UKM Teaching and Learning Congress 2011

ICT infrastructure, technical and administrative support as correlates of teachers' laptop use

Priscilla Moses[a],*, Kamariah Abu Bakar[b], Rosnaini Mahmud[b] and Su Luan Wong[b]

[a]Faculty of Educational Studies, Universiti Putra Malaysia
[b]Institute for Mathematical Research, Universiti Putra Malaysia

Abstract

The purpose of this quantitative study was to explore the facilitating conditions associated with teachers' laptop use. Questionnaires were collected from 412 teachers. This study found two of the facilitating conditions [technical ($r = .171$, $n = 412$, $p = .001$) and administrative support ($r = .213$, $n = 412$, $p <.0005$)] to have a small but definite relationship with laptop use. The relationship between ICT infrastructure ($r = .036$, $n = 412$, $p = .463$) and laptop use was insignificant. Hence, more emphasis should be given on technical and administrative support to ensure teachers' use of laptops.

Keywords: Administrative support; facilitating conditions; ICT infrastructure; laptop; technical support

1. Introduction

Realising the important feature of instructive and learning landscape through Information and Communication Technology (ICT) (Granger, Morbey, Lotherington, Owston, & Wideman, 2002), the Malaysian government has began to invest profoundly in the education system to open a wider scope of ICT and create a dynamic ICT environment for learning. In the quest to become a technological literate country, learning institutions in Malaysia are integrating ICT into the curriculum to boost the teaching-learning practices. The ICT has been found as an effective tool to improve the teaching-learning process (Bakar, Ayub, Luan, & Tarmizi, 2010; Yee, Luan, Ayub, & Mahmud, 2009; Wong, Jalil, Ayub, Bakar, & Tang, 2003). It has the ability to transform and create innovative pedagogical approaches in the instructional process (Chen, 2007; Luan, Atan, & Sabudin, 2010). Simultaneously, the MoE sought the teachers to work in the midst of the latest ICT (Pillay & Thomas, 2004) and to be sufficiently equipped in utilizing ICT for instructional purposes (Luan & Teo, 2009; Wong & Hanafi, 2007). In line with this, laptops were provided to the school teachers to incorporate ICT in their lessons (Khambari, Luan, & Ayub, 2010; Moses, Khambari, & Luan, 2008).

---

* Corresponding author. Tel.: +6-012-484 0-640; fax: +6-03-8943-5386
E-mail address: prismo6@yahoo.com

To press forward the wider utilisation of ICT in education, the Malaysian government is pursuing every endeavour to create an ongoing ICT environment for the teachers to use the laptops in the teaching-learning process. However, what are the facilitating conditions that are associated with the teachers' use of laptops? Teo, Lee, and Chai (2008) defined facilitating conditions as "factors that are present in the environment that exert an influence over a person's desire to perform a task" (p. 132). Based on the literature, it was found that ICT infrastructure, technical and administrator support can act as facilitating conditions to influence teachers' use of ICT.

1.1 ICT Infrastructure

According to Vanderlinde and van Braak (2010), ICT infrastructure measures the perceived availability and suitability of the ICT tools such as hardware, software and peripheral equipment provided in the school. In Pelgrum's (2001) study, ICT infrastructure refers to the availability of equipment, software, Internet access and other similar resources in the school. Additionally, recourses and facilities in schools are designed and enabled in the direction of supporting continuous transformation and development of various learning approaches (Anderson & van Weert, 2002).

In the year 1998, Krysa conducted a research to determine and examine regularly occurring factors that affect the implementation of the technology among the school teachers. A qualitative study among four school teachers was carried out to identify the factors. Based on the findings, it was reported by one of the teachers that the outmoded hardware limits the use of computers in instruction (Krysa, 1998). The teacher was not able to integrate technology into instruction due to the old and outdated hardware. Conversely, one of the informants stated that limited software act as one of the antecedents that prevents the use of computers as an instructional tool (Krysa, 1998).

According to Shiue (2007), teachers will perceive greater control to employ technology into instructional use when they have the necessary hardware and software resources. Cowie and Jones (2005) reported with the ICT infrastructure provided, the teachers were able to access school network, the Internet and laptop accessories (printer, digital camera, data projector, large TV screen, scanner and video camera). Hence, the educators have more prospects to utilize instructional technology when the ICT infrastructures are provided in a well manner. Past research studies have shown clearly that ICT infrastructure can be one of the factors that influence the technology use among the teachers (Cowie & Jones, 2005; Krysa, 1998; Shiue, 2007).

1.2 Technical Support

Resta (2002) defines technical support as specialised skill personnel who are able to support and assist the educators in implementing technology into instruction. Meanwhile, Dexter, Anderson, and Ronnkvist (2002) have characterized the technical support as the access, operation and troubleshooting of hardware, software and network resources. According to Frost and Sullivan (2006), technical support includes ICT facilities vendor and internal helpdesks provided within the education ministry.

Technology support has an encouraging impact on educators' own uses of ICT (Moses et al., 2008), and their integration of ICT into the teaching-learning practices as well (Dexter, Seashore, & Anderson, 2003). For this reason, it is essential to provide guidance, support and services as parts of the technology applications (Haslaman, Mumcu, & Usluel, 2008). In the integration of the ICT, technical support is needed for technology use throughout the curriculum because the lack of it may create difficulties and result in diminished support for the curriculum (Resta, 2002). At the same time, Resta (2002) also suggested giving more technical support to overcome the identified barriers.

It is evident that technical support is important to teachers. Research studies have shown that technical support has an impact in enhancing the use of laptop among teachers (Dexter et al., 2003; Resta, 2002). Therefore, technical support is required in schools to facilitate the educators to use the laptop effectively in their teaching practices.

1.3 Administrative Support

Administrative support is stated as the presence of encouraging ICT using role models, such as the principal (Baylor & Ritchie, 2002). These principals need to become proficient in the use ICT in order to provide technology leadership in administrative, instructional, and learning functions (Afshari, Bakar, Luan, Samah, & Fooi, 2008). The