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Learning Technology in a Postgraduate Class in South Africa: Experiences and Learnings at the University of KwaZulu-Natal, GSBL

Pfano Mashau

University of KwaZulu-Natal, Graduate School of Business and Leadership, University Road, Westville, Durban South Africa 4000
Telephone: +27312607021/+27792359248

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ABSTRACT Information Communication Technology (ICT) is a key communication tool and modern classes have to make full use of it. The modern class experience has to be enhanced by learning technologies. This study was conducted to record student perceptions about learning technologies, focusing mostly on learning software. Critical success factors enable e-learning in developing countries. These factors are varied and include students, lecturers, the institution and the course itself. According to the Technology Acceptance Model, there is a correlation between students' use of learning technologies and their perception of technology. A sample of 68 students was used to capture perceptions and experiences relating to learning technology. These study findings suggest a change in students' perceptions of learning technology through synchronized training. Students' intrinsic motivation is important in making online learning successful, as strongly suggested by the Technology Acceptance Model.

INTRODUCTION

The use of Educational Technology (ET) worldwide is increasing rapidly and South Africa is no exception. Higher education learning has evolved and technology has been a highly important instrument, enabling learning and continual or after-class learning (Witten et al. 2016). However, many students have experienced difficulties working with academic software, mainly because they do not understand the purpose and use of a particular technology (Witten et al. 2016). Information communication and technologies (ICTs) have become the main contributors to modern society, both in and outside a classroom (Adu and Gallowa 2015; Reece and Walker 2016).

Academic systems are subject to changes and traits of change in progress have begun to show. The changes are because of the requirements of the modern economy. Laurillard (2013) states that higher education is expanding and it relies on ingenuity to overcome inadequacies. These changes are impacting educators, in that they are feeling pressurised to teach more with technology (Schornack and Beck 2016). Academic institutions have standards of quality and perceptions of image that they need to protect. The use of technology might be a step that all universities and/or higher education institutions need to take, in order that both their teaching and learning remain valuable and relevant.

Higher education institutions in South Africa are utilising software/online technologies to improve communication levels and enhance learning. However, many students are facing challenges while using these technologies. This study was conducted to assess the use of technology in a postgraduate class at the University of KwaZulu-Natal's Graduate School of Business and Leadership. These classes may not be making progress with technology as fast as they should be due to lecturer and student ICT challenges.

Literature Review

The world is changing and technology has become the centre of attention at higher education institutions (Reece and Walker 2016). As a result, teaching and learning are moving towards being extensively technology-based at many institutions. Gupta et al. (2013) reveal the importance of multimedia learning and e-learning at higher education institutions by stating that it enables rapid learning and keeps students updated. Their study suggests that students

find modern teaching with e-learning software systems an enriching experience. They are being prepared for an ever-changing world, and therefore, the institutions that are training them need to be adapting to an evolving global environment.

Critical Success Factors of E-learning

Al-Qahtani and Higgins (2013) define e-learning as different online learning and technology that enhances learning experiences. They further state that most modern content delivery by institutions is via all-electronic media including the Internet, intranets, extranets, satellite broadcasts, audio/video tapes, interactive TV and CD-ROM. Learning must evolve technologies to assist students developing an insight into the world they are living in, and thus, learning should extend beyond textbook contents (Naidoo 2016). Modern classes allow students to bring their electronic devices, such as personal computers, to class with them.

Bhuasiri et al. (2012) discuss the critical success factors of e-learning in education institutions in the developing countries. Their study asserts that e-learning is a popular mode, utilized by universities throughout the world, to deliver higher education learning materials. Institutions in developing countries face unique challenges compared to those of developed countries and need to understand what drives learners and faculties towards the e-learning system (Naidoo 2016).

According to Gay (2016) and Bhuasiri et al. (2012) there are six dimensions that categorize critical success factors of e-learning in developing countries;

1. *Learner characteristics*, the factors that bodies this dimension are computer self-efficacy, internet self-efficacy, and attitude towards e-learning;
2. *Instructor characteristics*, what makes a good instructor is; timely response, self-efficacy, technology control, focus on interaction, good attitude toward students and interaction fairness;
3. *Institution and service quality*, institutions should have computer training and program flexibility;
4. *Infrastructure quality and service*, good infrastructure allows for internet access quality, reliability, ease of use, system functionality, system interaction and system response;
5. *Course and information quality*, success factors of learning quality are course quality, relevant content and course flexibility; and
6. The last dimension is *extrinsic motivation*, which requires perceived usefulness and clear direction.

The success factors lie in different aspects, but all work towards the accomplishment of e-learning. The above reveals that learners, lecturers, institutions and their infrastructure, the course and the person's motivation all have roles to play in making e-learning possible. This demonstrates that the institution has to be ready at all levels to enable e-learning. Both the institution and lecturers must be primed to use modern technologies, because availability of technology does not mean it will be used to benefit the institution (Reece and Walker 2016).

ICT in the classroom can be destructive, even though it is an important tool of learning (Naidoo 2016). Perceived usefulness is one of the above key factors at the extrinsic motivation level. Barry et al. (2015) conducted a study on a sample of undergraduate and postgraduate psychology and business students to determine their mobile ICT use in the classroom, and the students' motivations and rationale for undertaking activities unrelated to classroom learning. This reveals that the students have to be on board and the usefulness of the technologies has to be clear. Critical success factors discussed in the paper, e-learning success depends upon the level of motivation and actual use of learning technology.

Improvement in behaviors, communications and relationships in the classroom environment are important for learning.

According to Fernández-López et al. (2013), the development of customizable and adaptable learning applications provides many benefits, as it assists in building the learning process to different cognitive, sensorial or mobility impairments. Fernández-López et al. (2013) state that a range of online activities provides learning styles that are suitable and that complement lecturers' teaching methods. The use of electronic devices and multimedia content increases students' interest in learning, and improves their attention span.

Technologies are vital for the learning evolution of higher education. Innovation, technology and knowledge are crucial to ideas and connectivity, which is what the modern classroom requires (Andersson et al. 2016; Witten et al. 2016). Technology allows students to think outside the classroom. Imbedding the use of technology in learning ensures that knowledge sharing happens continuously and enables idea exchanges. Teachers are designers of online learning activities that enhance and enable learning (McKenney et al. 2015; Naidoo 2016). While the benefits of teacher involvement in designing technology-enhanced learning are acknowledged in the literature, far less is known about shaping that involvement in order to yield those benefits.

The "what" component concerns the perception of what constitutes the technology and the "how" component concerns the perception of how the technology influences learning. The literature states that the lecturer must know what technology to employ and how to utilize it, so that students can get the full experience of technology-based learning. Some of the perceptions are considered inappropriate with regard to the "how" component and are unlikely to lead to successful integration (Chris and Peter 2002). For teachers holding these perceptions, professional development is proposed with regard to how learning technologies can be utilized to encourage enhanced learning outcomes.

Schornack and Beck (2016) state that there are teaching skills and techniques to help an educator adapt to the modern classroom. Academia has to be relevant and interesting, and thus educators should bring modern technologies to the classroom. To enable learning and ensure that students are attentive about what happens in the classroom, Schornack and Beck (2016: 28) further state that the educational process has gone through numerous movements, described by buzzwords such as "competency-based education", "student-centered education" and "constructivist curricula", all of which contest for attention. Therefore, it is important for lecturers to aggressively pursue the skills and methods required to produce designers of the complex information systems that are demanded.

Technology Acceptance Level

Lecturers face many challenges in modern classrooms, especially when using technology. Classrooms in higher education still rely on a transformative approach to teaching, where students attend lectures and earn course grades through examination (Teo and Zhou 2016). Traditional lectures are argued as being obsolete in the present day, because they do not address the learning needs of today's students (Mortensen and Nicholson 2015; Teo and Zhou 2016). Multimedia and new technologies are recommended in constructing the modern classroom and the flipped classroom can simply be described as students viewing asynchronous video lectures on their own, and then engaging in active learning during scheduled class times.

In discussing the role of teachers and lecturers as educators in the 21st century, who use ICT, Adu and Galloway (2015) state that teacher training institutions, professional development in higher education institutions and school-based institutions should all be functioning in line with new technology. Online learning technology and software influences the delivery of lessons to students in class.

Under the old system of trade skills education, instruction was delivered largely through kinesthetic learning methods. A hybrid instruction, which combines face-to-face classroom instruction with computer-based learning, is one approach to integrating technology into the classroom (Glass 2003; Teo and Zhou 2016). Although hybrid instruction allow for flexibility and gives students the opportunity to be more self-directed, it suffers in the application of kinesthetic skills to learning (Glass 2003). Modern-day technology dominates human beings' lives, thus these changes must be embedded in classroom learning, as they are part of the reality.

Hart and Laher (2015) support the important of using technology in South Africa by stating that integrating ICT into education has become a priority for the South African government. However, it is necessary to move beyond merely providing physical access to ICT in order for integration to be successful (Hart and Laher 2015). The integration of technology learning in schools is greatly influenced by teachers' attitudes towards the technology, as much as it is also influenced by students' attitudes. Having access to learning technology and the competence to use e-learning are not enough for the successful integration of technology in schools (Hart and Laher 2015).

Educational institutions should support the appropriate use of mobile phones more systematically, or any other electronics, particularly in relation to the development of mobile network literacy skills (Chipps et al. 2015). Beyond this, electronics allow students to access millions of databases that could help them understand aspects of courses or particular topics.

The most commonly used external factors of the Technology Acceptance Model (TAM) in the context of e-learning adoption are self-efficacy, subjective norms, enjoyment, computer anxiety and experience (Johari et al. 2015). Students' perceptions of e-learning has changed as a result of training and usefulness of technology (Teo and Zhou 2016). Lecturers or instructors using the Moodle platform seem to regularly obtain better grades, compared to those who rarely or never use it (Escobar-Rodriguez and Monge-Lozano 2012). The initiation of information technologies in universities has improved the teaching-learning process and students can increase their learning skills by using information technology (Escobar-Rodriguez and Monge-Lozano 2012; Persico et al. 2014). A grounding theory on technology acceptance asserts that there are causal relationships between perceived usefulness, perceived ease of use, and actual usage behavior (Persico et al. 2014).

Johari et al. (2015) state that Turnitin is an online software that allows students to review their submission, to find out their work similarity percentage from the Turnitin results. "Convenience and ease of ICT's usage in teaching and learning in higher education indeed facilitate and fascinate most students in the modern world" (Johari et al. 2015: 1). Students who use learning technology can cite their work because there is software designed to help with referencing. The use of bibliographic management software and its internal search interfaces or databases, is now universal among researchers and students (Fitzgibbons and Meert 2010; Gay 2016).

Students' perception of online learning technology can be changed. Intrinsic motivation is important in making online learning successful, as is strongly suggested by the Technology Acceptance Model.

METHODOLOGY

The Graduate School of Business and Leadership (GSBL) at the University of KwaZulu-Natal offers students a number of programs at its Westville campus in Durban. This study is based on the observation of an instructor, collected quantitative data and recent theoretical evidence. A realization of the importance of e-learning and the possession of IT skills and computer knowledge seem to be necessary enablers of learning everywhere in the world, as they are in South Africa. It is deemed crucial to investigate how students' perceptions and acceptance of learning technologies affect learning in higher education institutions. This mixed-method study utilizes data collected both through questionnaires and observation. The study makes use of qualitative and quantitative data to show that students' perceptions of learning technology at postgraduate level is low and changes need to be encouraged, to make e-learning possible. The students involved are from the UKZN, GSBL postgraduate program in Business Management, enrolled in 2015 and 2016. As with any other course at the university, its students are required to be familiar with computers and academic software, such as EndNote and Moodle, and more commonly, Microsoft Word and Microsoft Excel.

Eleven students were enrolled in the first class of economics for managers in 2015 and there were 67 registered students in 2016. Therefore, the population of this study is 78. The sample, however, is 68 students. To do analyses, data has been extracted from SPSS and presented in tables in the next section. The qualitative data from observation is written into a Microsoft Word document and the emerging topics of discussions are integrated with qualitative data.

RESULTS AND DISCUSSION

The UKZN, GSBL Postgraduate Diploma in Business Administration accommodates mostly students who are already working and all of them already have degrees. A total ninety percent of these students are 28 years and older. The observation sheets show that many of the students enrolled in the program did not have a computer during their undergraduate years and did not get to utilize the academic software as much as they had during their postgraduate year. Times have changed and while learning technologies are being used by many academics to communicate and educate, these students are not familiar with the academic software.

The university needs to increase their training to students, to ensure that they can work with this software. Perhaps an ICT module should be introduced in their first year. Excellent computer skills assist a student in compiling a good assignment. A postgraduate student is required to source information from the Internet and compile it into an assignment in MS Word format, which is then normally submitted online.

In 2015, 11 students liaised very closely with their lecturer and were taught how to use academic software. Table 1 shows the results of students' use of academic software.

The first row shows the number of students, out of the 11 enrolled in 2015, and the second row records the percentages. The assignment in 2015 shows that seven of the 11 students were doing a literature search from different databases. This is because they had library training and could interact with their lecturer more easily, due to being in a small class.

A percentage of 91.9 used other referencing tools instead of Endnote software recommended for this program. The observation notes show that the main reason was that they did not know how to use the software and eighty percent of the students did not get their referencing right. In 2015, only one student was using Endnote and none of the others were utilizing any other referencing software.

Since all students are required by universities to submit their work to Turnitin for a similarity check, lecturers encourage this process, which is why 10 out of 11 of the students did so.

Assignment formatting is still a struggle for some students. Students tend to submit work that exhibits different fonts and colors, unjustified text, varying line spacing, inadequate page numbering and disorganized tables of contents. In 2015, only eight students got the assignment formatting right.

Students know that if they do not submit their assignments, they will fail and the lecturer always engages with them regarding this practice. All students in 2015 submitted on time. Seven students successfully submitted their assignments online, students (as shown in Table 2) emailed their papers and one student physically handed in the assignment.

The course enrolment increased in 2016, with a big group of students. The approach is different in such a group and students do not have a close relationship with their lecturer. In this situation, students need formal training with learning technology to help them with their challenges. Thus, they should be able to attend a class that focuses on teaching them how to use learning technology. In a class of 67 students, only 51 submitted their assignment online. The dominant reason was *"I don't know how to submit"*. About thirty percent of the students in the 2016 class could work with MS Word properly, 22.3 percent could use Endnote and 22.3 percent were able to source data from academic journals. The observation notes reveal that students believe that if they are trained to fully utilize learning technology, they might be able to improve their writing.

UKZN students' experiences with learning technology are presented in Table 3. The data is sourced from a questionnaire that requested students to rate their experience with academic software from poor to excellent.

The total number of students registered in 2016 is 67 and 51 completed the questionnaire, which is a good return rate of 76.1 percent. Students who did not return the questionnaire were not present during the data collection. Table 3

Table 1: Use of online learning technologies 2015

	Database	*Endnote*	*MS referencing*	*Turnitin*	*MS formatting*	*Submissions online*
Count	7	1	0	10	8	7
Percentage	63.4	9.1	0	90.1	72.7	63.6

Table 2: Use of online learning technologies 2016

	Database	*Endnote*	*MS referencing*	*Turnitin*	*MS formatting*	*Submissions online*
Count	14	15	0	48	20	51
Percentages	20.9	22.3	0	71.6	29.9	71.1

Table 3: Students' experience with academic software in 2016

	No experience	*Poor*	*Fair*	*Good*	*Very good*	*Excellent*	*Total*
Moodle	1	3	10	23	12	2	51
Turnitin	6	15	6	20	2	2	51
Database	4	18	13	10	4	2	51
Endnote	8	14	10	17	0	2	51
Moodle	1.96%	5.88%	19.61%	45.10%	23.53%	3.92%	100.00%
Turnitin	11.76%	29.41%	11.76%	39.22%	3.92%	3.92%	100.00%
Database	7.84%	35.29%	25.49%	19.61%	7.84%	3.92%	100.00%
Endnote	15.69%	27.45%	19.61%	33.33%	0.00%	3.92%	100.00%

Source: Author

reveals that few students had a "very good" or "excellent" experience with the different types of software. What gives cause for concern is that many students enrolled at postgraduate level have little experience with the software. This section explains that students need to be trained to use this software, as they do not fully understand it and in some instances undermine the use of technologies to enhance learning.

The literature reveals that students' perceptions of e-learning are changing through training (Teo and Zhou 2016). A grounding theory on technology acceptance asserts that there are causal relationships between perceived usefulness, perceived ease of use and actual usage behavior (Persico et al. 2014). The results above assert that perception and training enable the successful utilization of learning technologies. When instructors make learning technology a requirement in their classes, students will, as a result, endeavor to meet this request. The study results show that many students learn to work with Moodle and Turnitin, as this is a class requirement. When they are given a choice pertaining to the use of referencing software, they tend to not spend much time perfecting its use. Students therefore accept technologies that are used every day and are part of the class process, thus some learning software is accepted more readily than others.

Fernández-López et al. (2013) state that the development of customizable and adaptable learning applications provides many benefits, as it helps build the learning process to meet different cognitive, sensorial or mobility impairments. Fernández-López et al. (2013) add that there is a range of online activities providing suitable learning styles. UKZN, GSBL utilizes software such as Moodle and Turnitin, among others.

Endnote is academic software that is utilized to manage bibliographies and reference lists, when writing essays and articles (Northeastern University n.d.). It is crucial that students learn to use this software because many postgraduate scholars still make errors with their referencing. Therefore, its correct usage will assist them with correct referencing styles. About fifteen percent of students still do not use Endnote. This is because they do not know the software and/or they can reference manually. A total of 25.5 percent of students who used Endnote in 2016 had a poor experience with it, due to their training having been too brief. It can be concluded that many students using Endnote still need to receive further training.

Moodle is an online communication software application. It is a learning platform designed to provide educators, administrators and learners with a single robust, secure and integrated system to create personalized learning environments (Moodle n.d.). Through this platform, a lecturer or administrator may post notes, videos, links, forum discussions, assignments and quizzes to students, at any time. It is an excellent ICT platform to ensure continuous communication with students. In postgraduate classes, students are instructed to visit Turnitin every day. It is of concern that some students have never used the software or are having less than a good experience with Moodle.

Turnitin is the leading originality checking and plagiarism prevention service used by millions of students and thousands of institutions worldwide (Turnitin n.d.). The University of KwaZulu-Natal requires that students send their work to Turnitin to prevent plagiarism. Many students do not like Turnitin, purely for what it is. However, if students are properly trained to work with it, they might change their percep-

tion. Many scholars (as shown in the diagram above) report to having had a less than good experience with Turnitin.

The university library has databases that provide students with full access to academic resources. These are resources that they require in order to fulfil their assignments. Thirty-five percent of students reported having had a poor experience with university databases. In their assignments, many scholars use more news articles to support their argument than academic journals. This is because their experience using databases is poor. If students read academic work, they would also be able to make cogent academic arguments.

Overall, experience with ICT software in the postgraduate class is poor. This is because students are unfamiliar with the software and are unable to learn to use it on their own. Institutions and lecturers need to be ready to use modern technologies, as availability of technology does not mean that it will be used to benefit an institution (Reece and Walker 2016). As a result, students will be motivated to accept and use learning software. Learning institutions are tasked with the responsibility to change the way students think and to motivate them to adapt to the use of technology. The technology adoption theory suggests that student perceptions about technology have to change and the means to do this is through good training. All of the above results suggest that students need to be shown, through synchronized training sessions that are part of the learning process.

One has to note the critical success factor of online learning and extrinsic motivation, because of the perceived usefulness of the software. Only through proper guidance and training will students discover the usefulness of the software and put it to full use.

Students are able to use the software that their lecturers utilize and encourage their scholars to learn to use too. Therefore, students in future need to be enrolled in a practical ICT class, where they can learn how to fully reap the benefits of learning technology. This must be achieved, because technology has become part of the learning process. Small classes are more manageable and students tend to learn more in such classes, to the extent that their lecturer would have the time and opportunity to demonstrate the use of academic software.

For a university or school to retain students and to encourage them to learn further, it needs to improve upon student experience with academic software. The business of the school, with its clients, will be ongoing only if their first experience was smooth. Thus, this study recommends the inclusion of an ICT module to a degree, in order to improve student experience. Scholars should be trained at the start of their program, to master all of the academic software. At this stage, they will need to be registered in a practical ICT class that will teach them to use technology and they will be tested on their knowledge. The introduction and intention of the software is to enhance student learning and encourage continual knowledge sharing. Every student should have good experience with ICT.

Most resources are online and almost all resources are available through the Internet. Books, articles and websites appear on online learning platforms that can be utilized by students. Therefore, in the future, all university students should be able to use learning software.

They need to be shown, through synchronized training sessions, the importance of mastering these technologies.

CONCLUSION

ICT is meant to improve student learning. It may be a process to embed ICT classes in a program. However, technology is becoming a very important element of training. Technology training sessions with students are vital to prevent scholars from failing their assignments. These sessions will assure that they obtain the full benefit of the technologies. The starting point is to change the perception that students have towards learning technologies. Normally, it is assumed that postgraduate students will easily adapt to utilizing academic software. Many, however, face their first introduction to this software and struggle with the basics. An inability to use it reduces the standard of student work.

Through data that complements the use of the Technology Acceptance Model at the university, in order to successfully implement the use of learning technology, the study discovered that there is a need for proper training and motivation on the use of these technologies. This study strongly suggests that the University of KwaZulu-Natal's Graduate School of Business and Leadership focus on improving intrin-

sic motivation in making online learning successful, as strongly advised by the Technology Acceptance Model.

REFERENCES

Adu E, Galloway G 2015. *Information and Communication Technologies (ICT) and Teacher Education Preparation in South Africa: Implications for 21st Century Classroom-based Practice.* South Africa: Faculty of Education, University of Fort Hare.

Al-Qahtani AAY, Higgins SE 2013. Effects of traditional, blended and e-learning on students' achievement in higher education. *Journal of Computer Assisted Learning*, 29: 220-234.

Andersson U, Dasí À, Mudambi R, Pedersen T 2016. Technology, innovation and knowledge: The importance of ideas and international connectivity. *Journal of World Business*, 51: 153-162.

Barry S, Murphy K, Drew S 2015. From deconstructive misalignment to constructive alignment: Exploring student uses of mobile technologies in university classrooms. *Computers & Education*, 81: 202-210.

Bhuasiri W, Xaymoungkhoun O, Zo H, Rho JJ, Ciganek AP 2012. Critical success factors for e-learning in developing countries: A comparative analysis between ICT experts and faculty. *Computers & Education*, 58: 843-855.

Chipps J, Pimmer C, Brysiewicz P, Walters F, Linxen S, Ndebele T, Gröhbiel U 2015. Using mobile phones and social media to facilitate education and support for rural-based midwives in South Africa. *Curationis*, 38: 554-881.

Chris C, Peter W 2002. Integrating learning technology into classrooms: The importance of teachers' perceptions. *Journal of Educational Technology & Society*, 5: 67-74.

Escobar-Rodriguez T, Monge-Lozano P 2012. The acceptance of Moodle technology by business administration students. *Computers & Education*, 58: 1085-1093.

Fernández-López Á, Rodríguez-Fórtiz MJ, Rodríguez-Almendros ML, Martínez-Segura MJ 2013. Mobile learning technology based on iOS devices to support students with special education needs. *Computers & Education*, 61: 77-90.

Fitzgibbons M, Meert D 2010. Are Bibliographic Management Software search interfaces reliable?: A comparison between search results obtained using database interfaces and the EndNote Online Search Function. *The Journal of Academic Librarianship*, 36: 144-150.

Gay GH 2016. An assessment of online instructor e-learning readiness before, during, and after course delivery. *Journal of Computing in Higher Education*, 28: 199-220.

Glass S 2003. The uses and applications of learning technologies in the modern classroom: Finding a common ground between kinaesthetic and theoretical delivery. *Information Analyses*, 070. 2003.

Gupta V, Chauhan DS, Dutta K 2013. Incremental development and revolutions of e-learning software systems in education sector: A case study approach. *Human-centric Computing and Information Sciences*, 3: 1-14.

Hart SA, Laher S 2015. Perceived usefulness and culture as predictors of teachers' attitudes towards educational technology in South Africa. *South African Journal of Education*, 35: 01-13.

Johari F, Alias MH, Rahman AA, Ibrahim MF 2015. The usage of "TurnItIn" as an innovative educational tool: Inculcating critical thinking in integrating Naqli and Aqli for subject of Malaysian economy. *Procedia - Social and Behavioral Sciences*, 19: 821-827.

Laurillard D 2013. *Rethinking University Teaching: A Conversational Framework for the Effective Use of Learning Technologies.* United Kingdom: Routledge.

Mckenney S, Kali Y, Markauskaite L, Voogt J 2015. Teacher design knowledge for technology enhanced learning: An ecological framework for investigating assets and needs. *Instructional Science*, 43: 181-202.

Moodle (n.d.). About Moodle. From <https://docs.moodle.org/30/en/About_Moodle> (Retrieved on 16 March 2016).

Mortensen CJ, Nicholson AM 2015. The flipped classroom stimulates greater learning and is a modern 21st century approach to teaching today's undergraduates. *Journal of Animal Science*, 93: 70-79.

Naidoo V 2016. E-learning and management education at African universities. *Management Education for Global Leadership*, 33: 755-772.

Northeastern University. (n.d.). Endnote. From <http://www.lib.neu.edu/online_research/help/citations_footnotes/endnote/documents/EndNote Overview.pdf > (Retrieved on 16 March 2016).

Persico D, Manca S, Pozzi F 2014. Adapting the technology acceptance model to evaluate the innovative potential of e-learning systems. *Computers in Human Behavior*, 30: 614-622.

Reece I, Walker S 2016. *Teaching, Training and Learning: A Practical Guide.* United Kingdom: Business Education Publishers Ltd.

Schornack GR, Beck CE 2016. Teaching with Technology in the Modern Classroom: A Learning Systems Model. *Sixth Annual Symposium on Teaching Effectiveness.* Washington, 26 May 2016.

Teo T, Zhou M 2016. The influence of teachers' conceptions of teaching and learning on their technology acceptance. *Interactive Learning Environments*, 8: 1-15.

TurnItIn. (n.d.). How Does Turnitin Work. From <https://TurnItIn.com/static/resources/documentation/TurnItIn/sales/Answers_to_Questions_ Students_Ask.pdf> (Retrieved on 17 March 2016).

Witten IH, Frank E, Hall MA, Pal C 2016. *Data Mining: Practical Machine Learning Tools and Techniques*. Massachusetts: Morgan Kaufmann.

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