Encouraging Digital Literacy and ICT Competency in the Information Age

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INTRODUCTION

The growing prominence of the Internet as educational tool requires research regarding learners' digital literacy (Greene, Yu, & Copeland, 2014). Nowadays, students autonomously acquire their digital literacy and are adept at using various ICT tools to enrich their daily leisure lives (Ting, 2015). Digital literacy includes the ability to search for information and to integrate that information while monitoring progress toward achieving educational goals (Bråten, Britt, Strømsø, & Rouet, 2011). Digital natives often engage themselves in the use of ICT tools and in accessing, creating, and sharing both text and videos on the Web 2.0 (Junco, 2012). The ability of digital natives to embrace ICT suggests that they possess a certain level of digital literacy (Ng, 2012).

Competency refers to the ability resulting from individual's knowledge, skills, characteristics, and attitude in executing work to achieve success (Malinina, 2015). ICT plays a critical role in enhancing the quality of education (Vitanova, Atanasova-Pachemska, Iliev, & Pachemska, 2015). Within the context of 21st century skills, the importance of being digitally competent is reflected in the international and national policies for the educational ICT utilization (Kozma, 2008). These policies for educational ICT utilization have introduced ICT competency in the national and school curricula (Aesaert, Vanderlinde, Tondeur, & van Braak, 2013), such as the integration of ICT competences in the educational curricula. ICT competency standards practically define the achievement expectations for students (Thomas & Knezek, 2008).

This article aims to bridge the gap in the literature on the thorough literature consolidation of digital literacy and ICT competency. The extensive literatures of digital literacy and ICT competency provide a contribution to practitioners and researchers in order to maximize the impact of digital literacy and ICT competency in the information age.

BACKGROUND

Technology Acceptance Model (TAM), such as Unified Theory of Acceptance Use of Technology (UTAUT), explains the degree of acceptance of the utilization of information technology (IT) toward adopting the technological infrastructure (Nchunge, Sakwa, & Mwangi, 2013). TAM helps managers and decision makers to evaluate the success of the acceptance of technology to the organization, and motivate users to accept the systems. UTAUT identifies four key factors (i.e., performance expectancy, effort expectancy, social influence, and facilitating conditions) and four moderators (i.e., age, gender, experience, and voluntariness) concerning behavioral intention toward utilizing technology in organizational contexts (Venkatesh, Thong, & Xu, 2016).

Digital literacy refers to the variety of literacies associated with the use of new technologies (Mohammadyari & Singh, 2015). Digital literacy is a fundamental life skill in today's knowledge economy and information society (Bawden, 2001). Digital literacy constitutes new practices rather than new instances of established practices (Simpson & Obdalova, 2014). Proficiency in

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digital literacy refers to the ability to read and write using online sources, and includes the ability to select sources relevant to the task, synthesize information into a coherent message, and communicate the message with an audience (Bulger, Mayer, & Metzger, 2014). Appel (2012) defined digital literacy as the ability to find and analyze information by using computers.

Digital literacy is a broad concept encompassing the different aspects, and its development follows a continuum from the acquisition of instrumental skills to that of strategic competence and cognitive skills (Calvani, Fini, Ranieri, & Picci, 2012). Digital literacy is the awareness, attitude and ability of individuals to appropriately utilize the digital tools to identify the digital resources, construct the new knowledge, create the media expressions, and communicate with others (Martin, 2005). Hatlevik and Christophersen (2013) used the term digital competence to describe the acquisition and processing of digital information and the ability to produce the digital information.

Competency is made up of knowledge, skills, and attitude (Malinina, 2015). ICT competency is considered as the educational outcomes (Thomas & Knezek, 2008). ICT competency refers to knowledge, skills, and ability to take advantage of ICT for the purpose of gathering, processing, and presenting the information in support of activities among different groups of people (Albirini, 2006). Traditional methods of teaching ICT are not an effective way for learners to acquire ICT competencies or to gain more positive ICT perceptions (Goktas, Yildirim, & Yildirim, 2008). Instead, learners should interact with new information in ways that enable the active inquiry to promote the useful learning (Daugherty, 2005). To gain ICT competency, learners should be given opportunities to create their own meaning-making processes in order to establish their own knowledge (Goktas & Demirel, 2012).

ADVANCED ISSUES OF DIGITAL LITERACY AND ICT COMPETENCY

This section emphasizes the overview of digital literacy and ICT competency, the encouragement of digital literacy in the information age, and the encouragement of ICT competency in the information age.

Overview of Digital Literacy

Twenty-first century learning skills require the ability to use the Internet technology (Greene et al., 2014). The prominent role the Internet plays in home and classroom lives demands careful attention to its link to student knowledge gains (Greene et al., 2014). The Internet, as a text, consists of multiple print, images, videos, and interactive simulations, all used to communicate with the subsequent effects upon cognition (Collins & Halverson, 2009). While it is important to consider how the Internet utilization affects the students' different cognitive processes (Reinking, 2005), it is important to consider how different cognitive processes influence how students engage with the Internet (Strømsø & Bråten, 2010).

Digital literacy is an important determinant to consider as the number of electronic learning (e-learning) tools has expanded to incorporate the Web 2.0 innovations, such as blogs, podcasts, and wikis (Mohammadyari & Singh, 2015). Digital literacy is a significant determinant of attitudes toward computer-assisted language learning (Oz, Demirezen, & Pourfeiz, 2015). Ullrich et al. (2008) stated that the rapid spread of these tools has meant that individuals often have had to train themselves in how to use these tools. Individuals with a high level of digital literacy have been better able to leverage these new tools to self-manage their training and execute their continuing education activities in an informal setting, toward reducing the interruption to their working lives (Hargittai, 2010).