

Factors that could affect the adoption of e-learning by students in Papua New Guinea educational institutions

Martin Daniel

Abstract

Educational institutions around the world are using e-learning platforms to improve their teaching and learning activities, a development made possible by the rapid expansion of information and communication technologies. These institutions are using learning management systems such as Moodle and Blackboard. They provide features such as resources and activities to design and implement online courses. Successfully adopting e-learning depends on addressing various factors. This paper discusses some of the factors that could affect the adoption of e-learning by students in institutions in Papua New Guinea. The paper also argues that these factors need to be properly addressed to facilitate further adoption and development.

Keywords: academic ability, academic background, attitudes, Blackboard, courses, developing countries, Divine Word University, educational institutions, e-learning, independent learners, information and communication technology, infrastructure, knowledge and skills, learners, learning management system, learning styles, lifelong learners, Moodle, Papua New Guinea, personal characteristics, self-directed learners, students, training and support, units.

Introduction

The rapid expansion of information and communication technologies (ICT) has provided a range of tools that could be

used to improve teaching and learning activities in educational institutions, providing improved learning experiences for students. A learning management system (LMS) is normally used as an e-learning platform to deliver courses (units) electronically, either using fully online or blended modes (Daniel, 2019). An LMS usually provides resources, activities and blocks to design and implement online courses (Daniel, 2013). An activity “is something that a student will do that interacts with other students and or the teacher” such as assignments and forums (Moodle, 2019a, para. 1). “A resource is an item that a teacher can use to support learning, such as a file or link. Moodle supports a range of resource types which teachers can add to their courses” (Moodle, 2019b, para. 1).

E-learning can be defined as the use of technology to improve and facilitate teaching and learning processes (Daniel, 2019; Oye, Iahad, Madar, & Rahim, 2012; Smart & Cappel, 2006). Divine Word University (DWU) has been employing e-learning through the adoption of the Moodle (Modular Object-Oriented Dynamic Learning Environment) (Daniel, 2019). Some units are offered fully online while others are offered using the blended mode with face to face classes.

This paper will discuss some of the factors (as identified in literature) that could affect the adoption (use) of e-learning by students in educational institutions in Papua New Guinea (PNG). The paper will argue that these factors need to be properly addressed for further adoption. These factors (Figure 1) will now be discussed, beginning with learning styles.

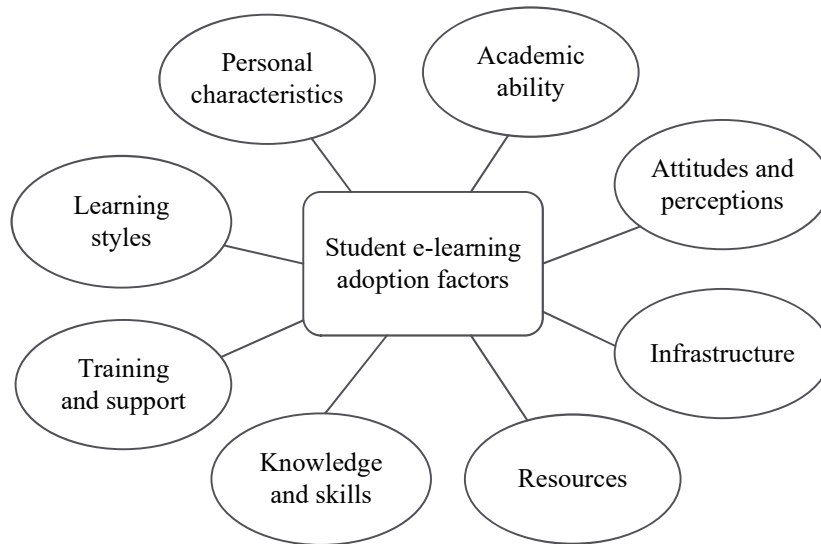


Figure 1: Factors that could affect e-learning adoption by students in PNG institutions

Learning styles

Learning styles are methods that learners (students) use to learn. Styles that are commonly used include visual, verbal, physical, logical, social, and solitary (Learning-styles-online, 2014). Different learners use various learning styles that best suit their learning environments. Some prefer particular style(s) while others a mixture of styles. Others may choose to use different styles as appropriate in different situations. Those who prefer the visual style use sound and music while verbal styles prefer texts or words. Others, who prefer the physical style, learn by using parts of their bodies such as hands. Logical learners learn best by using logic and reasoning while social learners learn through interacting with people. Solitary learners prefer to learn by working on their own. Different learning styles can affect the adoption of e-learning (Alkharang, 2014).

Personal characteristics

Students' characteristics such as whether the individual was a mature student on entry can influence the way they learn (Rodgers, 2008). Age could also have an impact on adoption as older learners may be slower than younger students. Further, most e-learning platforms are designed by Westerners and may have been more tailored towards the styles of Western learners. Similarly, resources designed by Western academics usually tend to be more suited to the styles of students from developed countries than students from developing countries (Rodgers, 2008, p. 152). Thus, students, especially from developing countries, may receive minimal benefit from e-learning technologies and resources because these may have not been tailored to their particular needs.

Academic ability

Academic ability can influence the way students use e-learning tools (Kanwal & Rehman, 2017). "Students enter institutions with varying levels of academic background" (Rodgers, 2008, p. 145). Some learn faster while others need longer periods to master the skills being taught. Students also enter institutions with varying levels of experience and exposure to technologies. Those who have some experiences would be more eager or quicker to learn or use e-learning than those with limited or no knowledge of these technologies. This could hinder their start or progress if they are not supported well by those institutions.

Attitudes

Attitudes (perceptions) about e-learning can affect the way students embrace its use and application in learning environments (Kanwal & Rehman, 2017; Mohammad, 2012). Such perception can have a significant effect on students' interaction with e-learning platforms (Alkharang, 2014; Oye et al., 2012). This suggests that whatever perceptions students have about e-learning

can influence their willingness to interact with technology. Students' attitudes towards the use of e-learning can influence their intentions to adopt e-learning platforms. Having positive attitudes can lead to students' willingness to learn and use e-learning to their advantage. This can have a significant impact on their learning experiences and academic performance.

Infrastructure

Having a reliable infrastructure is necessary when institutions decide to adopt e-learning (Afshari, Kenayathulla, Idris, Ibrahim, & Razak, 2013; Kanwal & Rehman, 2017). They need to invest in such an infrastructure to adequately support e-learning platforms (Alkharang, 2014; Ansong, Lovia Boateng, & Boateng, 2017). Students need to have access to technology and the Internet. "The infrastructure includes necessary hardware (e.g. computers), software (e.g. database management systems) and computer networks with a robust data centre...[and] reliable access to electricity" (Daniel, 2019, p. 19). It also includes how well technology is tailored to the best teaching and learning practices (Ansong et al., 2017). If such an infrastructure is not provided, then it would be difficult to use e-learning and its benefits would be minimal.

Resources

Having access to financial and technological (e.g. laptops, mobile phones or tablets) resources affects the adoption of technology (Ansong et al., 2017; Daniel, 2019). Financial resources may be required to purchase or have access to technological resources (Afshari et al., 2013). Financial resources may also be required to connect to the Internet through a mobile network. For example, students may need to purchase data plans to access the Internet when needed to access e-learning sites of the institution.

Knowledge and skills

Investment on infrastructure alone will not be beneficial if students are unable to adopt e-learning. Staff must know how to use the technology to deliver courses and be able to use it effectively to gain maximum benefit (Daniel, 2019; Singh, O'Donoghue, & Worton, 2005). Inadequately trained students "...using e-learning in educational environments can become an obstacle in a finely balanced learning process and can lead to problems in [their] use and in the negative perception of students' on the use of e-learning courses" (Singh et al., 2005, p. 18). Students also need to know why and how to use technology and the benefits to be gained from using such technology (Alkharang, 2014; Kanwal & Rehman, 2017). They need the required knowledge and skills to use technology to improve their learning experiences and academic performance.

Training and support

Training and support is a necessary component of employing any technological product (Alkharang, 2014; Kanwal & Rehman, 2017). Appropriate training provides the essential skills and knowledge on how to use particular technologies. E-learning would become useable if the students also are properly trained. Institutions that use e-learning must provide the necessary training so students can effectively use it to gain from expected benefits (Daniel, 2019; Singh et al., 2005). Further, ongoing support on the use of e-learning is vital for the maintenance and effective use of technologies employed by the institutions.

Discussion

Research studies have been conducted on issues relating to e-learning (Afshari et al., 2013; Alkharang, 2014; Ansong et al., 2017; Daniel, 2013, 2014, 2019; Kanwal & Rehman, 2017; Mohammad, 2012; Oye et al., 2012; Rodgers, 2008). Some have focused on the adoption of e-learning by educational institutions

(Daniel, 2019; Mohammad, 2012; Rodgers, 2008; Singh et al., 2005) while others on the adoption by students (Alkharang, 2014; Oye et al., 2012).

The factors discussed above could affect the adoption of e-learning by students in PNG institutions. These factors need to be addressed for effective implementation and use when PNG institutions decide to adopt e-learning to deliver their programs and courses.

Being competent with the use of technology to deliver a course and its use as a tool for learning has the potential to greatly improve learning. However, students' various learning styles need to be considered when using e-learning platforms during the design of courses so that all students' needs are met, leading to the gain of expected benefits. The different features provided by an LMS could be used to meet the different learning styles. For example, a forum could be used to enable students to interact asynchronously by discussing a particular topic and learn from each other (Figure 2). Forums could be useful for social learners while videos could be used to meet the needs of visual learners.

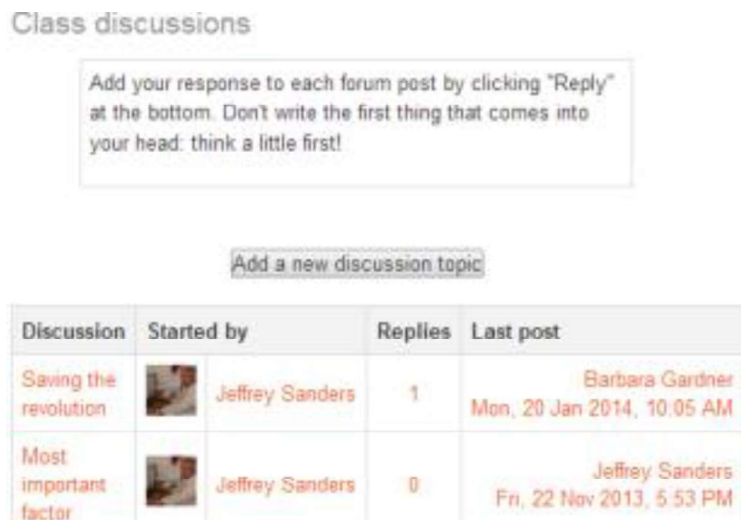


Figure 2: Student view of a standard forum (Moodle, 2020).

Caution also needs to prevail when using such platforms designed for Western learners as this may hinder learning in institutions in developing countries like PNG. When institutions decide to use an e-learning platform, they need to ensure that the courses are designed and adapted to suit students' learning levels and, in particular, PNG institutions' learning environments. Further, students' characteristics (e.g. age), experiences and academic abilities also need to be considered in the design of courses to be offered through the use of e-learning so that the needs of different learners are met. Older students or those with limited experiences and abilities may take longer to adapt to e-learning than younger students, requiring more support to be given to the former. Thus, an appropriate level of support is provided to ensure all students benefit from the use of e-learning.

While e-learning platforms provide useful tools to support learning, they could also become a hindrance if the appropriate infrastructure is not in place to support e-learning use and students are not trained well to use them. The availability of infrastructure and students' competencies can influence their willingness to use e-learning. If these are absent or minimal then e-learning may have inadequate support and course delivery can be ineffective. For example, students would be unable to participate in their courses whenever network failure and disruption are experienced. These could cause frustrations and negative impacts on students' attitudes towards e-learning. When such issues are minimized e-learning can have the potential to become an effective tool to foster learning. Therefore, to take maximum advantage, PNG students need to be assisted in terms of training and support on how to use e-learning tools so that they can utilize them to the maximum where possible.

Students also need to have access to financial and technological resources. Some students may be able to have access while others not, due to the digital divide faced in many developing countries.

The institutions need to provide the necessary technological resources to enable students to have access to computers and the Internet to access learning resources from the e-learning system.

Since students' perceptions of e-learning can have an effect on their interaction with an e-learning platform, it is essential to have positive attitudes and understanding of e-learning. One way to do this would be to provide appropriate infrastructure, training, support and awareness of the use and benefits of e-learning, and how challenges can be overcome. To ensure that e-learning is utilized to the maximum, awareness needs to be conducted for all students to support successful adoption. Negative attitudes towards e-learning from those who do not know its benefits and are not competent with usage can hinder the progress of adoption. When adopted successfully, e-learning can have the potential to improve learning experiences and overall academic performance of PNG students. They would develop a wide range of knowledge and skills, develop positive attitudes and manage their learning thus becoming independent and self-directed learners. These would enable them to take online courses for their professional development in the future while they work at the same time. This discussion now leads to the conclusion of the paper.

Conclusion

The advancement of technology is changing the way institutions facilitate their teaching and learning activities with the increasing adoption of e-learning systems to deliver courses, either using fully online or blended modes. Such adoption depends on various factors. This paper discussed some of the factors such as learning styles, personal characteristics, academic ability, attitudes, infrastructure, resources, knowledge and skills, training and support, which could affect the adoption of e-learning by students in PNG institutions. The paper also argued that these factors need to be properly addressed so that students can successfully adopt e-learning to improve their learning experiences, develop

knowledge and skills, and manage their learning, which would enable them to become independent, self-directed and lifelong learners, now and in the future.

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Future paper

This paper can be extended by discussing other factors, which are not presented here.

Author

Martin Daniel (PhD) is the Dean of the Faculty of Business & Informatics at the Divine Word University in PNG. He holds a Bachelor's degree in Information Technology from the University of Queensland in Australia, a Master's degree in Information Technology from the Queensland University of Technology in Australia and a Doctor of Philosophy from the Divine Word University. His interests include researching issues related to the adoption of technologies such as e-learning and e-government and modelling technological developments in PNG. Email: mdaniel@dwu.ac.pg and mdmartindaniel@gmail.com.