



Contents lists available at ScienceDirect

The Journal of Academic Librarianship



Educational Usage of Mobile Devices: Differences Between Postgraduate and Undergraduate Students

Ka Po Lau^a, Dickson K.W. Chiu^{a,*}, Kevin K.W. Ho^b, Patrick Lo^c, Eric W.K. See-To^d^a Faculty of Education, The University of Hong Kong, Pokfulam, Hong Kong^b University of Guam, School of Business and Public Administration, UOG Station, Mangilao, Guam^c Faculty of Library, Information & Media Science, University of Tsukuba, Tsukuba, Ibaraki, Japan^d Department of Industrial and Systems Engineering, Hong Kong Polytechnic University, Hong Kong

ARTICLE INFO

Article history:

Received 24 November 2016

Received in revised form 16 March 2017

Accepted 28 March 2017

Available online xxxx

Keywords:

Mobile learning (m-learning)

Mixed method

Comparison

Smartphone

Library and Information Science (LIS)

Learning patterns

ABSTRACT

The rapid increase of smartphone usage in recent years has provided students the opportunity to participate in mobile learning (m-learning) anywhere, anytime. Academic institutions are also following this trend to launch many m-learning services. This article investigates the differences of the user needs between undergraduate (UG) and postgraduate (PG) students through an online survey with 140 Library Information Systems (LIS) subjects in a Japanese university in order to provide solid foundations for future m-learning studies. We find that UG and PG students do not show significant differences in adopting m-learning by smartphones despite the fact that they have different learning patterns. The m-learning frequencies of smartphones generally range from weekly to monthly, where using search engines is the most frequent, and reading academic resources is the least frequent. They tend to use these services for handling their daily routines (such as search engine, social networks) rather than their academic activities (such as using online databases to search for academic materials). Further, the results also show that content displaying issues (e.g., small display screen, text unable to enlarge) are barriers for most subjects in using these m-learning services.

© 2017 Published by Elsevier Inc.

INTRODUCTION

In recent years, there has been a rapid increase in the number of smartphone subscribers and mobile data traffic, while the computing power of smartphones are comparable to desktop computers. Nowadays, most university students are millennial learners (aged 18–34) born after the broadband Internet became the essential communication tool in our lives and learning. Prior to the age when the broadband Internet connection was publicly available, teaching paradigms were much different than those of today. According to [Crompton's \(2013\)](#) definition, learning pedagogies gradually progressed from discovery (in the 1970s), constructivist, and constructionist (in the 1980s), to problem-based and socio-constructivists (in the 1990s). These three pedagogical methods are all learner-centered, where the role of instructors is to guide learners through the learning process instead of helping them develop themselves as “knowledge repositories” ([Hmelo-Silver, 2004](#)).

Starting from the 21st century, m-learning (2000s) has become the trend due to the availability of mobile Internet connections. According to [Traxler \(2009\)](#), technology plays an important role in the shifting of

pedagogical paradigms from the development of printing methods, which contributes to the “effective transmission of the canons of scholarship” ([Sharples, Taylor & Vavolula, 2005, p. 6](#)), to the current age of technology of implementing components like information processing, modeling, and more importantly, interaction into pedagogies. When broadband Internet became more widespread and with the current paradigm shifts to m-learning, we observe that both learners and instructors almost immediately embraced this new pedagogical approach. Online quizzes and interactive multimedia have become learning tools that can be used in both desktop and mobile devices, and instructors can record their lectures and distribute them to the learners in the most appropriate time. Last but not least, the use of discussion forums in teaching is becoming a usual way for instructor-learner communication ([Ho, 2014](#)).

To investigate the impact of m-learning to university students, we developed the current study, which focuses on uncovering the differences of the usage needs of m-learning of postgraduate (PG) and undergraduate (UG) students. This study is built upon a prior study reported by [Ko et al. \(2015\)](#), which investigated some m-learning behavior of 267 Library and Information Science (LIS) students from Hong Kong, Japan, and Taiwan. We would like to further explore how mobile technology has changed the ways of learning for our current (and future) generations, and, in particular, if there are any differences in the way that UG and PG students utilize mobile technology in their education. There

* Corresponding author.

E-mail addresses: kpau9@connect.hku.hk (K.P. Lau), dicksonchiu@ieee.org (D.K.W. Chiu), kevinkho@triton.uog.edu (K.K.W. Ho), wotan455@gmail.com (P. Lo), eric.see-to@polyu.edu.hk (E.W.K. See-To).

are currently very few such studies and probably pioneer in the Far East. We anticipate that UG and PG students may embrace the m-learning in different ways as most PG students are more engaged with research-oriented curricula and thus, their needs are different from UG students who are usually studying in a structured program with information that are more systematical and readily available. To sum up, we approach the above issues through the following three research questions (RQs):

- RQ1: Do PG and UG students have similar habits on participating in m-learning through smartphones?
- RQ2: Do PG and UG students have similar barriers to participating in m-learning through smartphones?
- RQ3: Do PG and UG students have similar preferences of library services they wish to use through smartphones?

The rest of this paper is developed as follows. First, we review the literature about Net Generations, mobile learning, and related benefits and disadvantages. Next, we describe our research methodology, followed by our data collection and data analysis. Lastly, we discuss the result of this study and its contribution, and conclude our paper by outlining the limitations of this survey, together with the future study directions.

LITERATURE REVIEW

THE MILLENNIAL GENERATION

One commonly used definition of millennials, i.e., the Net Generation, are those who were born between 1982 and 2002 (Worley, 2011). As of 2017, the majority of university students are considered millennials. They grew up surrounded by technology, though they usually only used limited ranges of technologies in “communication, recreation, information, production, and transaction” (So et al., 2012, p. 1238). In fact, technology molds the ways how the Net Generation act (Wilson & Bolliger, 2013). Worley (2011) summarized the characteristics of the Net Generation: technologically advanced, able to multi-task, impatient, and extremely social.

As reported by Ericsson (2016), the number of smartphone subscriptions worldwide in 2015 was 3.2 billion, with a 23% growth compared with 2014, and the monthly data traffic per smartphone increased from 1 GB/month to 1.4 GB/month. Poushter (2016) also reported that countries with advanced economies would have an even higher rate of increase and also pointed out that millennials were more likely to own a smartphone for Internet access. They are the group more accustomed to handle their routines using mobile apps because their adoption of smartphones and the Internet is the highest among all age groups. Dahlstrom et al. (2015) reported that there is an increasing trend of UGs owning a laptop or a smartphone to facilitate their learning. Farley et al. (2015) further reported that 86% of the 18 to 24 age group and 91% of the 25 to 29 age group own at least one smartphone. To sum up, millennials in general are tech savvy and are familiar with smartphone usage. They are already using, or at least ready to use, their mobile devices for engaging the learning process.

MOBILE LEARNING (M-LEARNING)

To cope with this trend, many academic institutions have developed mobile learning (m-learning) services in the hope of providing a better support to the academic lives of this group of learners who are engaged with mobile technology in their daily lives. M-learning refers to the use of mobile-devices such as smartphones, PDA, SMS, and MMS in learning. This has been transiting from electronic learning (e-learning), which refers to the use of electronic devices such as personal computers and laptops to facilitate learning (Nedungadi & Raman, 2012; Traxler, 2005). Depending on whether “mobile” refers to the mobility of learners or

mobile technology, “mobile learning” can have several definitions (Hashemi et al., 2011; El-Hussein & Cronje, 2010). For example, Sharples et al. (2005) provided a broad definition of m-learning as learning outside one’s usual learning environment or learning involving the use of mobile devices. Wilson & Bolliger (2013), on the other hand, defined m-learning based on the aspects of mobility of learners and suggested that it is “any sort of learning that occurs with a mobile device, when the learner is not tethered or fixed to a predetermined location” (p. 221). Traxler (2005) has provided a hardware-focused definition of m-learning as “any educational provision where the sole or dominant technologies are handheld or palmtop devices” (p. 262).

There are also some scholars using e-learning as a reference model and use it to define m-learning. When compared to e-learning, m-learning has the distinctive characteristics of being spontaneous, private, portable, and lightweight (Traxler, 2005). Thus, Keegan (2005) suggested that m-learning is “the provision of education and training on PDAs/palmtops/handhelds, smartphones, and mobile phones” (p. 2). However, Traxler (2007) finds this definition problematic, as he is of the view that using hardware and technologies as the core of defining m-learning is “constraining, techno-centric, and tied to current technological instantiations” (p. 4).

In the past decade, some research has been conducted to investigate how students use their mobile devices for academic purposes. In general, it is observed that the percentage of mobile usage and willingness of usage are both increasing across the years. For example, Dresselhaus and Shrode (2012) reported that over 54% and 50% of UG and PG students, respectively, participated in m-learning, and 70% of their subjects were likely or very likely to use a smartphone for their academic needs, though the “cost of technology or the current state of mobile readiness in (their) library” (p. 90) is a concern. More recently, Catharine (2013) noted that even more (76%) UGs were ready to use mobile phone apps to seek academic information. This shows that millennials are ready to engage their learning with the mobile devices.

On the other hand, the EDUCAUSE Center for Analysis and Research (ECAR) studies argued that even though that use of technology in higher education is more widespread, its full potential is not being achieved (Dahlstrom et al., 2015). These technologies include courseware and Web-based training modules (Walter, 2013), as well as other learning platforms, lecture recordings, presentations, and discussion forums (Farley et al., 2015). Yet, as reported by Catharine (2013) and Dahlstrom et al. (2015), search engines (60%) and online encyclopedias (14.4%) are found to be most frequently used app for academic use.

After all, the ideas for shifting the pedagogical paradigm for m-learning is to bring benefits to learners. Prior research suggested that there are several advantages of m-learning. Wilson and Bolliger (2013) pointed out that m-learning can cause students to become “inquiry-driven learners collecting data from multiple resources,” and allow dynamic flexibility for students to “recognize and monitor growth with a subject on their own time” (p. 222). Other benefits of m-learning include the use of mobile devices can facilitate communication and because their light weight and portability overcomes space and time constraints of using (Hashemi et al., 2011), as well as providing instant access to information (Sung et al., 2016).

MOBILE DEVICE BARRIERS

However, there are still some barriers for using mobile devices in learning. First, mobile devices are usually equipped with small screens (El-Hussein & Cronje, 2010). Hashemi et al. (2011) also stated that mobile devices limit the type and amount of information being displayed, and this triggers the redesign of old text presentation (El-Hussein & Cronje, 2010). Another barrier is cost, which Wilson and Bolliger (2013) pointed out that even though the cost of mobile device has been dropping in recent years, data service plans may still be too costly for some students. There are other limitations of using mobile device in teaching, including the short battery life (Hashemi et al., 2011; Wang et

Download English Version:

<https://daneshyari.com/en/article/4938905>

Download Persian Version:

<https://daneshyari.com/article/4938905>

[Daneshyari.com](https://daneshyari.com)