Information- and digital literacy in the organisational context: Assessing university employees' engagement with digital technology

Milla Aavakare

Åbo Akademi

milla.aavakare@abo.fi

https://orcid.org/0000-0002-4947-2776

Introduction

As digital technologies are developing in a rapid pace, educational institutions are facing a multitude of opportunities to utilise new digital tools for purposes such as teaching, learning, administrative tasks, and knowledge management. However, mere technology will not suffice on its own, as elements of literacy also play a vital role in the ability to harness the benefits of these digital tools. In fact, critical 21st century skills such as information- and digital literacy have

surfaced, and university employees are not exempt from benefiting of high levels of literacy skills for performing various work tasks. Furthermore, as traditional notions of literacy have bypassed their classic definitions relating to abilities of reading and writing, the critical 21st century skills (e.g. life skills [social skills and leadership], literacy skills [digital and information] and learning skills [critical thinking]) are playing a more central role within the interaction with digital technologies. Therefore, new theoretical and practical contributions are needed within the domain. This research argues that it is essential for university employees to acquire the critical 21st century skills in order to make the most of digital tools that are used for teaching, learning, administrative tasks, and knowledge management.

Within the information-based society, information literacy consists of abilities relating to the evaluation, synthesisation and use of information in an appropriate manner, while simultaneously accounting for ethical and legal aspects. Kurbanoglu et al. (2006, 730) pointed out that information literacy encompasses not merely the ability to recognise the need for information, but also those abilities which are needed to initiate appropriate search strategies for locating said information. Digital literacy, on the other hand, refers to abilities which relate to the understanding and utilisation of information in various formats from a multitude of digitally available sources (Gilster, 1997) while effectively using information and communications technology (ICT) (Bawden, 2008).

The objective of this research is to expand upon the topic of information- and digital literacy as well as technologically driven change in the organisational context by exploring university employees' intention to use digital technologies. Thus, the following research questions have been stipulated: 1) "*what antecedents factors explain university employees' intention to use digital technologies?*" and 2) "*to what extent do information- and digital literacy explain university employees' intention to use digital technologies?*".

This research intends to answer these questions through the development of a theory-based conceptual model (Figure 1). The proposed model includes information literacy (IL) and digital literacy (DL), while simultaneously encompassing determinants of the unified theory of acceptance and use of technology II (Venkatesh et al., 2012); performance expectancy (PE), effort expectancy (EE), and habitual behaviour (HB). The dependent variable of our model is intention (INT) to use digital technologies.
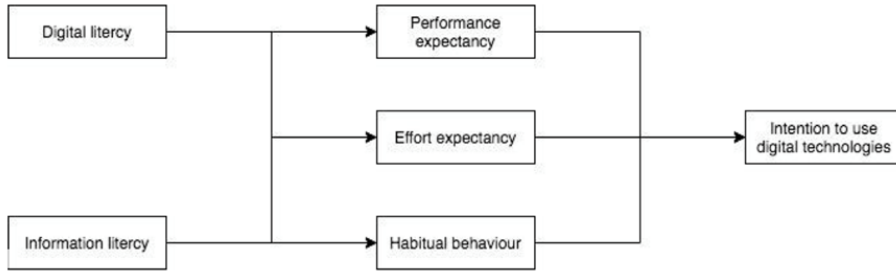
Figure 1: Research conceptual model

Research methodology

An online survey questionnaire was developed based on the insights gained from an extensive literature review. The measurement items were derived from widely utilised and validated items from prior literature (Kurbanoglu et al., 2006; Ng, 2012; Venkatesh et al., 2012). The items were designed to be answered on a 7-point Likert scale ranging from strongly disagree to strongly agree. As the target group was employees of Finnish universities (e.g. researchers, teaching staff, administrative staff, and others), the survey was distributed through various digital channels, as well as through flyers placed at four university campuses. After the removal of unengaged and incomplete answers, the data of 124 respondents was analysed with SmartPLS software through the use of structural equation modelling (SEM).

Results

The research model was analysed at the measurement model and structural model levels. Outer loadings, composite reliability (CR), and average variance extracted (AVE) were utilised to assess the validity of the measurement model. The outer loadings, CR and AVE were all higher than the recommended values of .70, .70 and .50, respectively. Additionally, discriminant validity was established by using the square root of AVE for every latent variable (Fornell & Larcker, 1981), and each value was above the correlation values among the latent variables.

   The results of the SEM analysis indicated that the university employees' intention to use digital technology was explained with a variance of 57%. As for the UTAUT constructs (PE, EE, HB), they were explained with a variance of 23%, 67% and 17%, respectively. As for the IL and DL, both were shown to

affect university employees' intention to use digital technology. Although, the path relationships of these two were different. The results indicated that IL has a direct positive impact (β = .36, t = 3.772, p < .001) on the intention, but DL on the other hand is only realised through PE (β = .12, t = 2.314, p < .01) and HB (β = .11, t = 2.591, p < .01). Concludingly, this research has found strong support for the importance of IL and DL within the decision-making of university employees, as these dimensions of literacy impact their intention to use digital tools in their work.

References

Bawden. D. (2008). Origins and concepts of digital literacy. In: Lankshear C and Knobel M (ed.), *Digital Literacies: Concepts, Policies and Practices* (pp. 17−32). New York: Peter Lang.

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 18*(1), 39−50. `https://doi.org/10.1177/002224378101800104`

Gilster, P. (1997). *Digital literacy*. New York: Wiley Computer Pub.

Kurbanoglu, S. S., Akkoyunlu, B., & Umay, A. (2006). Developing the information literacy self-efficacy scale. *Journal of documentation, 62*(6), 730−743. `https://doi.org/10.1108/00220410610714949`

Ng, W. (2012). Can we teach digital natives digital literacy? *Computers & Education, 59*(3), 1065−1078. `https://doi.org/10.1016/j.compedu.2012.04.016`

Venkatesh, V., Thong, J. Y., & Xu, X. (2012). Consumer acceptance and use of information technology: extending the unified theory of acceptance and use of technology. *MIS quarterly, 36*(1), 157−178. `https://doi.org/10.2307/41410412`