
Factors that impact upon the use of e-learning

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Abstract

Many universities and higher educational institutions in different parts of the world are embracing the use of e-learning technologies to support and facilitate their teaching and learning activities, a development made possible by the rapid expansion of Internet technologies. These institutions are using various kinds of learning management system to enable e-learning. Divine Word University (DWU) in Papua New Guinea (PNG) uses the Moodle e-learning platform. When used effectively, e-learning can support and enhance the teaching and learning processes within the universities.

Keywords: course management system, learning management system, virtual learning environment, e-learning, Moodle, course, unit, platform, pedagogy

Introduction

The rapid expansion of Internet technologies has provided a range of learning management systems that can support teaching and learning activities through e-learning in educational and training institutions around the world. A web-based learning tool known as Course Management System (CMS) or Learning Management System (LMS) is generally used to deliver e-learning courses' (Daniel, 2013). One of the definitions of e-learning is 'the use of information and communication technology (ICT) to enhance and facilitate teaching and learning' (Iahad, et al., 2012, p. 121). This is defined as 'instruction delivered electronically via the Internet, Intranets, or multimedia platforms' (Smart & Cappel, 2006, p. 201). Both definitions are used to refer to e-learning in this paper.

It should be stressed here that e-learning can be used to deliver courses entirely online but the value of this mode of education delivery, is currently being questioned (Anderson, 2013). On the other hand, Divine Word University (DWU) is embracing the use of e-learning technology through the adoption of the Moodle platform to support and improve teaching and learning activities (Daniel, 2013). The purpose of this paper is to discuss the factors that impact on the use of e-learning and how universities in Papua New Guinea (PNG) can explore and possibly adopt the use of e-learning as an alternative for education course delivery or as complementary to face to face teaching.

Review

Research studies have been conducted on issues relating to e-learning in many parts of the world. Some studies have focused on the impacts of e-learning on students' academic performance, skills development and self-direction and management skills (Mohammad, 2012, Rodgers, 2008, Singh, et al., 2005). It has been found that with e-learning students are able to improve their grades and overall academic performance. Students have also been able to develop a wide range of ICT skills through the interaction of e-learning programs. They have also been able to manage and direct their own self learning and become independent learners (Mohammad, 2012, Rodgers, 2008, & Singh, et al., 2005).

Studies have also identified negative effects of e-learning. Students are unable to participate in their learning programs whenever network failure and disruption in learning environments are experienced (Singh, et al., 2005). These can cause frustrations and may have a negative impact on the students' academic performance. However when these issues are minimized e-learning can be an effective tool for teaching and learning.

Studies by Rodgers (2008), Singh, et al., (2005) and Iahad, et al. (2012) found that factors that influence educators to successfully adopt, adapt and use e-learning programs in their learning institutions are influenced by their gender and ethnic origin, academic ability, training and support, infrastructure and technological knowledge, and positive perceptions and attitudes towards e-learning. This paper focuses on the factors that influence the use of e-learning programs.

Learning styles

Different learners use various learning styles (methods) that best suit their own learning environments for learning and are effective in their particular environments (Rodgers, 2008). Some prefer particular learning styles over others while others prefer to use a mixture of learning styles. Others may choose to use different learning styles in different situations which may be more appropriate in a particular circumstance.

Learning styles are methods that learners use to learn. Learning styles that are commonly used for learning include visual, verbal, physical, logical, social, and solitary (Learning-styles-online, 2014). Those who prefer the visual learning style opt to use sound and music and verbal styles to learn through texts or words. Others, who prefer the physical style of learning, learn by using parts of their bodies such as their hands and senses to learn. Logical learners learn best by using logic and reasoning learning styles while social learners learn through interacting with individuals or groups of people. Solitary learners prefer to learn by working on their own.

Personal characteristics

Learners' various experiences, personalities and characteristics influence the way they learn. As Rodgers (2008, p. 145) stated, 'gender, ethnic origin, home or overseas student and if the individual was a mature student on entry', these characteristics will influence the style of learning they choose to use for learning.

Rodger's study (2008, p. 151) shows that 'overseas students benefit less from e-learning material than their home student counterparts'. This is because most e-learning packages are designed by Westerners and are more tailored towards the learning styles of Western learners. Similarly, teaching and learning resources designed by Western academic also tends to be more 'suited to the learning styles of Western students rather than those of overseas students' (Rogers, 2008, p152). Consequently, overseas students, especially students from developing countries receive minimal benefit from e-learning technologies and course resources because they are not tailored to their particular needs.

There are significant gender-based personal differences found among students. Research studies 'found that, after controlling for other factors, female students benefited less from e-learning than did their male counterparts' (Rodgers, 2008, p. 153) which may be because male students interacted more with e-learning than female students. The other reason is that they also have different learning styles. An e-learning package designed by a male may be more tailored towards the teaching and learning styles of males and so male students will interact with it more easily than females. Hence, there will be a negative effect for females if the learning course was designed by a male lecturer (Rodgers, 2008).

Academic ability

Academic ability also influences the way students use e-learning tools to support their learning. Students enter universities and higher educational institutions with varying levels of academic background (Rodgers, 2008, p. 145). Some maybe fast learners while others need longer time spans in order to master skills being taught or learned. Some will know and understand the value of education while others may not be serious about getting an education. Students also enter tertiary institutions with varying levels of experience and exposure to computing technologies. Those who have some form of computer experience will be more eager to use e-learning as a tool for learning than those with limited or no knowledge of it. This can hinder their progress in learning if they are not supported well by the learning institutions especially if the learning institutions use e-learning packages as teaching tools.

Infrastructure and technological knowledge

E-learning programs can support teaching and learning effectively if appropriate infrastructures are in place. When higher learning institutions make

the decision to use e-learning to support delivery of courses then they must invest in appropriate infrastructure that will support e-learning programs adequately. If appropriate infrastructures are absent, then the benefits of e-learning programs to support teaching and learning may be minimal.

In addition, staff and students must be trained well in order to use e-learning programs for maximum benefits. Investment on infrastructure alone will not be beneficial to both students and lecturers if they are unable to use them, therefore training and workshops on how to use the programs is a vital component of e-learning developments. Students and lecturers must know how to use the technological infrastructure to delivery e-learning courses and be able to use the e-learning package employed by the institution effectively in order to gain maximum benefit from this mode of education delivery. If students do not possess the necessary ICT skills, they will not be able to use the technology to support their learning effectively (Singh, et al., 2005). Additionally as Singh cautioned 'inadequately trained lecturers using e-learning in educational environments can become an obstacle in a finely balanced learning process and can lead to problems in application use and in the negative perception of students' on the use of e-learning courses (Singh, et al., 2005, p. 18).

Also, lecturers must be sufficiently competent in using e-learning technologies in order to deliver courses effectively using e-learning packages. If lecturers are unable to facilitate e-learning competently then e-learning may not be an effective tool as it should be for course delivery (Singh, et al., 2005, p. 18).

Training and support

Training is also an important component of employing any technological product. Appropriate training provides the essential skills and knowledge on how to use particular technologies to delivery courses. Any learning or teaching package is not useable if the users are not trained to use it for its designed purpose. Institutions that have and will embark on embracing the use of e-learning technologies must provide the necessary training to staff and students so that they can effectively use e-learning technologies to gain maximum benefits (Singh, et al., 2005). Furthermore, ongoing support on the use of technology for teaching and learning is vital for the maintenance of effective use of technologies employed by learning institutions (Singh, et al., 2005).

Commitment

Commitment is vital in implementing technologies that support teaching and learning. Additionally, staff and student cooperation and team support will strengthen the successful implementation of e-learning technologies. It has to be stressed that institutions that choose to employ e-learning as a tool to support teaching and learning must implement e-learning technologies and staff and students training as part of the organisational strategy to achieve this goal (Singh, et al., 2005, p. 16). Whole institutional implementation of e-learning

packages will secure support and financial commitment from the institutions' administration. Commitment, cooperation and support from all who will interact with and support the application of this particular technology must be established within the institution to facilitate successful implementation of this package. Commitment from all can be secured when appropriate skills have been mastered in order to use and facilitate effective use of e-learning technologies (Singh, et al., 2005).

Perceptions and attitudes

Various perceptions and attitudes on the use of technology for teaching and learning influence the way users embrace its use and application in learning environments. Iahad and his team's study on the use of e-learning technology for teaching and learning showed users' perception of this mode of teaching and learning had a significant effect on students' interaction with the e-learning package (Iahad, et al., 2012). This suggests that whatever perceptions users have on the use of e-learning courses will influence their willingness or unwillingness to interact with them. As stated by Iahad, et al. (2012), students' attitudes towards the use of e-learning influences their behavioral intentions to use e-learning packages to learn. This suggests that, if students have positive attitudes towards the use of e-learning then they will be willing to learn and use e-learning to their advantage. As Iahad, et al. (2012) found, e-learning can have a significant positive impact on students' academic performance. This suggests that an increased use of e-learning technologies can improve students' learning.

Discussion

This paper is intended to encourage PNG university students and staff to consider the use of e-learning technology to support their teaching and learning activities. It also aims to present to the academic community in PNG the advantages of e-learning and how e-learning technology can be used to strengthen the delivery of courses and support for students' learning.

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 teaching and learning at university level. However, as cautioned by Singh, et al (2005) students have different learning styles. Therefore it is essential that students' various learning styles are embedded into the teaching and learning packages during the design of e-learning courses so that all students can receive maximum benefit from them.

The availability of technological infrastructure and students' and staff's competency in their use can create willingness of staff and students to use e-learning technologies. If these are absent or minimal then e-learning will not be supported well. Consequently course delivery will not be effective. Therefore, in order to take maximum advantage of e-learning packages, students and staff must be supported well in terms of training on how to use e-learning tools so that they can utilize them to the maximum where possible. Training must be

provided to all users so that maximum benefits in using this tool are gained by both students and teachers.

Conclusion

This paper explored the use of e-learning to support teaching and learning at tertiary institutions. While e-learning packages are useful tools to support education delivery at this level of education, they can also hinder teaching and learning if the appropriate infrastructure is not in place to support the use of this technology and if staff and students are not trained well to use the e-learning packages. Caution must also prevail when using e-learning packages designed for western learners and lecturers as this may hinder teaching and learning in learning institutions in developing countries like PNG. When learning institutions in PNG make the decision to use e-learning packages to support teaching and learning for the delivery of courses, they have to ensure that the e-learning packages are designed and adapted to suit students' learning levels and in particular PNG institutions' learning environments in order to create maximum benefit from them.

Also to ensure that the e-learning technologies are utilized to the maximum, awareness must be conducted for all users to gain financial and other forms of support for the implementation of e-learning technologies. Negative attitudes towards the use of e-learning technologies from those who do not know their benefits and are not competent users of these technologies can hinder progress of e-learning development in any learning institution because they may not support their implementation or use them to support teaching and learning. Support from all users is vital for the successful implementation of e-learning technologies in any learning institution.

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