ICT Implementation and Practices: Factors Influencing Students’ Pedagogical Use of ICT in Ghanaian Secondary Schools

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ABSTRACT

The purpose of this study was to investigate students’ pedagogical use of Information and Communication Technology (ICT) and the soft and hard factors that influence their use. The participants were 3380 randomly selected students from 24 public and private schools. A quantitative method was used in this study with Likert five-point scale questionnaires to collect data. The study revealed that students’ pedagogical use of ICT was low. Most students reported that they were competent in the use of smart phones for educational purposes. The study found that soft and hard factors are interrelated and play a crucial part in students’ pedagogical use of ICT. It was interesting to note that ICT competence, access to computers, and the programs students were enrolled in had impact on the results.

Keywords: ICT Competence, ICT Implementation, Pedagogical Use, Self-Efficacy, Students, Information and Communication Technologies

INTRODUCTION

The rapid growth in Information Communication and Technologies (ICT) have brought remarkable changes in the twenty-first century, as well as affected the demands of modern societies (Ainley, Enger & Searle, 2008). ICT is becoming increasingly important in our daily lives and in our educational system. For example, ICT has challenged the conventional teaching methods, transformed instructional practices and contributed to emerging new instructional methods (Tezci, 2011, Kubiatko, 2009). With its prospects, ICT has become an important component of educational reform and an integral part of school curriculum (Papanastasiou & Angeli, 2008). As stated by World Bank (2007), many governments have invested in ICT to improve its integration into education by teachers and students. In spite of all these investments, many studies have found that students do not use ICT in their learning effectively (Woreta, Kebede & Zegeye, 2013; Sarfo & Ansong-Gyimah, 2011; Tezci, 2011; Drent & Meelissen, 2008).

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There is little understanding of students’ integration of ICT into learning, and factors that affect their pedagogical use of ICT (Albirini, 2004, Chen, 2010; Wong, Teo & Russo, 2012). Ainley, Enger, and Searle (2008) indicated that thorough study is needed to understand the way ICT is used in schools. It is also important to identify factors that contribute to students’ use of ICT (Wong, Teo & Russo, 2012; Chen, 2010). Many research studies have revealed that successful integration of ICT into learning depends, to a large extent on students’ self-confidence, competence, access to computers, leadership support, values and beliefs (Irfan & Noor, 2012; Tondeur, Coopert & Newhouse, 2010; Papanastasiou & Angeli, 2008; Plomp, Anderson, Law, & Quale, 2009; Johnson, 2005). However, these studies employed small factors and few number of participants. Also, ICT and its application have been studied by many researchers; however, students’ ways of integrating ICT and factors contributing to their use of ICT have received very little attention in Ghana since it is a new emerging technology. It is clear from literature that using large number of students on different course programs who also study in different locations is necessary to deal with the missing gap. Students are the future of a country, and they are expected to use ICT in their work and in their education. Hence, we reason that it is necessary to investigate ICT usage and integration in education. This study used both hard factors such as leadership support and access (Dexter 2008; Dexter and Reidel, 2003) and soft factors such as competence and self-efficacy (van Braak, Tondeur & Valcke, 2004; Tezci, 2011) to understand their pedagogical use of ICT in learning. A literature review of these factors follow.

**ICT Competence**

Computer competence is defined as being able to handle a wide range of varying computer applications for various purposes (van Braak, Tondeur & Valcke, 2004). Several studies have been conducted on ICT skills amongst students. Teck and Lai (2011) studied ICT competencies of secondary students in Malaysia. They found that students’ ICT competencies are still low. In a related study, Irfan and Noor (2012) conducted a research on 160 students from four rural and schools in Malaysia. Their study found that students’ levels of ICT competence in basic applications and internet applications in searching and sharing information are at a moderate level, their advanced ICT application usage is at the lowest level and their use of internet applications for communications skills were at a level of proficiency.

The study also revealed no significant difference in ICT competence between male and female students. However, the study found that students in urban schools were more competent in ICT applications than those students in rural schools. Similarly, Woreta et al (2013) revealed that students from urban areas applied ICT more than those from rural areas. Also, Rafiu (2009) studied ICT knowledge of secondary school students in Nigeria. He found that students’ knowledge in ICT predicts their technological ability. Finally, Shuster and Pearl (2011) conducted a study on 643 students’ ICT competencies in United States. The result of their study found that students’ ICT competencies related to their successful use of ICT in learning. However, none of these studies explained how students use ICT in their learning. Researchers have not only studied computer competence towards the use of ICT, but they have also studied computer self-efficacy in which ICT integration may occur.

**Computer Self-Efficacy**

Self-efficacy is defined as a belief in one’s own abilities to perform an action or activity necessary to achieve a goal or task (Wong et al, 2012). Self-efficacy can be considered as the confidence that an individual has in one’s ability to do things that one strives to do.

Self-efficacy affects students’ choices of processing learning activities, how much effort they will devote, and how long they will sustain effort in dealing with difficult situations (Klassen, 2002, cited in Liang & Tsai,
Critical Elements in Effective Teaching in the New Millennium
www.igi-global.com/chapter/critical-elements-effective-teaching-new/12149?camid=4v1a

Assessing Online Learning Pedagogically and Andragogically
www.igi-global.com/chapter/assessing-online-learning-pedagogically-andragogically/55158?camid=4v1a