1979; Hurrel, 1977; Labovitz & Hagedorn, 1971; Lester, 1983; Richard and Fells, 1975; Schwartz and Schwartz, 1975).

However, since none of the earliest studies using stress management programmes with police personnel has included anger as a variable of concern, the present finding stands on its own merit and points out that future research in the area is needed.

Hence, as expected, relaxation intervention did not turn out to be effective in the reduction of job stress for any of the police personnel under any rank. In the present study, the relaxation technique was given only for about an hour and no further follow-up was given on this intervention. In many similar studies when relaxation technique was used singly or for a short period of time, it failed to show its efficacy (Sud & Prabha, 1996; Ranta, 2004). Thus, while selecting this intervention, no results were expected. The intervention was given to the group of police officers who were used as the control group so that they would not feel left out in the workshop. The lack of

efficacy of the relaxation training procedure supports the proposal by Goldfried and Trier (1974), in which learning and transfer of relaxation as general coping skills perhaps take greater time (see also Synder & Deffenbacher, 1976; Sud & Prabha, 1995, 1997). Thus, with regard to relaxation intervention, the result of the present study was rather not unexpected.

CONCLUSION

The stress management programmes have been implemented successfully by police organizations in the west (Axelberd & Velle, 1978; Swanson & Territo, 1983; Wagner, 1981). In India, Pandya (1982) has been conducting workshops for the special branch of the Mumbai police for the last eight years (Hindustan Times, 26 November 1996). Nonetheless, these singular efforts need to be replicated all over India. The findings of the present study are encouraging indications to pursue this line of research. Keeping in view the Indian ethos, psychologists need to explore the scope of indigenous techniques to (a) alleviate the wear and tear of body and mind, (b) enhance the well-being of individuals. Both these aspects are important, whether we take management view, or the remedial measures. The multidimensional intervention developed by the present investigator, though arbitrarily chosen, significantly reduced the job related stress among the police force subjects. In addition, these techniques also enhanced the general coping behaviour of the police force subjects. Thus, these two significant findings need further replication studies to

verify and standardize them. There is need to choose these groups of interventions, following some theoretical basis for two reasons; first, how they are associated with each other, and second, how they contribute in affecting change in the subjects.

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Role of Financial Education for Future Technocrats

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ABSTRACT

Financial education can be defined as "the process by which financial consumers/investors improve their understanding of financial products and concepts, develop the skills and confidence to become aware of financial risks and opportunities, make informed choices, and take other effective actions to improve their financial well-being and protection". Financial stability is achieved through the application of sensible financial principles and responsible behaviour, which itself can be inculcated through financial education at school and college levels. However, it has been observed that students seeking technical education are not given adequate financial education and knowledge as it should have been to enable them make informed decisions. An attempt has been made in this paper to gather information and evaluate the effectiveness of the subjects pertaining to Finance and Economics being offered to Engineering students in various institutions, and to also seek from students what additional financial education they feel is missing from their curriculum. Furthermore, various measures are suggested to improve financial awareness and to help the students gain a more in-depth knowledge about financial management principles and concepts related to personal finance for a holistic development of future technocrats.

Keywords: Engineering, Finance, Financial Education, Financial Literacy, Holistic development, Technocrats

INTRODUCTION

Financial education can be defined as "the process by which financial consumers/ investors improve their understanding of financial products and concepts, develop the skills and confidence to become aware of financial risks and opportunities, make informed choices, and take other effective actions to improve their financial well being and protection." More specifically, it refers to the set of skills and knowledge that allows an individual to make informed and effective decisions through their understanding of finances.

It is the ability to read, analyze, manage and write about the financial conditions that affect material well-being. It includes the ability to determine the financial choices, discuss money and financial issues without discomfort, plan for the future, and respond competently to life events that affect everyday financial decisions, including events in the general economy.

In our complex financial marketplace, financial education must be a life-long quest that enables consumers of all ages and economic positions to stay attuned to changes in their financial needs and circumstances and to take advantage of products and services that best meet their goals. Well-informed consumers, who can serve as their own advocates, are one of the best lines of defence against the proliferation of financial products and services that are unsuitable, unnecessarily costly, or abusive.

It has been found that technical institutions do not give proper financial education to their students. Technocrats enter the complex financial world without any financial education which involves a lot of risk. An attempt was made in this paper by carrying out a survey to find out the state of financial education in engineering colleges across North India. Based on the results, various measures are suggested to improve financial education for future technocrats.

This paper is divided into five sections. Section I gives an introduction to the paper. Section II highlights the importance, benefits and factors increasing the importance of financial education. Section III defines the need, objectives, methodology and findings of the study. Section IV suggests the measures to improve financial education for future technocrats and Section V presents the summary and concludes the paper.

THE IMPORTANCE OF FINANCIAL EDUCATION

Most people learn to manage personal and household finances by trial and error. They achieve financial literacy through the daily experiences of managing their money with the help of informal financial services. However, as they enter the formal financial system, they must acquire new skills. Financial education teaches the knowledge, skills and attitudes required to adopt good money-management practices associated with earning, spending, saving, borrowing and investing money. It provides poor people with the tools to make better financial choices and better manage risks.

Financial education is incredibly important. Recession has shown that even wealthy, well-educated people can fall into traps regarding their money. In this time of increasingly complicated monetary instruments and policies, it is absolutely critical for people to understand their finances and to learn how to manage their money wisely. Financial education needs to be stressed in schools, but it is never too late to try to learn about the financial system. Luckily, there are many tools people can use to become more financially savvy.

Proper financial education is an important part of life. Everyone will likely face a difficult financial situation someday,

whether large or small, that requires time and money. Having a good understanding of personal finance will help make tough situations less stressful.

The Benefits of Financial Education

Financial education can benefit consumers of all ages and income levels. For young adults just beginning their working lives, it can provide basic tool for budgeting and saving so that expenses and debt can be kept under control. Financial education can help families acquire the discipline to save for a home of their own and/or for their children's education. It can help older workers to ensure that they have enough savings for a comfortable retirement by providing them with the information and skills to make wise investment choices with both their pension plans and any individual savings plan. Financial education can help those at lower income levels make the most of what they are able to save. Financial education can provide increased understanding of basic financial information, such as trade off between risks and return and the value of compound interest, as well as more specific information about the advantages and disadvantages of a particular type of investment.

Financially educated consumers can also benefit the economy. By demanding products more responsive to their needs, they encourage providers to develop new products and services, thus increasing competition in financial markets, innovation and improvement in quality. Financially educated consumers are likely to save more than their less literate counterparts. The increase in savings associated with greater financial literacy has positive effects on both investment levels and economic growth. Financially educated consumers are in a better position to protect themselves on their own and to report possible misconduct by financial intermediaries to the authorities.

Factors Increasing the Importance Of Financial Education

The importance of financial education has increased in the recent years for a number of reasons, as follows:

1. **The complexity of financial products.** Consumers are now faced with a variety of different financial products, where there is a range of options with respect to fees, interest rates, maturities, etc. offered to them. In addition, the quality of some of these financial products, such as life insurance, is difficult to access because consumers do not purchase them frequently and there is often a significant time gap between purchase and use.

2. **Increase in number of financial products.** Lack of regulation of financial markets and the reduction in costs have resulted in an abundant number of new products custom-made to meet very specific consumer needs. The internet has also facilitated the people with the ease of availability of enormous amount of information about investment and credit products.

3. **Low levels of financial literacy.** Financial understanding among consumers is low, especially for certain groups, such as the minorities and those at the lower end of the income distribution due to the lack of exposure to the financial world and inadequate financial awareness imparted to them at their college level.

4. **Growing financial stresses during college years.** Students today often hold part-time or full-time jobs, such as working at B.P.O.'s, to support themselves and their families while attending college. Students may find it difficult to strike a balance between work and college. This makes it hard for them to cope up with their studies and thus, affects their grades. The accumulation of stress of attending college and working at the same time due to being caught in a debt may lead to depression or suicidal tendencies among students. Some students may not understand that they could be sacrificing substantial long-term financial gains for minimal short-term gains. Credit card debt during college is also an area of concern.

NEED OF THE STUDY

Technocrats are given ample technical knowledge in their institutions, which helps them to get a lucrative job and a promising career. If a person does not know how to handle and manage his money well, the state of affluence might be lost which would create a financial chaos for himself or others.

Due to lack of financial education, when the technocrats start earning, they are not able to choose the right savings or investments for themselves. However, if they do become financially educated, they would be able to manage their hard-earned money well, which will have a positive effect on their investment level and their money will grow exponentially.

It has been found that technical institutions do not give proper financial education to their students. Technocrats enter the complex financial world without any financial education which involves a lot of risks. An uneducated individual armed with a credit card and access to a loans, mortgage is extremely dangerous to himself and the community. Financial education must be given in order to develop a broad base for approaching of future challenges that are expected to arrive.

OBJECTIVES OF THE STUDY

The broad objectives of this study are as follows:

1. To find out what all subjects pertaining to finance and economics are being offered to engineering students.

2. To find out the ability of engineering students to manage their own finances.

3. To suggest measures for improving financial education for future technocrats.

METHODOLOGY OF THE STUDY

In order to gather information regarding financial education from future technocrats,

a survey was conducted in technical institutions across North India. For the purpose of survey, ten technical institutions from North India were randomly selected. A questionnaire was prepared in order to determine the awareness level of the Engineering students regarding financial education, the subjects of finance and economics being offered to them in their Engineering curriculum and to identify the kind of additional financial education they need. In each of the ten technical institutions, fifteen questionnaires were circulated to final year engineering students. The students filled in the responses and after scrutinizing all the filled questionnaires, a few questionnaires were found to be incomplete. Finally for the purpose of their study, one hundred and sixteen questionnaires were used.

FINDINGS OF THE STUDY

The findings of this study revealed the following:

1. Analysis of the survey revealed that 26.74% respondents strongly agreed, 39.65% respondents agreed, 19.82% students were neutral and 13.79% disagreed with the fact that financial education is a must for technocrats. Thus, it can be said that the majority of the future technocrats feel that financial education is a must for them (0.05% standard error) (see Appendix, Fig.1).

2. From the analysis of the survey, it was found that almost all the technical institutions offer Economics as one of

their subjects in their course curriculum. A few colleges also offer courses on Financial Management. However, the courses on financial education such as Financial Planning, Basic Personal Finance are still found missing from their curriculum.

3. The majority of the future technocrats have shown their inability to manage their own finances. After analysing the responses, it was found that 6.89% of the respondents were very sure, while 39.65% were somewhat sure, 40.51% were not too sure, and 12.93% were not sure at all of their ability to manage their own finances (0.05% standard error), as shown in Fig.2. As depicted in the table, more than 50% of the students were not confident in making financial decisions, and thus, there is a need to revise the scope of the subjects related to finance and economics being offered to them to enable them make sound decisions.

4. The majority of the future technocrats have shown their inability to manage their own finances. Thus, 68.96% of the total respondents expressed their desire to study additional subjects related to finance and economics (0.05% standard error) (see Appendix, Fig.3). In particular, the respondents expressed their desire to study subjects related to stock market, investment strategies and personal finance.

5. It was also evident from the analysis of the survey that most of the institutes do not offer any extra sessions, seminars

or conferences on financial education (0.05% standard error), as illustrated in Appendix, Fig.4.

6. The majority of the respondents (73.27%) did not read business newspapers on a regular basis. Out of the number of the respondents who read business newspapers on regular basis, 61.29% were able to comprehend only half of the contents (0.05% standard error) (see Appendix, Fig.5 and Fig.6). Thus, it can be concluded that future technocrats are unable to grasp most of the information conveyed in business newspapers.

MEASURES TO IMPROVE FINANCIAL EDUCATION

By analyzing the results of the survey, it is very clear that proper financial education is lacking in the curriculum of future technocrats. This means they will not be able to make riskless and profitable decisions if they are not acquainted with the complex ambience of the financial world. Hence, there is a dire need for the future technocrats to be well-versed with the various disciplines of financial education. The universities can play a major role in this regard. Some of the measures used to improve financial education among future technocrats are stated below:

1. **Develop a campus-wide, coordinated financial literacy program directed towards students, faculty and staff.** College administration can work with student, faculty and staff groups to develop a coordinated financial education strategy.

2. **Integrate financial literacy into the curriculum.** Financial education must become a part of the curriculum for technocrats. Administrators should work with the faculty to identify methods of integrating financial education into university curriculum.

3. **Develop an online resource hub.** Universities can offer online hubs of financial education information, along with relevant resources and services. This will allow students access to vast amount of financial information. The online resource hub can contain information on basic financial management, links to useful Web pages, information for parents, and other materials such as an online course for building strong financial strategies for young families.

4. **Extend financial literacy education to students' parents.** Parents are the main source of financial advice for students. Campuses can consider financial management education sessions for both students and their parents. Online resources for parents and college students may also be helpful.

SUMMARY

Financial education is associated with the health and well-being of individuals, families, communities and markets. In specific, it can help individuals plan for

their future and contribute to a sustainable, prosperous lifestyle during their work years and retirement. Financial education is a "life skill" that benefits individuals to a large extent all throughout their lives.

In order to identify the level of financial awareness among the future technocrats, a survey was conducted among the final year engineering students at various universities. Nonetheless, it was seen that financial knowledge among the future technocrats is very low. Universities can have an undefined role in providing financial education, but a majority of Engineering colleges do not take courses on financial education and economics. Hence, there is a dire need for technical institutions to embody multi-disciplinary subjects in the fields of finance and economics in their education curriculum as an integral part, along with other technical subjects.

Through the delivery of such subjects, colleges and universities can equip individuals with the skills needed to be effective participants in the economy, advance the institution, and fulfil their roles as meaningful contributors to the health and vitality of their communities and the nation at large. Therefore, various measures are suggested to make the future technocrats better acquainted with the complex financial world.

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APPENDIX

Do you think financial education is a must for technocrats?

Responses	No. of respondents
Strongly Agree	31 (26.74)
Agree	46 (39.65)
Neutral	23 (19.82)
Disagree	16 (13.79)
Strongly Disagree	0 (0.00)
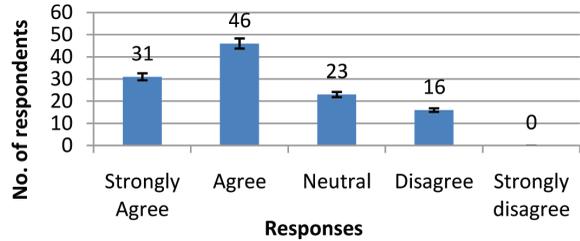
Fig.1

After studying financial subjects, how sure do you feel about your ability to manage your own finances?

Responses	No. of respondents
Very sure	8 (6.89)
Somewhat sure	46 (39.65)
Not too sure	47 (40.51)
Not sure at all	15 (12.93)
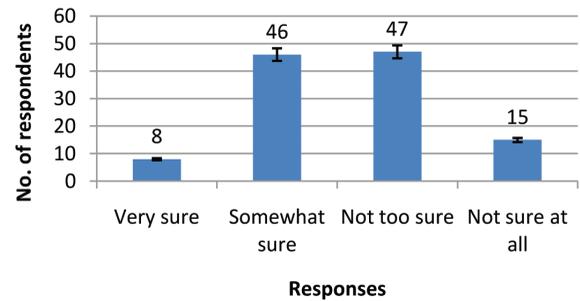
Fig.2

Apart from the above mentioned subjects, do you wish to study any other subject/topic related to finance and economics which is not included in your current curriculum?

Responses	No. of respondents
Yes	80 (68.96)
No	36 (31.04)
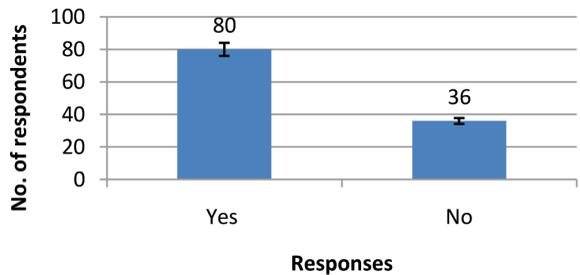
Fig.3

Are there any extra sessions, seminars or conferences organised by your institute on financial education?

Responses	No. of respondents
Yes	47 (40.50)
No	69 (59.50)
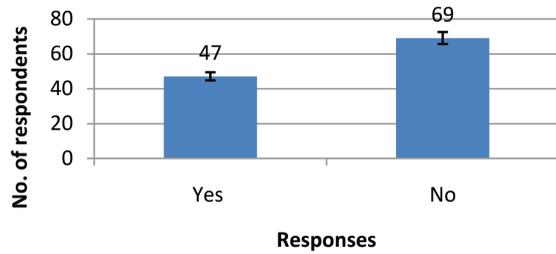
Fig.4

On a regular basis, do you read Economic Times, Business Standard, Financial Express or business columns of other national dailies?

Responses	No. of respondents
Yes	31 (26.72)
No	85 (73.27)
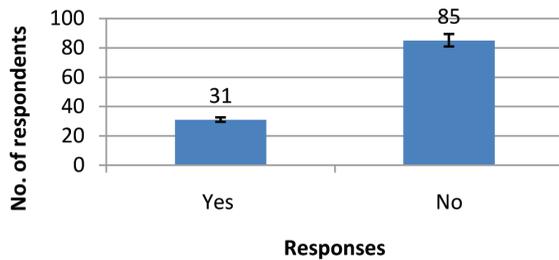
Fig.5

If Yes, how much are you able to comprehend?

Responses	No. of respondents
Almost everything	0 (0.00)
Most of it	8 (25.80)
Almost half	19 (61.29)
Barely anything	4 (12.90)
Nothing at all	0 (0.00)
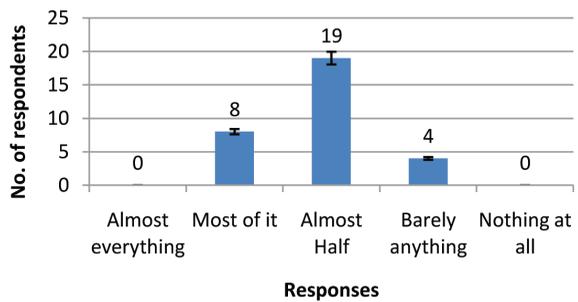
Fig.6

*Figures in parenthesis indicate percentage

Pertanika

Our goal is to bring high quality research to the widest possible audience

Journal of Social Sciences and Humanities

INSTRUCTIONS TO AUTHORS
(Manuscript Preparation & Submission Guidelines)

Revised: June 2012

We aim for excellence, sustained by a responsible and professional approach to journal publishing.
We value and support our authors in the research community.

Please read the guidelines and follow these instructions carefully; doing so will ensure that the publication of your manuscript is as rapid and efficient as possible. The Editorial Board reserves the right to return manuscripts that are not prepared in accordance with these guidelines.

About the Journal

Pertanika is an international peer-reviewed journal devoted to the publication of original papers, and it serves as a forum for practical approaches to improving quality in issues pertaining to tropical agriculture and its related fields. *Pertanika* began publication in 1978 as Journal of Tropical Agricultural Science. In 1992, a decision was made to streamline *Pertanika* into three journals to meet the need for specialised journals in areas of study aligned with the interdisciplinary strengths of the university. The revamped Journal of Social Sciences & Humanities (JSSH) 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, particularly in the Asia Pacific region. Other *Pertanika* series include Journal of Tropical Agricultural Science (JTAS); and Journal of Science and Technology (JST).

JSSH is published in **English** and it is open to authors around the world regardless of the nationality. It is currently published four times a year i.e. in **March**, **June**, **September** and **December**.

Goal of *Pertanika*
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 are guaranteed to receive a decision within 12 weeks. The elapsed time from submission to publication for the articles averages 5-6 months.

Indexing of *Pertanika*
Pertanika is now over 33 years old; this accumulated knowledge has resulted in Pertanika JSSH being indexed in SCOPUS (Elsevier), EBSCO, DOAJ, CABI and ISC.

Future vision
We are continuously improving access to our journal archives, content, and research services. We have the drive to realise exciting new horizons that will benefit not only the academic community, but society itself.

We also have views on the future of our journals. The emergence of the online medium as the predominant vehicle for the 'consumption' and distribution of much academic research will be the ultimate instrument in the dissemination of research news to our scientists and readers.

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—Accounting, anthropology, Archaeology and history, Architecture and habitat, Consumer and family economics, Economics, Education, Finance, Geography, Law, Management studies, Media and communication studies, Political sciences and public policy, Population studies, Psychology, Sociology, Technology management, Tourism; Humanities—Arts and culture, Dance, Historical and civilisation studies, Language and Linguistics, Literature, Music, Philosophy, Religious studies, Sports.

Editorial Statement

Pertanika is the official journal of Universiti Putra Malaysia. The abbreviation for *Pertanika* Journal of Social Sciences & Humanities is *Pertanika J. Soc. Sci. Hum.*

Guidelines for Authors

Publication policies

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. Please refer to Pertanika's **Code of Ethics** for full details.

Editorial process

Authors are notified on receipt of a manuscript and upon the editorial decision regarding publication.

Manuscript review: Manuscripts deemed suitable for publication are sent to the Editorial Board members and/or other reviewers. We encourage authors to suggest the names of possible reviewers. Notification of the editorial decision is usually provided within to eight to ten weeks 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.

Author approval: Authors are responsible for all statements in articles, including changes made by editors. The liaison author must be available for consultation with an editor of *The Journal* to answer questions during the editorial process and to approve the edited copy. Authors receive edited typescript (not galley proofs) for final approval. Changes **cannot** be made to the copy after the edited version has been approved.

Manuscript preparation

Pertanika accepts submission of mainly four types of manuscripts. Each manuscript is classified as **regular** or **original** articles, **short communications**, **reviews**, and proposals for **special issues**. Articles must be in **English** and they must be competently written and argued in clear and concise grammatical English. Acceptable English usage and syntax are expected. Do not use slang, jargon, or obscure abbreviations or phrasing. Metric measurement is preferred; equivalent English measurement may be included in parentheses. Always provide the complete form of an acronym/abbreviation the first time it is presented in the text. Contributors are strongly recommended to have the manuscript checked by a colleague with ample experience in writing English manuscripts or an English language editor.

Linguistically hopeless manuscripts will be rejected straightaway (e.g., when the language is so poor that one cannot be sure of what the authors really mean). This process, taken by authors before submission, will greatly facilitate reviewing, and thus publication if the content is acceptable.

The instructions for authors must be followed. Manuscripts not adhering to the instructions will be returned for revision without review. Authors should prepare manuscripts according to the guidelines of *Pertanika*.

1. Regular article

Definition: Full-length original empirical investigations, consisting of introduction, materials and methods, results and discussion, conclusions. Original work must provide references and an explanation on research findings that contain new and significant findings.

Size: Should not exceed 5000 words or 8-10 printed pages (excluding the abstract, references, tables and/or figures). One printed page is roughly equivalent to 3 type-written pages.

2. Short communications

Definition: Significant new information to readers of the Journal in a short but complete form. It is suitable for the publication of technical advance, bioinformatics or insightful findings of plant and animal development and function.

Size: Should not exceed 2000 words or 4 printed pages, is intended for rapid publication. They are not intended for publishing preliminary results or to be a reduced version of Regular Papers or Rapid Papers.

3. Review article

Definition: Critical evaluation of materials about current research that had already been published by organizing, integrating, and evaluating previously published materials. Re-analyses as meta-analysis and systemic reviews are encouraged. Review articles should aim to provide systemic overviews, evaluations and interpretations of research in a given field.

Size: Should not exceed 4000 words or 7-8 printed pages.

4. Special issues

Definition: Usually papers from research presented at a conference, seminar, congress or a symposium.

Size: Should not exceed 5000 words or 8-10 printed pages.

5. Others

Definition: Brief reports, case studies, comments, Letters to the Editor, and replies on previously published articles may be considered.

Size: Should not exceed 2000 words or up to 4 printed pages.

With few exceptions, original manuscripts should not exceed the recommended length of 6 printed pages (about 18 typed pages, double-spaced and in 12-point font, tables and figures included). Printing is expensive, and, for the Journal, postage doubles when an issue exceeds 80 pages. You can understand then that there is little room for flexibility.

Long articles reduce the Journal's possibility to accept other high-quality contributions because of its 80-page restriction. We would like to publish as many good studies as possible, not only a few lengthy ones. (And, who reads overly long articles anyway?) Therefore, in our competition, short and concise manuscripts have a definite advantage.

Format

The paper should be formatted in one column format with at least 4cm margins and 1.5 line spacing throughout. Authors are advised to use Times New Roman 12-point font. Be especially careful when you are inserting special characters, as those inserted in different fonts may be replaced by different characters when converted to PDF files. It is well known that 'μ' will be replaced by other characters when fonts such as 'Symbol' or 'Mincho' are used.

A maximum of eight keywords should be indicated below the abstract to describe the contents of the manuscript. Leave a blank line between each paragraph and between each entry in the list of bibliographic references. Tables should preferably be placed in the same electronic file as the text. Authors should consult a recent issue of the Journal for table layout.

Every page of the manuscript, including the title page, references, tables, etc. should be numbered. However, no reference should be made to page numbers in the text; if necessary, one may refer to sections. Underline words that should be in italics, and do not underline any other words.

We recommend that authors prepare the text as a **Microsoft Word** file.

1. Manuscripts in general should be organised in the following order:

   o **Page 1: Running title.** (Not to exceed 60 characters, counting letters and spaces). This page should **only** contain the running title of your paper. The running title is an abbreviated title used as the running head on every page of the manuscript.

   In addition, the **Subject areas m**ost relevant to the study must be indicated on this page. Select the appropriate subject areas from the Scope of the Journals provided in the Manuscript Submission Guide.

   o A **list** of n**umber of black and white / colour figures and tables** should also be indicated on this page. Figures submitted in color will be printed in colour. See "*5. Figures & Photographs"* for details.

   o **Page 2: Author(s) and Corresponding author information**. This page should contain the **full title** of your paper with name(s) of all the authors, institutions and corresponding author's name, institution and full address (Street address, telephone number (including extension), hand phone number, fax number and e-mail address) for editorial correspondence. The names of the authors **must** be abbreviated following the international naming convention. e.g. Salleh, A.B., Tan, S.G., or Sapuan, S.M.

   Authors' addresses. Multiple authors with different addresses must indicate their respective addresses separately by superscript numbers:

   George Swan[1] and Nayan Kanwal[2]
   [1]Department of Biology, Faculty of Science, Duke University, Durham, North Carolina, USA.
   [2]Office of the Deputy Vice Chancellor (R&I), Universiti Putra Malaysia, Serdang, Malaysia.

   o **Page 3**: This page should **repeat** the **full title** of your paper with only the **Abstract** (the abstract should be less than 250 words for a Regular Paper and up to 100 words for a Short Communication). **Keywords** must also be provided on this page (Not more than eight keywords in alphabetical order).

   o **Page 4 and subsequent pages**: This page should begin with the **Introduction** of your article and the rest of your paper should follow from page 5 onwards.

        Abbreviations. Define alphabetically, other than abbreviations that can be used without definition. Words or phrases that are abbreviated in the introduction and following text should be written out in full the first time that they appear in the text, with each abbreviated form in parenthesis. Include the common name or scientific name, or both, of animal and plant materials.

        Footnotes. Current addresses of authors if different from heading.

2. **Text.** Regular Papers should be prepared with the headings **Introduction**, **Materials and Methods**, **Results and Discussion, Conclusions** in this order. Short Communications should be prepared according to "*8. Short Communications."* below.

3. **Tables.** All tables should be prepared in a form consistent with recent issues of *Pertanika* and should be numbered consecutively with Arabic numerals. Explanatory material should be given in the table legends and footnotes. Each table should be prepared on a separate page. (Note that when a manuscript is accepted for publication, tables must be submitted as data - .doc, .rtf, Excel or PowerPoint file- because tables submitted as image data cannot be edited for publication.)

4. **Equations and Formulae.** These must be set up clearly and should be typed triple spaced. Numbers identifying equations should be in square brackets and placed on the right margin of the text.

5. **Figures & Photographs.** Submit an original figure or photograph. Line drawings must be clear, with high black and white contrast. Each figure or photograph should be prepared on a separate sheet and numbered consecutively with Arabic numerals. Appropriate sized numbers, letters and symbols should be used, no smaller than 2 mm in size after reduction to single column width (85 mm), 1.5-column width (120 mm) or full 2-column width (175 mm). Failure to comply with these specifications will require new figures and delay in publication. For electronic figures, create your figures using applications that are capable of preparing high resolution TIFF files acceptable for publication. In general, we require **300 dpi or higher resolution for coloured and half-tone artwork** and **1200 dpi or higher for line drawings**.

   For review, you may attach low-resolution figures, which are still clear enough for reviewing, to keep the file of the manuscript under 5 MB. Illustrations may be produced at extra cost in colour at the discretion of the Publisher; the author could be charged Malaysian Ringgit 50 for each colour page.

6. **References.** Literature citations in the text should be made by name(s) of author(s) and year. For references with more than two authors, the name of the first author followed by *'et al*.' should be used.

   Swan and Kanwal (2007) reported that …
   The results have been interpreted (Kanwal et al. 2009).

   o   References should be listed in alphabetical order, by the authors' last names. For the same author, or for the same set of authors, references should be arranged chronologically. If there is more than one publication in the same year for the same author(s), the letters 'a', 'b', etc., should be added to the year.

   o   When the authors are more than 11, list 5 authors and then et al.

   o   Do not use indentations in typing References. Use one line of space to separate each reference. The name of the journal should be written in full. For example:

         ■ Mellers, B. A. (2006a). Choice and the relative pleasure of consequences. *Psychological Bulletin, 126,* 910-924.
         ■ Mellers, B. A. (2006b). Treatment for sexually abused children and adolescents. *American Psychologist, 55,* 1040-1049.
         ■ Hawe, P. (2005). Capturing the meaning of "community" in community intervention evaluation: Some contributions from community psychology. *Health Promotion International, 9,*199-210.
         ■ Braconier, H., & Ekholm, K. (2006). Swedish multinationals and competition from high and low wage location*. Review of International Economics, 8,* 448-461.

   o   In case of citing an author(s) who has published more than one paper in the same year, the papers should be distinguished by addition of a small letter as shown above, e.g. Jalaludin (1997a); Jalaludin (1997b).

   o   Unpublished data and personal communications should not be cited as literature citations, but given in the text in parentheses. 'In press' articles that have been accepted for publication may be cited in References. Include in the citation the journal in which the 'in press' article will appear and the publication date, if a date is available.

7. **Examples of other reference citations**:

Monographs: Kalimapour, Y.R. (2004). *Images of the U.S. Around the World: A Multicultural Perspective*. Albany, NY: State University of New York Press.

Chapter in Book: Bjork, R. A. (2007). Retrieval inhibition as an adaptive mechanism in human memory. In H. L. Roediger III & F. I. M. Craik (Eds.), *Varieties of memory & consciousness* (pp. 309-330). Hull: Hull University Press.

o   *Proceedings*: Amir Awang. (2006). Counseling, human resources development and counseling services. In Sulaiman M. Yassin, Yahya Mat Hassan, Kamariah Abu Bakar, Esah Munji and Sabariah Mohd. Rashid (Eds.), *Proceedings of Asia Pacific Conference on Human Development* (p. 243-246). Serdang: Universiti Putra Malaysia.

8. **Short Communications** should include **Introduction, Materials and Methods, Results and Discussion, Conclusions** in this order. Headings should only be inserted for Materials and Methods. The abstract should be up to 100 words, as stated above. Short Communications must be 5 printed pages or less, including all references, figures and tables. References should be less than 30. A 5 page paper is usually approximately 3000 words plus four figures or tables (if each figure or table is less than 1/4 page).

*Authors should state the total number of words (including the Abstract) in the cover letter. Manuscripts that do not fulfill these criteria will be rejected as Short Communications without review.

STYLE OF THE MANUSCRIPT

Manuscripts should follow the style of the latest version of the Publication Manual of the American Psychological Association (APA). The journal uses American or British spelling and authors may follow the latest edition of the Oxford Advanced Learner's Dictionary for British spellings.

SUBMISSION OF MANUSCRIPTS

All articles should be submitted electronically using the ScholarOne web-based system. ScholarOne, a Thomson Reuters product provides comprehensive workflow management systems for scholarly journals. For more information, go to our web page and click "**Online Submission**".

Alternatively, you may submit the electronic files (cover letter, manuscript, and the **Manuscript Submission Kit** comprising *Declaration* and *Referral* form) via email directly to the Executive Editor. If the files are too large to email, mail a CD containing the files. The **Manuscript Submission Guide** and **Submission Kit** are available from the *Pertanika*'s home page at http://www.pertanika.upm.edu.my/home.php or from the Executive Editor's office upon request.

All articles submitted to the journal **must comply** with these instructions. Failure to do so will result in return of the manuscript and possible delay in publication.

Please do **not** submit manuscripts to the editor-in-chief or to any other office directly. All manuscripts must be **submitted through the executive editor's office** to be properly acknowledged and rapidly processed at the address below:

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Malaysia

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Authors should retain copies of submitted manuscripts and correspondence, as materials can not be returned. Authors are required to inform the Executive Editor of any change of address which occurs whilst their papers are in the process of publication.

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All submissions must be accompanied by a cover letter detailing what you are submitting. Papers are accepted for publication in the journal on the understanding that the article is original and the content has not been published or submitted for publication elsewhere. This must be stated in the cover letter.

The cover letter must also contain an acknowledgement that all authors have contributed significantly, and that all authors are in agreement with the content of the manuscript.

The cover letter of the paper should contain (i) the title; (ii) the full names of the authors; (iii) the addresses of the institutions at which the work was carried out together with (iv) the full postal and email address, plus facsimile and telephone numbers of the author to whom correspondence about the manuscript should be sent. The present address of any author, if different from that where the work was carried out, should be supplied in a footnote.

As articles are double-blind reviewed, material that might identify authorship of the paper should be placed on a cover sheet.

Peer review

Pertanika follows a **double-blind peer-review** process. 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.

In the peer-review process, three referees independently evaluate the scientific quality of the submitted manuscripts. Authors are encouraged to indicate in the **Referral form** using the **Manuscript Submission Kit** the names of three potential reviewers, but the editors will make the final choice. The editors are not, however, bound by these suggestions..

Manuscripts should be written so that they are intelligible to the professional reader who is not a specialist in the particular field. They should be written in a clear, concise, direct style. Where contributions are judged as acceptable for publication on the basis of content, the Editor reserves the right to modify the typescripts to eliminate ambiguity and repetition, and improve communication between author and reader. If extensive alterations are required, the manuscript will be returned to the author for revision.

The Journal's review process

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

1. The executive editor and the editorial board examine the paper to determine whether it is appropriate for the journal and should be reviewed. If not appropriate, the manuscript is rejected outright and the author is informed.

2. The executive editor sends the article-identifying information having been removed, to three reviewers. Typically, one of these is from the Journal's editorial board. Others are specialists in the subject matter represented by the article. The executive editor asks them to complete the review in three weeks and encloses two forms: (a) referral form B and (b) reviewer's comment form along with reviewer's guidelines. 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 literature.

3. The executive editor, in consultation with the editor-in-chief, examines the reviews and decides whether to reject the manuscript, invite the author(s) to revise and resubmit the manuscript, or seek additional reviews. Final acceptance or rejection rests with the Editorial Board, who reserves the right to refuse any material for publication. In rare instances, the manuscript is accepted with almost no revision. Almost without exception, reviewers' comments (to the author) are forwarded to the author. If a revision is indicated, the editor provides guidelines 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 submit a revised version of the paper to the executive editor along with specific information describing how they have answered' the concerns of the reviewers and the editor.

5. The executive editor sends the revised paper out for review. Typically, at least one of the original reviewers will be asked to examine the article.

6. When the reviewers have completed their work, the executive editor in consultation with the editorial board and the editor-in-chief examine their comments and decide whether the paper is ready to be published, needs another round of revisions, or should be rejected.

7. If the decision is to accept, the paper is sent to that Press and the article should appear in print in approximately three months. The Publisher ensures that the paper 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 queries by the Publisher. 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 article appears in the pages of the Journal and is posted on-line.

English language editing

Pertanika **emphasizes** on the linguistic accuracy of every manuscript published. Thus all authors are required to get their manuscripts edited by **professional English language editors**. Author(s) **must provide a certificate** confirming that their manuscripts have been adequately edited. A proof from a recognised editing service should be submitted together with the cover letter at the time of submitting a manuscript to Pertanika. **All costs will be borne by the author(s)**.

This step, taken by authors before submission, will greatly facilitate reviewing, and thus publication if the content is acceptable.

Author material archive policy

Authors who require the return of any submitted material that is rejected for publication in the journal should indicate on the cover letter. If no indication is given, that author's material should be returned, the Editorial Office will dispose of all hardcopy and electronic material.

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Authors publishing the Journal will be asked to sign a declaration form. In signing the form, it is assumed that authors have obtained permission to use any copyrighted or previously published material. All authors must read and agree to the conditions outlined in the form, and must sign the form or agree that the corresponding author can sign on their behalf. Articles cannot be published until a signed form has been received.

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A decision on acceptance or rejection of a manuscript is reached in 3 to 4 months (average 14 weeks). The elapsed time from submission to publication for the articles averages 5-6 months.

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Under the Journal's open access initiative, authors can choose to download free material (via PDF link) from any of the journal issues from Pertanika's website. Under "Browse Journals" you will see a link entitled "Current Issues" or "Archives". Here you will get access to all back-issues from 1978 onwards.

The **corresponding author** for all articles will receive one complimentary hardcopy of the journal in which his/her articles is published. In addition, 20 off prints of the full text of their article will also be provided. Additional copies of the journals may be purchased by writing to the executive editor.

Pertanika

Our goal is to bring high quality research to the widest possible audience

Pertanika is an international peer-reviewed leading journal in Malaysia which began publication in 1978. The journal publishes in three different areas — Journal of Tropical Agricultural Science (JTAS); Journal of Science and Technology (JST); and Journal of Social Sciences and Humanities (JSSH).

JTAS is devoted to the publication of original papers that serves as a forum for practical approaches to improving quality in issues pertaining to tropical agricultural research or related fields of study. It is published four times a year in **February, May, August** and **November**.

JST caters for science and engineering research or related fields of study. It is published twice a year in **January** and **July**.

JSSH deals in research or theories in social sciences and humanities research with a focus on emerging issues pertaining to the social and behavioural sciences as well as the humanities, particularly in the Asia Pacific region. It is published four times a year in **March, June, September** and **December**.

Why should you publish in *Pertanika* Journals?

Benefits to Authors

PROFILE: Our journals are circulated in large numbers all over Malaysia, and beyond in Southeast Asia. Recently, we have widened our circulation to other overseas countries as well. We will ensure that your work reaches the widest possible audience in print and online, through our wide publicity campaigns held frequently, and through our constantly developing electronic initiatives via *Pertanika* online submission system backed by Thomson Reuters.

QUALITY: Our journals' reputation for quality is unsurpassed ensuring that the originality, authority and accuracy of your work will be fully recognised. Each manuscript submitted to Pertanika undergoesa rigid **originality check**. Our double-blind peer refereeing procedures are fair and open, and we aim to help authors develop and improve their work. Pertanika JTAS is now over 33 years old; this accumulated knowledge has resulted in Pertanika being indexed in **SCOPUS** (Elsevier), **Thomson** (Biosis), **EBSCO**, **CABI**, **AGRICOLA**, **Google Scholar**, **MyAIS**, **ISC** and **ERA**.

AUTHOR SERVICES: We provide a rapid response service to all our authors, with dedicated support staff for each journal, and a point of contact throughout the refereeing and production processes. Our aim is to ensure that the production process is as smooth as possible, is borne out by the high number of authors who publish with us again and again.

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Call for Papers

Pertanika invites you to explore frontiers from all fields of science and technology to social sciences and humanities. You may contribute your scientific work for publishing in UPM's hallmark journals either as a regular article, short communication, or a review article in our forthcoming issues. Papers submitted to this journal must contain original results and must not be submitted elsewhere while being evaluated for the *Pertanika* Journals.

Submissions in English should be accompanied by an abstract not exceeding 300 words. Your manuscript should be no more than 6,000 words or 10-12 printed pages, including notes and abstract. Submissions should conform to the *Pertanika* style, which is available at www.pertanika.upm.edu.my or by mail or email upon request.

Papers should be double-spaced 12 point type (Times New Roman fonts preferred). The first page should include the title of the article but no author information. Page 2 should repeat the title of the article together with the names and contact information of the corresponding author as well as all the other authors. Page 3 should contain the title of the paper and abstract only. Page 4 and subsequent pages to have the text - Acknowledgments - References - Tables - Legends to figures – Figures, etc.

Questions regarding submissions should only be directed to the Executive Editor, *Pertanika* Journals.

Remember, *Pertanika* is the resource to support you in strengthening research and research management capacity.

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FEB. 2008

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