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Student Teachers' Perceptions of using a Blackboard as a Tool in the Teaching and Learning Environments

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Abstract:- A 21st-century university student in this technology-dominated era needs to have higher levels of digital literacy. A University of Technology (UoT) as a contemporary university strives to ensure that its students have vast opportunities to have comprehensive digital literacy by teaching using e-learning. Despite varying opportunities afforded to students, they have different perceptions about e-learning which is deemed an important method of teaching and learning. Students are encouraged to visit the web-site in order to upload what has been placed by the lecturers. A mixed method approach was used to gather data. A sample size of fifty (50) characterised of thirty-five (35) females and fifteen (15) males, out of a population of three hundred and eighteen (318) third-year student- teachers doing third year level of training were conveniently selected to participate in the study. They were observed in an e-learning classroom for three consecutive weeks to determine how they download modules and how they place comments on the Blackboard or Blackboard as it is called at UoT. A researcher-prepared questionnaire was prepared using information gathered from observations and was thereafter administered to the participants to determine their perception about e-learning. Interviews were also conducted to get the views of the participating group and to ensure the validity and the reliability of the questionnaire. The results indicated that although e-learning seems to be tedious and boring, it is helpful because students are able to access lecturer's information at their own time and leisure. The article thus aims at proposing a framework that could encourage those students who are not into e-learning to get involved for their own benefit. Lastly, the research should be conducted with the lecturers in order to get their perceptions about this new trend of teaching and learning.

Keywords:- *E-Learning, Perceptions, Student Teachers, Modules, Information.*

I. INTRODUCTION

The advent of technology into higher education has drastically transformed the role of the teacher/lecturer and the traditional way of teaching and learning. The face to face method of communication or teaching and learning has moved towards the digital spectrum. Teachers no longer have ample time to stand in front of the classroom or lecture- rooms to impart knowledge/ content students, on the other hand, do not have the patience to listen, take notes and regurgitate what is being said by the lecturer. They are the digital geniuses and spend most of their time surfing the web, the internet. The developing information technological age has become a major test for higher education institutions. These educational institutions encounter challenges in ensuring effective teaching and learning in a rapid changing society. They are constantly adjusting to external forces, including societal and technological changes, quality standards, and financial constraints Stepanyan, Littlejohn, and Margaryan (2013).Lecturers are compelled to incorporate technology in the classroom, which is then used as productivity tools to deliver information rather as cognitive means to support learning (Juniu, 2006).

The culture of teaching and learning in universities has changed due to the digital culture and its influence in higher education where teaching and learning were the sole responsibility of the lecturer. The physical nature of the traditional classroom was limited and synchronous changed to that where e-learning is unlimited and learning could take place anywhere and anytime. Web-based teaching and training have become one of the major possibilities to distribute techniques to students than using textbook/library as a source. With the introduction of e-learning, the content became blended, student-centred, collaborative and constructivist in nature. According to Shamoail (2005) states that the move from teacher centred approach to student–centred education does not reduce the importance of the teacher in the classroom.

Allan (2007) stated that the sceneries of education and training have been changed in the past decade due to the result of dynamics such as fast development occurring in the arear of information and communication technology. She further alluded to the fact that education and training programmes are continuously changing and evolving and that the rising interest in e-learning has expanded and shifted its focus so that many practitioners are non-concerned with blended learning programmes."

According to Alhomod and Shifi (2013), the introduction of technology in education is regarded as one of the important means of meeting the needs of students, universities and the society as a whole. They further state that the main aim of e-learning and system is to improve the whole education system and to enhance the interaction between students and teachers. This is supported by Stepanyan et al (2013) by indicating that various institutions have introduced e-learning to improve cost-effectiveness and exploring ways to capitalise on emerging technological opportunities.

II. LITERATURE REVIEW

Higher institutions of learning face a number of opportunities and challenges brought about by the digital revolution. This is due to the fact that higher education institutions perform a number of scholarship functions such as teaching and research which are magnified by the availability and usage of digital technology (Weller and Anderson, 2013; Odora and Matoti, 2015). According to Stepanyan et al (2013), various institutions introduced e-learning to improve cost-effectiveness although it is uncertain that the profit is actually realised and expressed that longevity and strength remain a persistent concern for the managers of e-learning assets and system. Gunasekaran, McNeil and Shaul (2002) avers that electronic learning (e-learning) was gaining an educational grip all over the world and that the availability of electronic and Web-enabling technologies has incredible influence on the success of e-learning

According to Jacobs and Shams (2009), Blackboard is a tool that allows faculty to add resources to enable students to access information online. It can allow one to provide multiple content formats (text, images, sound, audio, animations, graphs etc.) which allow students to find material relevant to their preferred learning style. E-Learning is the delivery of information (all the activities relevant to instructing, teaching and learning) through various electronic media (Koohang and Harman 2005; Koohang et al 2009). As virtual learning environments (WebCT, Blackboard and their variants) become abundant within higher education, the need to explore the inferences of their visuality becomes urgent, Baynes (2008) and to continue to offer a range of tools to support collaboration in class (Tate 2011).

The teaching-learning environment of the Blackboard Learning System acts both as an e-education platform and as a tool for supplementing traditional face-to-face learning where the teacher is the main source of information. The *utilities* making up this environment are briefly outlined below:

A. Content Management and Content Sharing

As the name above indicates, blackboard allows the facilitator of learning to deliver the curriculum whereby the content, assignments, tasks and assessment strategies are constructively aligned and linked to each other. Such an aligned curriculum delivery strategy is informed by the different learners' learning styles and development needs. Furthermore, the learning platform allows the teacher to progressively add any new knowledge or content or tasks in line with each student's developmental needs and learning styles and expected results for each learner.

B. Assessment Manager

An additional enabling learning tool included in the blackboard platform is the assessment manager. This tool allows for assessment practices which includes any form of tests or assignments such as The Blackboard Assessment Manager allows teachers to use different types of tests irrespective of whether they are essays, multiple choice questions, or in any other form of test. Furthermore, this assessment manager allows for accessing additional files or URL website that might be located elsewhere. Simply, the teacher can assess his learners using whatever material he may need, irrespective of where it is located. It further can be used to capture the students' performance, answers to given questions and tasks in the form of results or whatever form the teacher may prefer to capture this data. The platform further allows for provision of whatever form of feedback to students either in their group or individually. In the event that there is a need for a re-test for an individual student or a group, the platform allows for that also.

C. The Gradebook and Assignment Manager

Another teaching and learning tool available on the blackboard that a teacher can use to generate tests, capture marks and student performance and generate graphs to show student performance in whatever form is the grade book and assignment manager. At a press of a button, the platform can produce student performance reports, clearly providing statistics, in the form of even percentages, depending on the form that the teacher wants to present the results in.

D. Collaboration and Communication

The platform has one other function referred to as 'collaboration and communication'. This tool provides for communication and interaction amongst the learners, whether as individuals or as a group. The teacher basically designs spaces where participants can engage amongst themselves in a virtual space through the creation of blogs or chat rooms. The system is therefore flexible enough to allow participants to engage at any time that suits them and the task at hand.

E. System Administration

In view of the enormous data being generated where the teacher may need administrative support, Blackboard has a built-in 'system administration' which captures all the students' information that the teacher may need at any given time, whether this is information pertaining to the course itself, or the overall logistical and organisational matters. Such information can be easily accessed.

III. THEORETICAL FRAMEWORK

Several learning theories such as 'social learning theory' by Bandura, 'connectives' by George Siemens and 'social constructivism' have influenced digital technology as is currently used in the different learning spaces and contexts. The 'social learning theory' by Bandura advocates that individuals learn in their spaces through direct interaction with others or by observing others. Simply, an individual's behaviour is influenced and guided by the different contextual standards unfolding in front of him as he endeavours to adjust and acclimatise to his context. A student therefore can emulate what others around him/her are doing or model a behaviour that is modelled by his teacher.

'Connectivism' on the other hand is a learning theory that advocates that learning does occur amongst participants located in different contexts and using different channels for connection and for sharing information such as blogs, emails, YouTube, etc. By implication, the theory assumes that learning can occur anywhere and anyhow, irrespective of the sources. What is vitally important according to Siemens is to be able to locate and use the different tools for connection amongst participants.

One other learning theory referred to as 'social constructivism" assumes that the social environment within which participants live and are socialised play a critical role in shaping their learning and behaviour. The use of digital technology can learn a great deal from the way students learnt to do things from their social contexts

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A. What is Social Constructivism?

Social constructivism advocates the significance of culture and background in order to understand what transpires in society and constructs knowledge based on this understanding. This view is closely connected with many existing theories, most notably the development theories of Vygotsky and Bruner and social cognitive theory of Bandura. Several learning theories such as 'social learning theory' by Bandura, 'connectives' by George Siemens and 'social constructivism' have influenced digital technology as is currently used in the different learning spaces and contexts. The 'social learning theory' by Bandura advocates that individuals learn in their spaces through direct interaction with others or by observing others. Simply, an individual's behaviour is influenced and guided by the different contextual standards unfolding in front of him as he endeavours to adjust and acclimatise to his context. A student therefore can emulate what others around him are doing or model a behaviour that is modelled by his teacher.

Like any other theory, Social Constructivism is based on specific assumptions about reality, knowledge, and learning. In order to understand and apply models of digital technologies that are embedded within the framework of social constructivism, it is important to know the principles that underlie it:

- *Reality*

Social constructivists believe that reality is constructed through human activity. Members of a society together invent the properties of the world (Kukla, 2000). For the social constructivist, reality cannot be discovered: it does not exist prior to its social invention. The members of the University of Technology (UoT) know precisely what is expected of the student teachers and direct them to the right path with regards to what they should do within a set learning environment (Coetzee et al 2008).

- *Knowledge*

To Social constructivists, knowledge is a human product and is socially constructed. One of the proponents of this theory, Len Semenovich Vygotsky's through his Zone of Proximal Development (ZPD), its underlying assumption is that psychological development and instruction ought to be socially ingrained (Maimane, 2006). Individuals create meaning through their interactions with each other and with the environment they live in (Maimane 2006).

- *Learning*

Social constructivists view learning as a social process. It does not take place only within an individual, nor is it a passive development of behaviours that are shaped by external forces (MacMahon, 1997). Meaningful learning occurs when individuals are engaged in social activities.

- *Broderick (2001:1)*

Stated that: "Instructional design is the art and science of creating an instructional environment and materials that will bring the learner from the state of not being able to accomplish certain tasks to the state of being able to accomplish those tasks." He further stated that instructional design has always relied on instructional models, namely behaviourism, cognitivism, humanism and constructivism.
Lainema (2003) state that Constructivist learning environments are technology-based environments, in which students explore, experiment, constructs, converse, and reflect on what they are doing so that they could learn from their experiences.

B. Aim of the study

The aim of this study is to explore the role of student-teachers in the use of digital technology like the Blackboard in their initial professional development. The main question to be asked is:

- *How has the use of the Blackboard as a digital technological tool transformed student-teachers' traditional approach to teaching and learning?*

To be able to answer this question the researcher asked the following questions;

- Are you given the opportunity to access information in class using digital technology?
- How often do you access the learning content posted on Blackboard?
- Do you sometimes work in a group to do some group activities at your own time and leisure?
- Since you used Blackboard, is there an improvement in your ability to work with others and on your own during your leisure time?

C. Statement of the Problem

Teaching and learning have taken a drastic change since the advent of technology in higher education. Students are far ahead in making used of technological tools in teaching and learning environment. They are regarded as being 'savvy' in using computers (Odora and Matoti 2015). They are being given the opportunity to surf the internet to look for information that is relevant to their courses. The problem is: "Are student teachers able to access learning content posted on Blackboard and are they competent enough to use the tool during their collaborative sessions and on their own?"

IV. METHODOLOGY

A. Research Design

This study focused on 3rd years B.Ed (FET) students doing teacher training at a University of Technology (UoT), Free State, South Africa. The population was made up of 318 student's teachers from different programmes like Languages, Natural Science, Computer Science, Technology and Economics Management Sciences. The sample drawn was characterised by 50 student teachers who were conveniently sampled. According to Leedy and Ormrod (2005) avers that convenience sampling and further stating that takes people as other units that are readily available for selection. Leedy and Ormorod (2005) further state that some members of the population have little or no chance of being sampled. A qualitative approach was the cornerstone of the study with regard to the soliciting of information from the participants.

B. Data Collection

The study made use of mixed method (using quantitative and qualitative) approach to collect required information. The researcher designed a questionnaire that was structured in two parts. The first part was characterised by semi-structured questions which were used to collect quantitative data. The questionnaire was made of both structured and open-ended questions which had emerged from the pilot study that was undertaken on the use of the Blackboard. The questions were about: (a) the type of digital technology that are accessible to student-teachers, (b) the occurrence in accessing Blackboard and (c) Student-teachers perception of Blackboard.

The Likert scale was used for rating validity and reliability of the tool. To ensure validity, the researcher with the help of the laboratory technicians was able to structure the questions for the collection of information from the respondents. Two lectures were also used to cross-validate the instrument to ascertain the correctness of the language used and proof-reading was done by the language practitioner in the Department of Communication. This helped in the establishment of content and face validity and the final turning of the instrument.

C. Data Analysis

Quantitative data were captured using MS Excel spreadsheet and collated. The idea was to determine the usability of new technology, that is, the blackboard, the benefits, and student teachers' competence in accessing information. The collected qualitative data represented the original thoughts of the respondents. As such, the analysis of the students' responses did not focus on the knowledge, per se, but on the ability to access the Blackboard and respond to what the lecturer posted. The main interest of the researcher was to try to understand how the experiences of the respondents, within the context e-learning environment, had shaped their understanding of various functions related to the Blackboard. So, in this regard, the researcher searched for patterns of meanings from the statements and explanation given by the students. From there, themes were separated which were then followed, descriptions and interpretations of the students' experiences were constructed and categorised. These categories emerged progressively from the data as the analysis proceeded.

V. RESULTS

A. Questionnaire Results

This section deals with the responses of the student-teachers to the questions of the paper as set out in the questionnaire. Question 1 was meant to determine student-teachers access to different types of teaching and learning digital technology they were able to use during accessing information from the Blackboard. The data from the findings were presented in Table 1.

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Access to teaching, learning and research technologies access	**Unrestricted**	**Limited access**	**No access**
Cell phone	47 (94%)	3 (6%)	0%
Desktop computer	50(100%)	0%	0%
Laptop computer	45 (90%)	4 (8%)	1 (2%)
Wireless Internet	40 (80%)	7(14%)	3 (6%)
Broadband Internet	45(90%)	3 (6%)	2 (4%)

Table 1:- Student-teachers' access to different types of digital technology (N = 50)

Analysis of the data in Table 1 indicated that a large number 47(94%) have unrestricted access to a cell phone which they normally use in taking pictures of what is written by the lecturer. They are of the opinion that it is not time-consuming than writing notes. The findings also indicate that all the student-teachers (100%) have access to the desktop computers and use them on a daily basis. Forty-five (90%) of the respondents alluded to the fact that they have unrestricted access to laptop computers. Similarly, 40 (80%) and 45 (90%) of the respondents have unrestricted use to wireless and broadband internet respectively. From what we learn from the table, it is evident that most of the student-teachers have a variety of digital technology to use although not all of them are used in teaching and learning environment.

Question 2 was aimed at establishing the extent to which Information Communication and Technology (ICT) are used by student-teachers. Data from the participants' responses are represented in Table 2.

Use of computer-based technologies	Used everyday	Used few days a week	Used once a week	Not used at all
Use computer for general study and surfing internet.	48(96%)	2(4%)		
Creating web pages using computer	2(4%)	3(6%)	5(10%)	40(80%)
Use computer for creating multimedia presentations	15(30%)	18 (36%)	14 (28%)	3(6%)
Use computer to access the Blackboard	13(26%)	29(58%)	6(12%)	2(4%)
Use computer to write and answer assignments on the Blackboard.	10(20%)	15(30%)	19(38%)	6(12%)
Use computer to play games	19(38%)	22(44%)	4(8%)	5(10%)

Table 2:- Use of computer-based technology (N=50)

The results that almost all the student-teachers 48(96%) use computer every day while only 2(4%) do not. Almost all the student-teachers 40(80%) do not at all use computers to create web pages. It is also of concern that only 13(26%) of student-teachers use computers to access the Blackboard every day as compared to 29(58%) who do it for few days in a week. Nineteen (38%) of the participants use computers once a week to write and answer assignments as compared to the rest. It is also amazing to see that not a very large number of 19(38%) use a computer every day to play games as compared to the 22(44%) who use them at least few days a week. The findings from the quantitative data suggest that student-teachers' ability to use computers as a tool in teaching and learning might be influenced by the volume of tasks given. Once more work is not given student teachers turn to use the computer as an entertainment tool.

B. Interview Results

The qualitative data analysed in this section were obtained from the interviews held with a sample of four participants. The researcher conducted interviews with participants in order to better understand the extent to which the e-learning activities as compared to traditional teaching and learning activities of student-teachers at the Department of Educational Studies.

- Respondent 1: *"I am motivated by the fact that we work together in groups when we access information on Blackboard. It does not take us long when we work as a group to get information. Actually is like playing a game with friends."*
- Respondent 2: *"Teachers normally take time to post content on the Blackboard until we ask them to do that, when we finally get content, it is too much for the time we are to submit although some work is normally considered to be statements that are used for discussions and comments are made and thereafter assessed."*
- Respondent 3: *"The only thing I like about using or accessing the Blackboard is that I can do that anywhere and during my own time*." *I can even post my mind on Blackboard regarding a particular aspect of the content".*
- Respondent 4: *"Doing an assessment on Blackboard is interesting because you tell yourself that you do it here and now and expect quick feedback from the lecturer.*"

- Respondent 5: *"This approach is far better than listening to the teacher talking and the whole class having to listen only. With this type of learning using the Blackboard is great and inspiring. One is not forced to start with searching for information immediately. You take your own time, space and decide with whom to work with."*

Analysis of the above responses suggests that the computer in the hands of student-teachers could be used for various activities that could have an impact on their personal desires and satisfaction. It also suggests that the computer as a tool for gathering and accessing the learning content from the blackboard could lead to the scholarship of teaching and learning. Student teachers feel inspired and determined to do the given assignments. In a nutshell, the blackboard also gives the impression that it could have a certain impact on how student-teachers perceive the space they find themselves in or lecturers who facilitate.

VI. DISCUSSION

In any case study, the researcher's intention is to investigate or explore individual's responses as it provides the opportunity to look in detail at the impact of the planned process of change on those directly affected (Shamoail 2005). It is, therefore, important to discuss the findings of the study.

The findings of the study indicate that information technology has an impact on teaching and learning environment. The literature contains a number of studies that indicate that e-learning has brought tremendous change in education and if research is to contribute to societal well-being educational institutions are to adapt to external changes (Stepanyan et al, 2013). Cultural and societal are challenging traditional educational practices that are commonly observed in the classrooms. Teaching and learning are no longer the domain of the teacher as students are given the opportunity to express themselves or do thing according to their abilities. It is indicated in the study that student-teachers do have computers which they use as tools to access the Blackboard and use during presentations, playing digital music and above all do assignments. The student- teachers alluded to the fact that they have access to the computers (see Respondent 3) which is an answer to question1 of the main question of the study. Gunasekaran, McNeil and Shaul (2002) e-learning can deliver accountability, accessibility and opportunity and it can eliminate barriers of time, distance and socio-economic status and that individuals can take charge of their fate or lifelong learning (see respondent 4 and 5).

Students as a whole want things to be done timeously and failure to do this could lead to an unfavourable relationship. This is evident of the responses of Respondent 3. In their findings, Lazio et al (2002) found that: "perception of a good teaching environment influence students towards deep approaches to studying and conversely, students perception of a bad teaching environment influence them towards surface approaches to studying. The strongest perception of students using deep approach to studying is their perceptions of the quality of teaching and the appropriateness of the assessment." This is supported by Tate (2011) when stating that virtual learning environments like Moodle and Blackboard's WebCT are platforms that support the provision of material for a course to its participants and to support collaboration.

The major limitation of this study is the limited number of articles reviewed in comparison with the wide range of literature related to student teachers' competence in accessing posted learning content on the blackboard. With all being said, this study provides a trigger for future studies that can build on these findings to allow in-depth analyses.

VII. CONCLUSION

Based on the findings of this study, it can be deduced that digital technology such as computers, mobile phones are freely accessible to student-teachers. It is also apparent that student-teachers mainly use computers for studying and surfing of the internet. It is thus evident that their ability to use computers as student-teachers will be greatly beneficial to them because technology does have an impact on how student perceive their lecturers and teaching and learning environment they find themselves in. Students who have the predisposition to using the computer or any digital technology turn to be more informed and knowledgeable. This makes teachers or lecturers to also prepare and not forget to post information on the Blackboard and readily avail feedback to students. The teacher through the effective use of technology in the classroom creates the learning experience for the learner which will motivate student-teachers to work collaboratively. Understanding the impact of technology on students, especially student-teachers, can make them work harder and be prepared for their professional development. Technology thus makes student-teachers to be current with what is happening in higher education. This paper advocates the use of digital technology in the teaching and learning environment of student-teachers. Problem-based approach should be at the centre of the programme of student- teachers training so that they can be able to access all the digital technologies at their disposal. Lecturers must also be given thorough training on how to use the Blackboard.

RECOMMENDATIONS

This study offers some ideas that could be considered by higher education authorities and fellow researchers who might be interested in them. Higher education institutions need to create a conducive teaching and learning environment that could make it possible for all to be literate in information technology. The university should support this desire by designing programmes that could make it compulsory for students to have introductory modules in the use of the Blackboard.

Currently, little is known about student-teachers' technology use and their perceptions of using e-learning in teaching and learning. The current findings might be of importance and of value to the student-teachers but what is of importance is that student support offered by all staff members and faculties is paramount in using technology in an e-learning classroom environment. It is therefore recommended that the university should consider the results of this study when planning a programme for digital technology use by student-teachers. The university should invest in the ability of its students and conduct an empirical research on economies scope of having introduced the Blackboard and its future sustainable imperatives.

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