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Knowledge-Sharing Network Development for Historical Archive on Human Evolution and Development (HEAD) of the LEAD Programme at Leiden University, the Netherlands

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ABSTRACT

The purpose of this paper is to extend and share knowledge and information crucial to developing knowledge societies. Increasing the universal access to information in various domains is the key to enhance sustainable socio-economic development, building peace, and channelling intercultural communication. A pilot study was conducted using a case study approach and integrating two perspectives of knowledge value: the success of scholarly communication and knowledge sharing value for the scientific heritage archive. This study captures the research in the field of library and archival sciences, and embarks on the consideration that Leiden University in The Netherlands and Universitas Padjadjaran in Bandung, Indonesia as long-time counterpart and significant memory institutions share interests in the preservation, access and promotion of the important, yet not fully disclosed scientific heritage archive at LEAD for safeguarding this cultural legacy for present and future generations in both countries. This is a follow-up study of First Phase, and the current phase involved the ordering of over 40.000 documents and the digitisation of more than 40.000 catalogue cards. The research encompasses the conceptual model for knowledge network development with a view to contributing to its overall preservation and universal access.

Keywords: Knowledge-sharing, LEAD Programme, Scholarly communication, Scientific Heritage Archive

INTRODUCTION

The *LEAD/HEAD Protocol* entitled '*LEAD Initiative to Unlock the Historical Archive on Human Evolution and Development (HEAD) at LEAD of Leiden University for*

Universal Access to the Scientific Heritage Archive in The Netherlands', Advanced Distributed Learning (2004) shows that the cultural heritage archive collection contains unique, yet not fully disclosed paper materials, carefully acquired, managed and organised over the past centuries, documenting specific aspects of the process of human evolutionary thinking of past scholars since the 1870s with a focus on Southeast Asia.

Apart from a short description of the remarkable history of the archive and its rescue from destruction of the entire collection of over 400 antique carton boxes with documents and a small supporting specialist library, its significance has been underscored by Dr. Richard E. Leakey from Kenya, who immediately recognised its unique cultural heritage value, and characterised the collection as: '*the earliest historical document collection on human evolution in the world which needs urgent protection and disclosure'* (Slikkerveer, 2011).

Based on the results of the *LEAD Symposium* organised by the LEAD Programme in Leiden in 2011, Slikkerveer (2011) concludes that in view of the unique value of the historical HEAD archive: '*joint efforts should be further undertaken to achieve soonest a timely research agenda for action on the short notice to secure effective collection management for preservation and universal access of the HEAD scientific heritage archive.*'

As a follow-up of the presentations and discussions during the *LEAD Symposium*

on the results of the explorative First Phase of the joint HEAD Project, three major research-based tasks have urgently been recommended for the *Historical Archive on Human Evolution and Development* (HEAD): a) *documentation and digitisation process development*; b) *bibliometric and metadata system analysis*, and c) *profiling for scholarly communication and knowledge network developmen*t, all in a collaborative research effort to contribute to the preservation and universal access of the important scientific heritage archive at LEAD (Slikkerveer, 2011).

In light of the above mentioned three research-based tasks, this research proposal seeks to provide a follow-up of the LEAD Symposium (2011) and *profiling for scholarly communication and knowledge network development* through the design of a new profile model for the historical archive on *Human Evolution and Development* (HEAD) at LEAD of Leiden University, and as such contribute to the preservation and access to this important scientific heritage archive in The Netherlands.

The envisaged profile will facilitate the framing of the digital archiving activities in collecting the documents, archives, library contents (books and non-book materials) under the auspices of the joint project on *Human Evolution and Development* (HEAD). The construction of the new model for the profile will be based on the evaluation and selection of models with the objective to develop a core generic profile for scholarly communication and exchange of digital information. The

concept of knowledge sharing has been widely used in the field of organisational development, and organisational learning seeks to overcome the practical problem of getting knowledge from one part of an organisation to another (or all other) part (Liu, Chang, & Hu, 2010). According to Mansor and Saparudin (2015), knowledge sharing can occur at organisational level among other things: knowledge sharing captures, organises, reuses and transfers experienced-based knowledge that resides within the organisation or between other organisations and has the potential to be used by others.

To this end, important guiding principles for the profile will be identified to include central registration, definition of basic rules for elements, and identification of common structures (ADL, 2004). The research will also link with the vision of the interdisciplinary LEAD Programme, not only as the 'School of Thought' on *Indigenous knowledge Systems and Development* (IKS&D) engaged in Research & Training in bottom-up strategies for sustainable development, but also as the custodian of the archive on *Human Evolution and Development* (HEAD) focused on the archive as an important example of the world's documentary heritage, representing the oldest collection of documents from the formative period of the history of human evolution in Western Europe, brought together with extraordinary endeavour and risk over more than a century by deliberate intellectual intent of many dedicated academicians.

The relevance to UNESCO (2002) under the auspices of the *International Federation of Library Associations* (IFLA) will be elaborated within the context of the preservation of the world's documentary heritage - particularly those collections under threat of oblivion or destruction -. Finally, in addition to the theoretical and methodological implications of the research, the study will suggest practical recommendations for implementation in similar archives in terms of how to create adequate profiles for knowledge sharing networks of historical archives on specific subjects.

LITERATURE REVIEW

Traditionally, archival science focused on the study of methods and techniques for preserving collections while it also has been engaged in retrieving, cataloguing and handling archives. However, with the recent advent of the digital era, electronic databases have been developed, prompting library and archival science to re-evaluate its position and conduct re-appraisals and revisions in order to increase its universal accessibility (Walch, 1994).

In recent decades, the concept of appraisal has become a central topic in the literature on archival science, where the primary objective of appraisal is to identify documents which are preserved for an unlimited period of time with a view to increase universal access through knowledge network development. As Chalak, Ziaei and Nafei (2014) note, the goal-oriented sharing of knowledge within organisations has led

to expedited individual and organisational learning process, improved creativity, and eventually, improved performance at both the individual and organisational level.

Craig (2004), in her recent book *Archival Appraisal: Theory and Practice*, discusses the importance of collection appraisal within the context of archival work as a whole, beginning with an examination of the importance of appraisal for information specialists, records managers, corporate offices' information and knowledge managers, and archivists against the background of the recent era of the digital 'information explosion'. Information explosion and knowledge growth calls for innovative approaches to manage the right knowledge (Saikia, 2012). A useful definition of appraisal in an archival context, relevant for the development of a new profile of the HEAD archive in Leiden, was proposed by Pearce-Moser (2005): '*Appraisal is the process of determining whether records and other materials have permanent (archival) value. Appraisal may be done at the collection, creator, series, file, or item level. Appraisal can take place prior to donation and prior to physical transfer, at or after accessioning. The basis of appraisal decisions may include a number of factors, including the records' provenance and content, their authenticity and reliability, their order and completeness, their condition and costs to preserve them, and their intrinsic value. Appraisal often takes place within a larger institutional collecting policy and mission statement*'.

As regards the development of related knowledge networks for the HEAD archive, necessary for its international promotion and access, practical guidelines will be formulated for the LEAD Programme as the custodian of documents with emerging knowledge-based networks in the form of the internet and other global digital networks (Dempsey, 2000). According to Pugh and Prusak (2013), 'knowledge networks' are: '*collections of individuals and teams who come together across organizational, spatial and disciplinary boundaries to invent and share a body of knowledge. The focus of such networks is usually on developing, distributing and applying knowledge. For-profit and nonprofit organizations of all sizes are seizing on this model to learn more quickly and collaborate productively*.' While in the past, formal networks only existed between academicians, artists and tradesmen, today web-based collaboration has facilitated the identification and distribution of codified knowledge enormously.

In the present research, the focus of the development of knowledge networks for the HEAD archive will not only be on sharing information and creating new knowledge, but also on strengthening research, education and communication capacity among the users of the archive, such as scientists, students and the general public who are interested in the particular subject of human evolution and development. In the current literature on the appraisal of archives within the broader context of methods and techniques developed for the further

preservation and promotion of archives, certain blind spots emerged in the discussion on the development of new models of profiles for the historical archive with a view to enhance international promotion and development towards knowledge networks, relevant for disclosure and universal access of scientific and cultural heritage archives, as is the case at LEAD in Leiden University.

In this context, the present research will take up the research challenge and make an effort in close collaboration with other team members of HEAD Project to contribute to the library and archival science by further exploring the methods and techniques of the development of a new model of a profile for the scientific heritage archive. This will be based on the preparatory research of Phase One on the historical archive at LEAD with a view to promote and develop an effective knowledge-based network for the benefit of both providers and users of the unique scientific and cultural heritage in The Netherlands.

MATERIALS AND METHODS

A pilot study was conducted between 2015 and 2016. The determinant of a case study is the willingness of researchers to specifically disclose problems that are associated with a single entity, with the specific context of the existence of the entity (Pendit, 2003). Entities in this research are the historical archive on Human Evolution and Development (HEAD) at LEAD in Leiden University. The case study approach is a suitable strategy when researchers have little chance to control the events that will be investigated and the research focus lies on contemporary phenomena (present) in real life (Yin, 2014). Appropriate methods for the present research include the application of documentation strategies, capable of providing necessary analytical approach to solving problems posed by modern documentation systems.

RESULTS AND DISCUSSIONS

Based on the results of observation and study of documents at the LEAD Programme Leiden University, the team from Universitas Padjadjaran suggested a standard metadata Dublin Core records for the entire archive that is in the LEAD Programme. The present authors are also conducting a study of applications that have been used by the Leiden University Repository (https://openaccess.leidenuniv.nl). In addition, the development of applications which will be used to store an entire digital content along with metadata will be kept at the Leiden University. Furthermore, DSpace software is used and has proven to be quite reliable by universities.

Another consideration is the application repository of the Leiden University has the capability to support loading of all file formats because the majority of the files include the digital file types (pdf and jpg file format). In addition to the various promotional content maintained for scientific benefit, DSpace has effectively indexed all the content by search engines of Google. One other consideration is the cost efficiency for the development of the application can be trimmed. The

applications will expedite process inputs and exchange of data between universities.

One of the basic criteria for using standard metadata and existing applications is the ease of exchanging information between Leiden University and Universitas Padjadjaran. Currently, Universitas Padjadjaran has used Eprint for the management of digital content. Technically, in the data exchange process between Leiden University and Universitas Padjadjaran, no technical constraints were found in using the Protocol for Metadata Harvesting (OAI-PMH) when exchanging data with each other.

The development of the knowledge network for the HEAD archive will be based on the processes and functions of the construction of an infrastructure for digital archives, built around standards and technologies of a web content interoperability using Protocol for Metadata Harvesting (OAI-PMH) as a mechanism for repository interoperability.

The adaptation of this scheme will be useful for the realisation of the development of the knowledge-based network for long-term preservation and access to the historical HEAD archive at Leiden University. The main objective of the knowledge sharing network is for scientific communication, especially to make it feasible for true open access to legal scholarly communication between Leiden University and Universitas Padjadjaran. Furthermore, the implication of the knowledge network is that the content grows dynamically and can be accessed from other scholarly universities.

The stages have been completed recently from examination of the content and metadata archives as well as the analysis of the information systems to be used in knowledge-sharing activities. It is also due to the fact Universitas Padjadjaran was recently revitalised and is currently using EPrints repository which can be accessed at http://repository.unpad.ac.id/. Another obstacle is the process of digitising archival collection requiring special handling and special tools for digitising the archive. The human resource is constrained by the lack of people who are able to perform the input of metadata as well as the process of digitisation.

Other activities related to knowledge-sharing network is the existence of social interaction between universities. Although this work has been carried out, some of the stages are conducted again so that these information networks can be realised, while some issues warrant further discussion ranging from human resources problems to the process of digitising the archive.

CONCLUSION

The process of data exchange between Universiteit Leiden and Universitas Padjadjaran faces no technical constraints in using the Protocol for Metadata Harvesting (OAI-PMH) to exchange data with each other. Furthermore, the implication of knowledge-network is that the content grows dynamically and can be accessed from other universities. Another obstacle is the process of digitising archival collection requires special handling and special tools

for digitising the archive. Other problems relate to human resources where there is lack of people able to input the metadata, and the process of digitisation. Other activities related to knowledge-sharing network is the existence of social interaction between universities where both conduct research together.

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REFERENCES

Advanced Distributed Learning (ADL). (2004). *Sharable content object reference model.* Alexandria, VA: Advanced Distributed Learning. http://www.adlnet.gov/scorm/index.aspx.

Chalak, A. M., Ziaei, S., & Nafei, R. (2014). A survey of knowledge sharing among the faculty members of Iranian library and information science (LIS) departments. *Library Philosophy and Practice, 1063*. http://digitalcommons.unl.edu/libphilprac/1063

Craig, B. L. (2004) *Archival appraisal: Theory and practice.* München, Germany: K. G. Saur.

Dempsey, L. (2000). Scientific, industrial, and cultural heritage: A shared approach. *Ariadne*, (22). Retrieved from http://www.ariadne.ac.uk/issue22/dempsey/

Liu, K., Chang, C., & Hu, I. (2010). Exploring the effects of task characteristics on knowledge sharing in libraries. *Library Review, 59*(6), 455-468, https://doi.org/10.1108/00242531011053968

Mansor, Z. D., & Saparudin, I. N. (2015). Motivational factors for academicians in private universities to participate in knowledge-sharing activities. *Pertanika Journal of Social Science and Humanities, 23*(S), 101-116.

Pearce-Moses, R. (2005). *A glossary of archival and records terminology.* Chicago, IL: Society of American Archivists.

Pendit, P. L. (2003). *Penelitian ilmu perpustakaan dan informasi: Suatu pengantar diskusi epistemologi dan metodologi.* Jakarta: JIP-FSUI.

Pugh, K., & Prusak, L. (2013). Designing effective knowledge networks. *MIT Sloan Management Review, 55*(1), 79.

Saikia, M. (2012). Application of knowledge management in university libraries: Issues and challenges. *The Journal of Library and Information Management, 3*(2), 10-23. http://www.ijour.net/ijor.aspx?target=ijor:gyankosh&volume=3&issue=2&article=002

Slikkerveer, L. J. (2011). *LEAD/HEAD research & training protocol, conclusions of the LEAD symposium on the historical archive on human evolution and development in Leiden, The Netherlands.*

UNESCO. (2002). *UNESCO's memory of the world programme.* Paris: UNESCO. http://www.unesco.org/new/en/santiago/communication-information/memory-of-the-world

Walch, V. I. (1994). *Standards for archival description: A handbook.* Chicago: Society of American Archivists (SAA).

Yin, R. K. (2014). *Case study research design and methods* (5th ed.). Thousand Oaks, CA: Sage