STUDENTS PERSPECTIVE REGARDING USEFULNESS OF E-LEARNING IN A SOUTH AFRICAN UNIVERSITY OF TECHNOLOGY

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ABSTRACT

Several studies have been conducted in relation to electronic learning (e-learning) in higher education and many have noted its usefulness over recent decades. However, only a few have investigated the use of e-learning and whether or not it satisfies its users. Therefore, the purpose of this study is to investigate the importance of e-learning to student achievement in higher education institutions, using the Durban University of Technology as a case study. A mixed methods approach was used to collect and analyse primary data from 406 students of the Durban University of Technology, with data drawn from questionnaires personally dispersed to respondents and followed up telephonically. The results illustrated in this paper indicate that even though the majority of students are aware of e-learning and make use of it, some still show reluctance, which is a challenge. Thus, it is recommended that the Durban University of Technology should consider conducting workshops to educate students on the importance of e-learning and its power, when used accordingly and continuously. For this reason, it is further advocated that every academic staff member should do their part in ensuring the student online Learning Management System, currently offered via Blackboard and soon through TLZ Moodle, on the Think Learn Zone platform of the DUT, is engaged with at all levels, as its success has been shown to positively impact the academic progress of students at Higher Education Institutes.

Keywords: Student Perspective, Online Learning Management System, E-Learning, South African University of Technology.

INTRODUCTION

In South Africa, as in many developing countries, e-learning has become a critical part of the national effort to enhance higher education quality. As stated by Islam et al. (2015), E-learning has become a necessity in higher education institutions (HEIs) and is being deployed in educational establishments throughout the world, through online Learning Management Systems (LMS). Macharia & Pelser (2014) view the internet as a perfect tool for learning that offers students expediency and flexibility, while at the same time, contributing endless innovative opportunities in teaching. Technology's impact in general on teaching and learning, according to Guri-Rosenblit (2018), and in particular on higher education, is still not clear and open to much research and debate. It is even argued by some that students ought to be at the center of decision-making at university, including pedagogy and curriculum design, while they should also be seen as knowledge creators (Alexander et al., 2017). Nevertheless, a disconnect is evident between the manner in which students interact with and experience technology in their social and personal

lives and how technology is used in their student roles. On the one hand, many young students use new technologies for various purposes, such as downloading music files, chatting with friends, playing complex video games and even preparing PowerPoint presentations, as explained by Wineburg et al. (2016), nonetheless, most do not know how, or are not willing to study extensively through electronic media. On the other hand, Ngampornchai & Adams (2016) believe students perceive e-learning in a positive manner, based on extensive student use of mobile technologies, with social media use experience; while not being familiar with other collaborative e-learning tools.

Aim

This paper's aim is to present findings regarding a study that investigated student perceptions on the importance of using e-learning in their studies at the Durban University of Technology (DUT).

Objectives

In order to achieve this aim, the following objectives were set:

1. To understand the impact of e-learning on students' performance at the DUT;
2. To identify the advantages and disadvantages of e-learning use by students of the DUT; and
3. To ascertain lecturers' perspectives on strategies that could be utilized to promote e-learning in higher education institutions (HEIs), with specific reference to DUT.

LITERATURE REVIEW

Due to the rapid growth of internet technology, as indicated by Kattoua et al. (2016), universities around the world are investing heavily in student online Learning Management Systems (LMS), which facilitate e-learning, in support of traditional teaching methods and approaches and to improve the student learning experience and performance. However, Kattoua et al. further advice that an e-learning system's success depends on fully comprehending specific antecedent factors that affect the level of acceptance by students and their use of said e-learning systems. A recent study conducted by Nortvig et al. (2018), found more and more impact by e-learning on higher education, more so in the blended learning format, with many ways in which this new type of traditional learning and teaching can be practiced.

The roles of academics and the wider literature on e-learning identify a commonly felt range of difficulties across HEIs, which could impact the perceptions of academics and their confident adoption of e-learning, in a negative way (Martins & Nunes, 2016). Sources of resistance by academics usually comprise: having to deal with increased teaching demands that are process-related; making extended provisions in finding the middle ground between learning and teaching activities; coping with flow of content that is overwhelming, student questions and answers; and an increased demand for improved cognitive learning and closeness enabled by instructor proximity mechanisms (Nagel & Kotze, 2010).

The Impact of E-Learning Technologies on Academics and Their Classroom Practice

To better understand how e-learning technologies affect student learning in a classroom setting, as stated by Garrison (2011), an examination is needed of the manner in which they might impact their institutions, lecturers, and classroom practice. A study conducted in various

countries, including Africa (South Africa, Ghana and Rwanda) and the UK, by Haddad & Draxler (2002), established the two key motivators in the use of Information and Communications Technology (ICT) by academics in their classrooms. Lecturers firstly perceive that their students benefit from the lecturers' own use of computers, while secondly, academics are of the opinion that using computers will benefit students themselves. In connection with on-site courses, Liaw (2008) maintains the best advantage in the use of such technology, lies in its ability to increase flexibility, by means of resources that allow facilitation of anytime and anywhere learning by academics. Nonetheless, this technology's basic nature, as explained by Liaw, is as enabler of possibilities for both academics and students, as opposed to a resource that is ready-to-use, which is quite challenging in most cases.

Educational Impacts of E-Learning

Several authors, such as Elkaseh et al. (2016), found the internet's impact on all levels of higher education has in recent years captured the attention of both students and academics. In some countries, as Carvalho et al. (2011) pointed out, initiatives introduced from primary school to higher education that involve ICT use in education, have received strong government support. They further recommended acquisition of desktop computers and laptops for students and academics, with secured broadband connections in all public places and favourable conditions. Research is on the increase as to whether and to what extent ICT-based methods are efficient for improvement of "*generic as well as content skills among the future workforce*", as explained by Sarikhani et al. (2016). In addition, Gorbi (2013) finds potential in ICT use for the prospect of determining new ways of doing things, therefore fostering creativity in learning, with ICT having been found to be linked to creativity.

Sarikhani et al. (2016) state that the following ICT programme goals for HEIs were reported: preparing students for the future; improving student achievement; promoting active learning strategies; and individualising student learning experiences; as well as encouraging more project-based and co-operative learning; affording students access to practice and drill exercises; and making the learning process more engaging and interesting.

Advantages of e-Learning in Higher Education

Many advantages were identified by Callan & Bowman (2010); Garrison (2011) for e-learning technologies in HEIs, as discussed in Table 1.

TABLE 1
ADVANTAGES OF E-LEARNING TECHNOLOGIES IN HIGHER EDUCATION

Less expensive to deliver, affordable and saves time
Flexibility in terms of availability-anytime, anywhere. In other words, e-learning enables the student access to materials at any time and from anywhere
Access to global materials and resources that meet the student knowledge and interest level
Self-pacing reduces stress for slow or quick learners while increasing retention and satisfaction
More effective interaction between learners and instructors through the use of a chat room, discussion boards and emails
Learners are able to track their progress
Learners can also learn by means of several activities that apply to many different learning styles
Learners are assisted to develop knowledge of latest technology use and the Internet

Potential improved quality of teaching and learning, as e-learning supports face-to-face teaching approaches
(Callan & Bowman, 2010; Garrison, 2011)

Several authors, such as Holmes & Gardner (2006); Masa'deh (2013); Kanaan & Gharaibeh (2013); Tarhini et al. (2016, determined the disadvantages of higher education use of e-learning. These are discussed in Table 2.

TABLE 2
DISADVANTAGES OF E-LEARNING IN HIGHER EDUCATION

little or no "*in-person*" contact with the faculty member
feelings of isolation
a difficult learning curve in how to navigate within the system
problems with the technology
the need for the student to be actively involved in learning
Increased lead-time required for feedback regarding assignments

Satisfaction of E-Learning

Both academics and students have, according to El-Masri & Tarhini (2015), been provided through ICT development, with a learning environment that is innovative, thus stimulating and enhancing the process of teaching and learning. In addition, many HEIs around the world are investing heavily to support their traditional learning and teaching, by equipping themselves with online LMS facilitated e-learning tools, due to the accompanying convenience, low cost and flexibility. Abu-Shanab (2014) points out that students are enabled, in using e-learning tools, such as learning systems that are web-based, to interact with their instructors, download learning content, and upload assignments in submission, while also connecting with other colleagues.

In examining undergraduate student acceptance of e-learning, Lam (2012) determined that related e-learning features for online discussion were only used by 14.8% of students. It was further determined in another study by Islam et al. (2015), that the main use by students of web-based LMS was for downloading course materials and submission of assignments. At present, the DUT online LMS is offered by means of the e-learning tools provided through Blackboard, and soon via TLZ Moodle, on the DUT Think Learn Zone platform. Furthermore, recent studies have shown implementation of an e-learning system is a process of many different factors and not only a technological solution, such as organizational and social factors, including Facilitating Conditions (FCs), along with for instance, computer efficiency, as part of individual factors (Tarhini et al., 2014). Abu-Shanab et al. (2012) emphasise the important role such factors play in the manner of development and use of the online LMS.

Student Performance

Sibanda & Donnelly (2014) state that higher education worldwide is more commonly employing learning and teaching methods driven by ICT. Taffs & Holts (2013) argued that expanded ICT use to support student learning in higher education cannot be justified when low student usage is evident and the value of e-learning resources value is under investigation. In the past 15 years, much attention has been afforded by HEIs and scholars alike for online learning

(Sibanda & Donnelly, 2014), with the success of an appropriate orientation programme for first-year students in preparation for the university environment. First-year students are, in most cases, underprepared and the most vulnerable are generally first-generation, non-traditional students from poor families (Brock, 2010).

E-learning has become a pillar of higher education success, as it enhances teaching and learning quality (Bhuasiri et al., 2012). Furthermore, a positive relationship has been shown to exist between the benefit of acquiring technology skills, engagement by the student and the desired result of learning (Chen et al., 2010). However, Chen & Jang (2010) highlighted concern expressed by educators worldwide, regarding the extensive rate of maintenance due to wear-and-tear that stems from online learning, when student preference for online learning was researched, as opposed to learning face-to-face.

Student's preference for learning face-to-face is mostly when pursuing conceptual subject matter knowledge, in contrast to their preference for online learning where self-regulated learning skills are concerned (Paechter et al., 2010). Online learning, according to Paechter et al. (2010), provides students not only with flexibility in the time and place when and where they learn, but also with the proficiency to "*apply their knowledge and meta-cognitive self-regulation strategies, such as monitoring one's learning progress*". Chen & Jang (2010) argued that mixed findings show student engagement as not only enhanced by online learning tools, but also resulting in the achievement of intended outcomes, with regards to the use of online platforms and student success.

Moreover, those students who make use of e-learning platforms are more likely to employ higher order thinking in their study methods, as part of deep learning approaches, along with reflective, as well as integrative learning, and higher gains were reported in social and personal development, general education, and practical competence. Furthermore, Chen and Jang (2010) highlight that lecture attendance may be adversely affected by students who engage in e-learning platforms, as students can easily access learning resources, such as PowerPoint slides, online.

METHODOLOGY

In an attempt to address the research objectives, the study used a mixed-methods approach to collect data from both students and lecturers in the faculty of Accounting and Informatics at the DUT. A total of 406 questionnaires were collected from students, while interviews were also conducted with lecturers who agreed to be interviewed for this research project, to strengthen student responses and determine how they contribute towards student performance. Questions required respondents to rate their degree of agreement using a 5-point Likert scale. A simple statistical analysis was executed, in order to determine the perceptions of students, with regards to the importance of e-learning in their studies. Data were analysed by using the latest version of SPSS (24.0).

The six questions below were asked to ascertain lecturers' perspective on strategies that could be utilized to promote e-learning in the HEIs, with specific reference to DUT:

1. How often do you instruct students to log on to the Think Learn Zone?
2. Do you upload everything you lecture on in class on the Think Learn Zone and how useful is that to students?
3. Are students able to communicate with you through e-learning after or before lectures or even on weekends and holidays?
4. How do you use e-learning as a tool of teaching, especially for students who do not understand in class or

who do not attend lectures?

5. Which variety of resources do you upload on the e-learning platform that can be helpful to students?
6. Do you post notes well in advance for students to read through and prepare for lectures?

Findings

TABLE 3
ARE YOU ABLE TO USE A COMPUTER AT YOUR RESIDENTIAL ADDRESS AT ANY TIME?

		Frequency	Percent	Valid Percent
Valid	No	78	19,2	19,2
	Yes but without internet access	96	23,6	23,6
	Yes but with limited internet access	109	26,8	26,8
	Yes but with slow internet access	65	16,0	16,0
	Yes but with good internet access	58	14,3	14,3
	Total	406	100,0	100,0

This question aimed to determine whether students are able to use computers at their residential address at any time. Table 3 reveals that 78 (19.2 percent) of the respondents do not use computers at all in their respective residences, whereas 96 (23.6 percent) are able to use computers at their residences. The largest proportion of 109 (26.8 percent) respondents indicated they do use computers in their residences, 65 (16.0 percent) of the respondents use computers but with slow internet access and 58 (14.3 percent) of the respondents use e-learning with good internet access. These findings reflect that most students use the internet but have limited access, which makes it difficult to do classwork.

TABLE 4
WHERE DO YOU NORMALLY ACCESS THE E-LEARNING PLATFORM?

		Frequency	Percent	Valid Percent
Valid	Always off the university campuses	62	15,3	15,3
	Usually off the campus	170	41,9	41,9
	Equally between on and off campus	113	27,8	27,8
	Always from campus	61	15,0	15,0
	Total	406	100,0	100,0

Table 4 shows the results to the question that enquired of students about the accessibility of e-learning platforms. Of the 406 respondents, 62 (15.3 percent) stated they always access e-learning on campuses, and 170 (41.9 percent) responded that they access e-learning on campus. The indication by 113 (27.8 percent) of the respondents indicated that they equally access e-learning both on and off campus, while 61 (15 percent) respondents access e-learning away from campus. The above findings were supported by Zhang et al. (2006), when they stressed that e-learning permits exploration as well as flexible learning, while also reducing the need for travel to classes.

TABLE 5
HOW OFTEN DO YOU ACCESS THE E-LEARNING PLATFORM?

		Frequency	Percent	Valid Percent
Valid	Everyday	113	27,8	27,9
	Once a week	174	42,9	43,0
	Once in a while	94	23,2	23,2
	I don't access it	24	5,9	5,9
	Total	405	99,8	100,0
Missing	System	1	0,2	
Total		406	100,0	

The results (Table 5) show that 113 (27.8 percent) of the respondents use e-learning every day, 174 (42.9 percent) use it once a week, 94 (23.2 percent) access it once in a while and only 24 (5.9 percent) of the respondents don't access it at all. The findings indicate that the majority of students accesses e-learning once a week.

TABLE 6
HOW OFTEN DO LECTURERS INSTRUCT YOU TO LOG ON TO THE THINK LEARN ZONE?

		Frequency	Percent	Valid Percent
Valid	Everyday	124	30,5	30,5
	Once a week	197	48,5	48,5
	Once in a while	57	14,0	14,0
	Never	28	6,9	6,9
	Total	406	100,0	100,0

The question answered in Table 6 aimed at obtaining student views as to how often lecturers instruct students to log on to the Blackboard. The results show that 124 (30.5 percent) of responding students are encouraged to use e-learning every day, 197(48.5 percent) students are instructed to use e-learning once a week, 57 (14.0 percent) are instructed once in a while, and 28 (6.9 percent) of the respondents stated they are never instructed to use e-learning.

TABLE 7
E-LEARNING HELPS ME CATCH UP ON THE LECTURES THAT I HAVE MISSED IN CLASS

		Frequency	Percent	Valid Percent
Valid	Strongly Agree	177	43,6	43,6
	Agree	143	35,2	35,2
	Neutral	54	13,3	13,3
	Disagree	22	5,4	5,4
	Strongly Disagree	10	2,5	2,5
	Total	406	100,0	100,0

The results illustrated (Table 7) show that 177 (43.6 percent) of the respondents believed e-learning helps them catch up on missed lectures, 143 (35.2 percent) agreed that e-learning helps them catch up on missed lectures, 54 (13.3 percent) were neutral, while 22 (5.4 percent) disagreed and 10 (2.5 percent) strongly disagreed.

TABLE 8
LECTURE NOTES AND SLIDES AVAILABLE ON E- LEARNING HELP ME REVISE AFTER LECTURES

		Frequency	Percent	Valid Percent
	Strongly Agree	110	27,1	27,1
Valid	Agree	199	49,0	49,0
	Neutral	67	16,5	16,5
	Disagree	20	4,9	4,9
	Strongly Disagree	10	2,5	2,5
	Total	406	100,0	100,0

It is indicated (Table 8) that 89 (21.9 percent) of the respondents strongly agreed that notes and slides on e-learning help them revise after lectures, 180 (44.3 percent) agreed, 83 (20.4 percent) respondents remained neutral, while 42 (10.3 percent) disagreed and 12 (3.0 percent) respondents strongly disagreed.

TABLE 9
NOTES AND OTHER MATERIALS ON E-LEARNING HELP ME UNDERSTAND LECTURES AND TOPICS THAT I FIND HARD

		Frequency	Percent	Valid Percent
Valid	Strongly Agree	104	25,6	25,6
	Agree	140	34,5	34,5
	Neutral	112	27,6	27,6
	Disagree	36	8,9	8,9
	Strongly Disagree	14	3,4	3,4
	Total	406	100,0	100,0

The results (Table 9) indicate that 104 (25.6 percent) of the respondents strongly agreed, 140 (34.5 percent) of the respondents agreed, 112 (27.6 percent) were neutral, with 36 (8.9 percent) of the respondents that disagreed and 14 (3.4 percent) that strongly disagreed that e- learning helps them understand lectures and topics they find difficult.

TABLE 10
NOTES ON E-LEARNING SERVE AS BACKUP FOR MATERIALS AND HANDOUTS THAT WERE GIVEN IN CLASS

		Frequency	Percent	Valid Percent
Valid	Strongly Agree	89	21,9	21,9
	Agree	180	44,3	44,3
	Neutral	83	20,4	20,4
	Disagree	42	10,3	10,3
	Strongly Disagree	12	3,0	3,0
	Total	406	100,0	100,0

Table 10 reveals that 89 (21.9 percent) of the respondents strongly agreed that e-learning serves as a backup for materials and handouts that were given in class, while 180 (44.3 percent) of the respondents agreed, with 83 (20.4 percent) of the respondents remaining neutral. Disagreement was indicated by 42 (10.3 percent), while 12 (3.0 percent) of the respondents strongly disagreed. The findings reveal that the least number of respondents strongly disagreed that e-learning serves as a backup for materials and handouts given in class, while a large proportion agreed.

TABLE 11
DO LECTURERS UPLOAD EVERYTHING THEY LECTURE ON IN CLASS ON THINK LEARN ZONE?

		Frequency	Percent	Valid Percent
Valid	Strongly Agree	79	19,5	19,5
	Agree	151	37,2	37,2
	Neutral	79	19,5	19,5
	Disagree	58	14,3	14,3
	Strongly Disagree	39	9,6	9,6
	Total	406	100,0	100,0

The question in Table 11 aimed determining whether lecturers do upload everything they lecture in class on Blackboard. Of the respondents, 79 (19.5 percent) strongly agreed that lecturers upload everything they lecture on in class on the Think Learn Zone, with 151 (37.2 percent) of the respondents indicating agreement, 79 (19.5 percent) were neutral, and 58 (14.3 percent) of the respondents disagreed, with 39 (9.6 percent) that strongly disagreed.

TABLE 12
E-LEARNING HELPS ME STUDY IN PLACES AND TIMES THAT ARE CONVENIENT FOR ME

		Frequency	Percent	Valid Percent
Valid	Strongly Agree	99	24,4	24,4
	Agree	163	40,1	40,1
	Neutral	85	20,9	20,9
	Disagree	42	10,3	10,3
	Strongly Disagree	17	4,2	4,2
	Total	406	100,0	100,0

The results (Table 12) reveal that 99 (24.4 percent) of the respondents strongly agreed that e-learning helps them study in places and times most convenient to them, 163 (40.1 percent) of the respondents agreed, 85 (20.9 percent) were neutral, 42 (10.3 percent) disagreed and 17 (4.2 percent) strongly disagreed. The findings show that most of the respondents feel e-learning helps them study in places and times convenient to them, enabling study anywhere and anytime they want to use e-learning.

INTERVIEW FINDINGS

How often do you Instruct Students to Log on to Think Learn Zone?

Two of the respondents stated that they instruct students to use e-learning on a daily basis. Three respondents said they only instruct students to use it once a week. One of the respondents stated that she instructs them to do so only when there is something she feels is important to learn and that was not covered in class.

Do you Upload Everything you Lecture on in Class on Think Learn Zone and How Useful is that to Students?

Five of the respondents stated that they do upload everything they lecture on in class on the e-learning platform and one of the respondents said she only uploads items she thinks are important and useful to students. Lecturers stated that it helps students tremendously because they are able to study at their own time and pace.

Is Students Able to Communicate with you Through E-Learning After or Before Lectures or Even on Weekends and Holidays?

All of the respondents stated that they do communicate with students when they have an opportunity, even during school holidays, which is a great impression, as this enhances student performance.

How do you use E-Learning as a Tool of Teaching Especially for Students Who do not Understand in Class or Who do not Attend Lectures?

One of the respondents stated that he always ensures he puts everything in its simplest form up on e-learning for students who have difficulties. Two of the respondents said they always talk to students and establish what they find difficult to understand, then make extra time to assist those students either through online conversations or by putting up more notes on the e-learning platform. Three of the respondents stated they try their utmost to upload everything on the Think Learn Zone and give of their time to explain everything during lecture times or on weekends.

Which Variety of Resources do you upload on the E-Learning Platform that can be Helpful to Students?

All respondents said they upload almost everything they lecture on, along with breakdowns that make it easier for students to understand and learn. They further stated that this technique has been a useful one and improves student performance.

Do you Post Notes Well in Advance for Students to Read Through and Prepare for Lectures?

All respondents agreed to post everything well in advance for students to study and prepare themselves well in time. They believe that doing so assists students tremendously and motivates them to attend lectures, knowing what they will learn on different days. These sentiments are supported by Tarhini et al. (2016), who report that e-learning offers academic staff course management tools for grading, tracking student interaction, and monitoring class progress.

CONCLUSIONS AND RECOMMENDATIONS

This paper used key findings in order to draw conclusions, with the results showing that even though the majority of students are aware of e-learning and make use of it, some are still left in the dark and do not use this platform at all. While there are students that feel e-learning has assisted them a great deal and has aided with improved academic progress, some are of the opinion that more needs to be done to ensure all are satisfied with the implementation and effectiveness of e-learning. The study suggests all faculties should consider conducting workshops to educate students on the importance of e-learning and its power, when used continuously and accordingly. It is, therefore, recommended that every academic has to do their part in ensuring the Think Learn Zone is a success and has a significant impact on the academic progress of students. There is a further recommendation for students to be encouraged to make daily use of this tool, in order that their academic progress could be improved. Notes and learning materials should also be posted on a daily basis, as encouragement for students to make use of e-learning. In order to maintain good usage of e-learning, it is recommended that all first year students should undergo a training or orientation phase, where they are taught about the ins and outs of a computer and how to make use of it, as many do not own or have access to this equipment. Practice would not only assist the students but additionally impact greatly on the usefulness of e-learning. All students should be encouraged to participate and make use of e-learning, as it has been proven it definitely does contribute to improved student performance. Moreover, should every student make use of this platform, they would all produce great results and there will be many students graduating in record time.

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