

An Exploratory Study into Employee Attitudes towards Digitalisation of Library Services in Higher Education

Monika Niedzwiecka¹ & Yu-Chun Pan²

¹Imperial College Business School, Imperial College London, UK

²School of Computing and Engineering, University of West London, UK

Email: 175002525@student.imperial.ac.uk; y.pan@uwl.ac.uk

Abstract

With the advent of technologies, library services in higher education face pressure to increase their level of digitalisation in order to meet changing user demands. While many researchers aim to understand what digitalisation means to library services from the user perspective, there is little attention paid to the employees of library services. Since employees are one of the key driving forces of digitalisation, there is a need to understand their attitudes towards digitalisation. This paper aims to explore employee attitudes towards digitalisation of library services via a case study with data collected from participant observation, focus groups and interviews. The finding suggests that the employee understanding of digitalisation is rather limited, which might have a negative impact on the benefit realisation of digitalisation. Furthermore, there are polarised views on factors of utilisation of digital applications between senior management and operational staff. Such polarised views could also have an impact on the actual use of digital applications. This exploratory study provides valuable insights into digitalisation of library services from employee perspective, which could serve as the foundation for further research.

Keywords: Digitalisation, Higher Education, Library Services, Technology Acceptance, User Attitudes

1.0 Introduction

Higher Education (HE) has seen an increasing pressure from government and society to provide ‘value for money’, and there is a growing level of marketisation of HE in the last three decades (John and Fanghanel, 2015). Globalisation and internationalisation of HE as well as the diversity that comes with them also pose challenges to Higher Education Institutions (HEIs) and research community (Sørensen, 2016). At a time of change, the various functions within HEIs have to adjust themselves in order to meet the external environment, and library services are no exception.

Over the years, the role of a HE library has evolved in response to changing user requirements. Nowadays libraries provide both digitalised content and born digital materials to their users. Lewis (2007) states that HE libraries need to consider the redevelopment of library space, repositioning of information tools, retiring print collections and curating materials in order to continue the provision of value to their users. The younger generation of HE library users

expect the library to meet both their academic and social requirements with fewer time constraints (Schmidt and Cribb, 2011, Lippincott, 2012). According to PRC (2016), early career researchers view a library as a place for undergraduate students to study and do not necessarily use their institutional library discovery system when looking for resources. Alternative discovery systems, e.g. Google Scholar, have become popular amongst users. The advent of Information Systems (IS) and the World Wide Web (WWW) allows users to retrieve relevant information in an easy and effective way (Lawrence and Giles, 1999), and it has been widely deployed in HE libraries with the aim of meeting user demands.

Under the increasing pressure to deliver and demonstrate value, HE libraries need to fully understand the people using libraries as well as the library employees who enable and facilitate library services in order to ensure the sustainable development of a HE library. Many researchers focus on the library service receivers and investigate the library user attitudes towards the use of a digital library (Thong et al., 2004, Vaidyanathan et al., 2005, Park et al., 2009). However, there has not been much attention paid to the employees in HE libraries, who essentially play a key role in shaping the library services. Therefore, this paper aims to investigate the meaning of digitalisation in HE libraries and how HE library employees perceive such concepts through a case study. Insights could be used to further understand the challenges that HE libraries are facing.

2.0 Literature Review

In order to gain an overall understanding of the digitalisation of library services, this paper will review the existing literature in the areas of digitalisation, digitalisation of library services and user attitudes.

2.1 Digitalisation

Today's global environment is enriched by the fierce competition between organisations and ever-changing demands. Understanding and managing processes across the whole organisation is one of the key factors for organisational success in this competitive environment, and digitalisation of organisation operations has been one of the driving forces behind the change. There is no universal definition of the term 'digitalisation'. Digitalisation can be seen as the use of human-computer interaction in order to achieve desired change aiming to maximise the benefits and values created (Billon et al., 2010). Digitalisation can also be viewed as the process of integrating technologies into people's lives through digitising everything that can be

transformed into a digital format (IGI, 2016). Gartner (2016) defines digitalisation as the process of utilising technologies to change a business model in order to increase the opportunities of increasing revenues and value-adding activities.

Digitalisation has been realised through the use of Information and Communication Technology (ICT) and Information Systems (IS) in various industries. IS have been expanded to comprise a wide range of organisational characteristics and functionalities in response to the demand for integrated information systems (Parr and Shank, 2000). This trend of digitalisation through ICT and IS can also be found in library services.

2.2 Digitalisation of Library Services

Mukaiyama (1997) argues that digital libraries will hold a central place in the 21st century and utilise system architecture, individual technologies and integration technologies. The utilisation and integration of new technologies could allow libraries to fulfil their changing purposes. Breeding (2011) states that the future of libraries relies on the full utilisation of new technologies in both the content formats and the coverage of content in order to avoid obsolescence. In the early stage, the digitalisation of a library mainly focuses on the transformation of hard copies of contents (e.g. books) into digital soft copies. Furthermore, the digitalisation of library resources allows users to access resources from wherever they are, and this has changed the users' need for a library significantly (Schmidt and Cribb, 2011). Kroski (2008) states that next-generation libraries will have semantic web, cloud computing and live streaming as essential features. In addition to the utilisation of IS, libraries also advance their technological service offering. For instance, over 85% of university libraries offer wireless internet connection service (Chaffey, 2016).

Generally speaking, the digitalisation of library services evolves in line with wider technological development. With the advent of different web technologies, various forms of adoption and adaptation can be seen in library services. Noh (2015) proposes the concept of library 4.0, in which the features include artificial intelligence, massive data, augmented reality, context aware, cutting-edge displays, and infinite creative space. The digitalisation of library services could mean the utilisation of all sorts of technologies.

2.3 User Acceptance and Employee Attitudes

The benefits of any technology can only be realised when it is being truly accepted and utilised. Therefore, there has been much research focus on the user acceptance of technologies. Since Davis (1986) introduces the Technology Acceptance Model (TAM) that focuses on perceived

usefulness and perceived ease-of-use and their influences on user attitudes, there has been much research following this path to understand technology acceptance. Venkatesh and Davis (2000) further extend the TAM and propose the TAM2 that incorporates the impacts of social influence processes and cognitive instrumental processes on user acceptance. All the research in this field highlights the importance of user attitudes in the likelihood of successful technology diffusion.

Many researchers focus on library service receivers and investigate library user attitudes towards the use of a digital library (Thong et al., 2004, Vaidyanathan et al., 2005, Park et al., 2009). However, there has been little attention paid to the user attitudes of employees of library services. Employees often play a key role in the strategic planning and implementation of digital applications. An introduction of new technology is essentially a change. In a time of change, employee commitment and support and the relationship between management and employees could influence the success of implementation (Carter et al., 2013, Weber and Weber, 2001). The perceived support from management and supervisors can also influence employee attitudes (Eisenberger et al., 2002).

The literature suggests that employees are one of the key factors in successful technology implementation. However, there seems to be a knowledge gap in understanding the employee attitudes when it comes to digitalisation of library services. Therefore, this paper aims to explore the employee attitudes towards digitalisation of library services.

3.0 Method

Through a case study, this paper explores the insights into employee attitudes towards digitalisation of library service in HE. The empirical study of this exploratory research is primarily a qualitative study based on participant observation, focus group and interview. A UK-based university library was selected as the case study organisation. The organisation is of particular interest as it has seen a significant amount of financial investment to improve its library services in the last three years, which has resulted in the introduction of many library service facilities and required technology adaptations. The library has 41 employees across three locations and serves over 10,000 students and staff each year. The library has three divisions that are managed by three senior managers. In each division, there are a number of teams that are managed by middle level managers.

The first author has worked with the case study organisation for over one year. A large number of informal interviews were conducted with the employees at various levels. The informal

interviews allowed the author to collect the information in a natural environment. In total, ten informal interviews were conducted, and the participants included both middle level management and operational staff. The interviews were unstructured and aimed to gain a basic understanding of the operations and background regarding digitalisation. Three senior management employees were formally interviewed and a focus group of eight participants was conducted in August 2016. The focus group participants were selected based on their roles in order to ensure middle level management and operational staff were both represented. The transcripts of formal interviews and focus group were analysed via NVivo in order to explore the employee attitudes towards digitalisation and its factors.

4.0 Finding and Discussion

Based on the observation, focus group and interviews, the finding on the case study organisation is categorised into the understanding of digitalisation and the application of digitalisation. The understanding of digitalisation aims to explore how employees perceive the meaning of digitalisation, as this view could influence the acceptance and utilisation of digitalisation. The application of digitalisation intends to gain insights into the case study organisation's employee use of digital applications and their perceptions of enablers and barriers of such use.

4.1 Understanding of Digitalisation

When it comes to the term 'digitalisation', only a very small number of the participants from the focus group identify digitalisation as a set of activities aiming to integrate departments and their members via the use of technology. The vast majority of the participants purely associate digitalisation with the use of personal computers. The general understanding of digitalisation in the case study organisation focuses on the use of software in day-to-day operations. The wider integration with internal and external partners through digital applications is not considered as the main feature and use of digitalisation. A member of the senior management states that "*Digitalisation to me is simply about using the computer systems, the internet and some tools provided by the software companies.*" A member of the middle level management describes digitalisation as "*using Excel spreadsheets as well as e-mails and other tools in the department*".

The participants generally recognise the importance of digitalisation and its potential benefits of making things more efficient and effective. This view enables the case study organisation to

continually digitalise its operations with relatively low resistance. Whilst the participants show a certain level of digitalisation understanding, their understanding mainly focuses on the use of computers and software. The restricted understanding of other potential applications could limit the level of exploitation of available tools and technologies.

4.2 Application of Digitalisation

The participants generally describe the most commonly used digital applications are Microsoft Office Word, Excel and Outlook. Whilst there are other digital applications available in the work environment, use of them might be less frequent than desired by the senior management. Due to recent investment, there has been training provided to staff to learn how to use new technologies. Over 70% of the participants in the case study organisation state that they are willing to learn and use new technologies.

However, there are polarised views on the level of use of digital applications and the reasons behind it. In the case study organisation, there is a gap between the views of employee motivation at different management levels. The senior management associates the drive to the use of digital application with employment security. Some believe that employees are only willing to learn to use new technologies up to the point where they feel their employment is no longer under threat. As a result, the senior management feel that they should continue using the software that the employees are familiar with in order to manage the workforce.

In contrast, the middle level management feels that the employees are still not fully aware of the existing digital applications features. The less than desired level of utilisation of digital applications is the reflection of a lack of training and time to explore them; therefore, there is little room for new digital applications. On the other hand, staff at an operational level express that they feel senior management does not truly understand of value of technologies and underestimate the technological adaption ability of staff.

Such polarised views in the case study organisation could explain the limited level of utilisation of digital applications. However, the limited use of digital applications could also be triggered by the mismanagement of them. For instance, the case study organisation invests in radio-frequency identification (RFID) technology in order to improve the productivity of annual stock checking. However, the management did not acquire the remote controls needed to check the stock. As a result, the RFID technology cannot be utilised and additional human resource is required for the task.

The finding suggests that the employee attitudes towards the use of digital applications may vary based on the level of management. This misalignment of attitudes could have negative impacts on the selection of utilisation of digital applications.

5.0 Conclusion

This paper explores employee attitudes towards digitalisation of library services in HE. Due to the complex nature of digitalisation and its multi-connectivity, it might not be easy to ensure the comprehensive understanding of digitalisation amongst employees. In the case study organisation, the employees' limited level of knowledge of digitalisation and its implications appeared to restrict the potential benefit realisation of digitalisation. The vast majority of participants in the case study organisation simply think of digitalisation as the use of personal computers. This might contribute to the limited use of other digital applications, e.g. live communication, cloud computing and database systems.

Whilst the majority of participants express a willingness to learn to use new digital applications, there are polarised views on why employees learn and use technologies. The misaligned views on motivation between senior management and operational/administrative staff could pose a danger to employee acceptance of digitalisation across the organisation. Existing literature suggests that the employees' perceived support from senior management plays an important role in the likelihood of successful change implementation. Such misalignment in employee views might need to be addressed and further investigated.

Due to the exploratory nature of this research, the finding cannot be generalised to describe a universal scenario. However, the study into the employee attitudes at the case study organisation could still provide useful insights into the digitalisation of library services from the employee perspective. Future research at the case study organisation into detailed social factors and motivations for utilisation of digital applications, intends to contribute to a further understanding of employee attitudes and their impacts on digitalisation.

6.0 References

- Billon, M., Lera-Lopez, F. & Marco, R. 2010. Differences in digitalization levels: a multivariate analysis studying the global digital divide. *Review of World Economics*, 146, 39-73.
- Breeding, M. 2011. Preparing for the long-term digital future of libraries. *Computers in libraries*, 31, 24-26.
- Carter, M. Z., Armenakis, A. A., Feild, H. S. & Mossholder, K. W. 2013. Transformational leadership, relationship quality, and employee performance during continuous incremental organizational change. *Journal of Organizational Behavior*, 34, 942-958.

- Chaffey, D. 2016. *Marketing Statistics Compilation – Adoption and Usage of Digital Platforms* [Online]. Available: <http://www.smartinsights.com/guides/online-marketing-statistics-adoptionusage-digital-platforms/> [Accessed 18/06 2016].
- Davis, F. D. 1986. *A technology acceptance model for empirically testing new end-user information systems: Theory and results*. Massachusetts Institute of Technology.
- Eisenberger, R., Stinglhamber, F., Vandenberghe, C., Sucharski, I. L. & Rhoades, L. 2002. Perceived supervisor support: contributions to perceived organizational support and employee retention. *Journal of applied psychology*, 87, 565.
- Gartner. 2016. *Gartner IT Glossary* [Online]. Available: <http://www.gartner.com/it-glossary/digitalization> [Accessed 15/12 2016].
- IGI. 2016. *IGI Dictionary* [Online]. Available: <http://www.igi-global.com/dictionary/digitalization/7748> [Accessed 15/12 2016].
- John, P. & Fanghanel, J. 2015. *Dimensions of marketisation in higher education*, Routledge.
- Kroski, E. 2008. On the move with the mobile web: libraries and mobile technologies. *Library technology reports*, 44, 1-48.
- Lawrence, S. & Giles, C. L. 1999. Searching the Web: general and scientific information access. *Comm. Mag.*, 37, 116-122.
- Lewis, D. W. 2007. A strategy for academic libraries in the first quarter of the 21st century. *College & Research Libraries*, 68, 418-434.
- Lippincott, J. K. 2012. Information commons: Meeting millennials' needs. *Journal of Library Administration*, 52, 538-548.
- Mukaiyama, H. Technical aspect of next generation digital library project. Proceedings of the International Symposium on Research, Development and Practice in Digital Libraries: ISDL, 1997.
- Noh, Y. 2015. Imagining Library 4.0: Creating a Model for Future Libraries. *The Journal of Academic Librarianship*, 41, 786-797.
- Park, N., Roman, R., Lee, S. & Chung, J. E. 2009. User acceptance of a digital library system in developing countries: An application of the Technology Acceptance Model. *International journal of information management*, 29, 196-209.
- Parr, A. & Shank, G. 2000. A model of ERP project implementation. *Journal of Information Technology*, 15, 289-303.
- PRC. 2016. *Early Career Researchers: the harbingers of change?* [Online]. Available: <http://publishingresearchconsortium.com/index.php/136-prc-projects/research-reports/early-career-researchers-year-one/174-early-career-researchers-the-harbingers-of-change-year-one-2016> [Accessed 12/12 2016].
- Schmidt, J. & Cribb, G. 2011. Accommodating Shifting User Expectations. *WLIC, 77th IFLA General Conference and Assembly*.
- Sørensen, A. 2016. Drivers and challenges in the internationalisation of higher education and research: the case of the Southern African–Nordic Centre. *One World, Many Knowledges: Regional experiences and cross-regional links in higher education*, 21.
- Thong, J. Y., Hong, W. & Tam, K. Y. 2004. What leads to user acceptance of digital libraries? *Communications of the ACM*, 47, 78-83.
- Vaidyanathan, G., Sabbaghi, A. & Bargellini, M. 2005. User acceptance of digital library: An empirical exploration of individual and system components. *Issues in Information Systems*, 6, 279-285.
- Venkatesh, V. & Davis, F. D. 2000. A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management science*, 46, 186-204.
- Weber, P. S. & Weber, J. E. 2001. Changes in employee perceptions during organizational change. *Leadership & Organization Development Journal*, 22, 291-300.