Emerging Technologies in Higher Education:
Is it All About Learning Management Systems

Ms S. Ntlabathi

sntlabathi@ufh.ac.za

Dr VJJ V. Nkonki

vnkonki@ufh.ac.za

Mr L. Mkonqo

University of Fort Hare
lmkonqo@ufh.ac.za

Abstract

A lot is being invested in the use of emerging technologies which encompass web-based technologies like Learning Management Systems (Blackboard or Moodle) for teaching and learning in Higher Education institutions across South Africa. The question to ask is, "Are Learning Management Systems the only technology available" to enhance teaching and learning. The purpose of this paper is to investigate whether LMS usage has an added advantage in the Higher Education environment as opposed to other technologies like wiki's, blogs, facebook, twitter and Google drive. This paper investigates the enablers and constraints of the lecturers that use an LMS called Blackboard, as opposed to those that use other technologies. A social realist perspective was used to understand the agential influences, structural or cultural in the use of Blackboard's and other technologies. This study could be described as being located within an interpretive paradigm employing qualitative data collection methods as a form of inquiry. An open ended questionnaire was distributed to thirty seven lecturers who use different types of technologies to enhance their teaching and students' learning. Data was analysed into themes that align to the research questions on the survey. Lecturers felt positive about their current use of Blackboard and the support given and felt that it will be beneficial to their teaching and learning practices if other technologies received the same support. This paper recommends that the use of technologies like blogs, wikis and facebook..... creates profound learning experiences that enhance the classroom environment.

Keywords: Emerging technologies, Higher Education, Web-based technologies, Learning Management systems, Teaching and Learning

1. Introduction

The use of emerging technologies has become common place in Higher Education. The best fit definition of emerging technologies for this study is by George Veletsianos, (2010). Veletsianos, (2010) defined emerging technologies "as tools, concepts, innovations and advancements utilised in diverse educational settings (including distance, face to face, and hybrid forms of education) to serve varied education-related purposes (e.g., instructional, social, and organisational)." Within the context of emerging technologies, web-based technologies are also included. Web-based technologies are technologies which are accessible through the web and are made up of, but are not limited to social media technologies like your blogs, wikis, face book, twitter and your Learning Management systems (Blackboard). These technologies are used widely in education for different purposes. According to Davis (2011), social media technology has become a growing phenomenon with many and varied definitions in public and in the academic domain. Social media generally refers to media used to enable social interaction (Davis, 2011). For the purposes of this study, the term social media technology is used in reference to Davis, 2011 definition. Davis, 2011 defines social media as web-based and mobile applications that allow individuals and organizations to create, engage and share new user generated or existing content, in digital environments through multi-way communication (ibid). Some of these technologies are acquired through licensing and some are downloadable through the Internet. Web based technologies are accessible through the internet. The focus of this paper is on the use of the Blackboard and other technologies. Our argument here is why Blackboard, is

it the only technology used to enhance teaching and learning in Higher Education. If not what are other technologies that are there and being used?

A lot of research that talks to web-based technologies and social media is used in Blended Learning environments, which shows that these emerging technologies are in use in the Higher Education environment. The fact that there is also varying research in this area is supported by Davis (2011). Beldarrain, (2007) argues that "emerging technologies offer a vast range of opportunities for promoting collaboration in both synchronous and asynchronous learning environments, education programs around the globe face challenges that may limit or determine implementation of these technologies". He continues to say that emerging technologies provide opportunities for instructor–student as well as student–student real-time and/or time-delayed collaboration (Beldarrain, 2007). Whilst Reuben's (2008) study on social media usage shows Facebook and YouTube as the most commonly used technologies across the United States, Australia, Canada and New Zealand. Burke, Marlow and Lento (2010) as cited by… Davis (2011) moves beyond a mere description of social networks dynamics toward an exploration of the effects of social media use on specific outcomes of programmes. One can see how recent these studies were conducted, which means a lot of research is still new and needed in this area, particularly on the use of these technologies in enhancing teaching and learning. Moxley, 2006 explore the experiences of educators with the use of wikis. He argues that educators are quickly embracing the wiki phenomenon, stimulating many other educators to set up wikis of their own to teach other educators how to implement this technology tool. A wiki is a collection of Web pages that are linked to each other, and reflect the collaborative works of many authors, and blogs are chronologically organized, (Beldarrain, 2007).

The literature above suggests that social media software as an emerging technology fosters the sense of connectedness between the members of a group. These researchers recognise emerging technologies as powerful tools for building social interaction in constructivist learning environments. Although a considerable amount of exploration has been conducted regarding emerging technologies, the breadth and scope for dialogue and experimentation needs to be broadened to exploring differentiated use technologies.

1.1 Research Questions

This paper is meant to investigate the enablers and constraints on the use of different technologies in a Higher Education institution.

The research questions posed to lecturers to probe this question further are;

1. What technology are you currently using in your Teaching and Learning environments?
2. Why did you select to use this particular technology to enhance teaching and learning?
3. Are you aware of other technologies available for the enhancement of Teaching and Learning?
4. Do you get support for the technology that you are currently using?

2. Theoretical Framework

Margaret Archer in her writings ranging from the year 1995, 1996 to 2000 comes up with a socialist perspective of Critical Realism termed Social Realism. Margaret Archer argues that the social world is made up of structural, cultural and agential emergent properties (Archer, 1996). Archer further argues that the social world is made up of 'parts' and 'people'. The parts are understood to be structural and cultural systems, whilst the people are those agents who operate within these structures and cultural institutes (Archer, 1996). Archer holds that structural properties are inclusive of systems, policies, hierarchical structures, materials resources and people captured in that environment whilst cultural properties come in as ideas, values, beliefs, rules that transcend from people who were there and those that are currently present in that environment and agential properties are the people interacting in that environment exercising different sets of powers. Margaret's Social Realist theory is used as an analytic lens in this study. This theoretical framework translates the views of Lecturers so as to understand what influences their selection of a particular technology.

3. Research Design

3.1 Research Paradigm

This study could be described as being located within an interpretive paradigm employing qualitative data collection methods as a form of inquiry. Babbie (2007) describes the interpretive approach as committed to studying meaning and human phenomena in context. Such research explores "... socially meaningful interactions through looking at a

phenomenon in context, in order to arrive at understandings and interpretations of how people create and maintain their social worlds" (Neuman, 1997). The purpose of this orientation is to understand how others make meaning of reality. This is of particular relevance to the social realist perspective, which intends understanding the lecturer's selection of a particular technology.

3.2 Data Collection

A survey in the form of an open ended questionnaire was used as an instrument to source data from thirty seven purposively selected Lectures. The Lecturers were spread across two campuses of the University. Twenty one are from the Campus A and sixteen are from Campus B. They come from different departments and faculties in these two campuses. The intention was to use Lecturers who are using technology in their Teaching and Learning Environments. The questionnaire was distributed electronically and a few office visits were done to collect the questionnaires. Selection was based on whether the Lecturer is using technology, also on willingness, availability.

3.3 Data Analysis

The initial step in analysing data is the organisation of the data (Maxwell, 2005). Data was categorized according to the questions on the survey. This enabled the researchers to establish the themes and relationships within the data. All the data collected from the open-ended questionnaires was used to gain a better understanding of why lecturers select to use a particular technology.

4. Results and Discussion

This discussion will focus on the technologies used by lecturers and what support is given to these technologies in comparison to the widespread use of Blackboard. The results and discussion will be categorised according to the research questions.

4.1 Technologies used:

The first research question was on which technology is used by the lecturer. To draw a clearer picture of which technologies are used and by how many Lecturers we compiled the table below. The table below gives an outline of the technologies used by the thirty seven sampled lecturers to enhance teaching and learning.

Blackboard	Google groups	Sms	V:drive	e-mail	Moodle	Facebook	MySpace
17	3	3	5	4	1	3	1

Figure 1: Technologies used by the thirty seven Lecturers

As seen in the above table, it is clear that most lecturers use Blackboard, followed by v:drive and e-mail, there could be many reasons behind this. The first one may be that Blackboard, the v:drive and e-mail are accessible through the University network or are directly accessible through the University intranet and folders. The second one may be that all three of them have dedicated support units that promote these technologies by making Lecturers aware of their availability and support. With the rest of the other technologies (MySpace, Facebook, Moodle, Google and Sms) as indicated above lecturers are on their own, as there is no dedicated support offered for these technologies except for maybe relying on your own knowledge of how they work and maybe on other colleagues. It is our belief that for one to use any technology they need to be competent and comfortable with the use of that technology first. This view is supported by Garrison and Kanuka (2004) who feel that staff and students need to be supported or assisted with technology access, course development needs, time management and technical skills. When we look at the technologies used at the University understudy most of them are emerging technologies, still very new both in the social space and in academia, and they are also widely used by students in their social environments for example; Facebook, MySpace and Sms's. Students would find it easy to work with these technologies as they use them most of the time to communicate with their peers and to source information and they support each other on how to use them. This should be seen as a positive aspect of these technologies as enriching collaborative tools.

The wide use of the Blackboard, v:drive and e-mail by a large number of sampled lecturers can be attributed to agential influence by the units that support them. The fact that there is no awareness that support can be given to these technologies might make lecturer reluctant to use them. Garrison and Kanuka (2004) point out that providing effective support for technology involves an understanding of the course management environment that learners and lecturers will be using, in addition to situational, dispositional, informational, and institutional barriers.

4.2 Selection of a particular type of Technology to use

When participants were asked about their reasons for selecting a particular technology for teaching and learning purposes, the following categories of responses came up:

Category 1: In category one, responses were linked to the "Availability of the text matching tool within Blackboard". For lecturers, one of the motivating factors in using the Blackboard system is the availability of the plagiarism detection tool. This becomes an agential and structural influence in selecting which technology to use and for what purpose. Again, the plagiarism policy is a structural mechanism that insists on students' work being checked for plagiarism using the plagiarism detection tool within Blackboard. Therefore this tool becomes valuable to the teaching and learning environment. *Category 2*: The second lot of responses alluded to the "Availability of training and support" as another enabler for selecting particular software. Most of the participants that supported this view were those using Blackboard. The reason for the selection of the Blackboard technology is that there is training and support for it. The availability of training and support suggests a structural and agential influence that is at play in the selection of this particular technology to enhance teaching and learning.

Category 3: Some of the Lecturers indicated that they were "Satisfied with Blackboard since introduced by University" One could note a lot of similar responses, 'We okay with Blackboard or satisfied with the use of Blackboard". One could argue that they were not interested in other technologies. *Category 4*: The three lecturers that chose to use Google felt that "Google offered utilities that were not available within Blackboard". This suggests a certain level of competence in using technology on the part of these lecturers. Their adaptation of Google was to suite a particular need in their teaching and learning environment. They did not adhere to pressure of selecting what is made available and supported through the institution, but chose to go their own root with little or no support. *Category 5*: Again another lecturer that chose to use Facebook felt that "Use of Facebook offers engagement and interaction with my students" This was what the lecturers using Facebook said is their choice for selecting Facebook. This shows that there are differential motivating factors for the choice of a particular type of technology.

Beldarrain, (2007) argues that proactive implementation of emerging technologies is relies on comfort level, monetary resources, and visionary leadership. The issue of monetary resources speaks to the institution making available technologies like clickers and whiteboards etcetera. Most of the web-based technologies used as seen above are freely available social media technologies which would speak to comfort levels of lecturers with the use of the technology. According to Kose, (2010) web-based technologies and services provide effective environments, where both students and teachers can perform different learning and teaching activities that cannot be experienced with popular learning management systems (LMS). In all Garrison and Kanuka, (2010: 97) argue for support as an important component of any technological enhanced environment as they postulate that:

> *"Teaching faculty also require support services, but, unlike their students, these supports are often not in place. Teaching faculty require assistance with course development needs, time management of their learning curve, and technical assistance. The most effective support systems for teaching faculty are those that provide a course development team for the development of blended learning courses. This team is typically comprised of the instructor as content expert, an instructional designer who assists with course design, and a media specialist who assists with the technical creation of course materials."*

Also, engagement and interaction is echoed as one of the benefits of using these technologies since conversation, exchange, and other transactional modes of learning are not only possible but also sustained in the use of these technologies (Garrison and Kanuka, 2010).

4.3 Awareness of other technologies

When lecturers were asked about their awareness of other technologies to enhance teaching and learning, the majority indicated that they are aware that there are other existing technologies and close to twenty five percent indicated that they are not aware. There were few who elaborated on other technologies that are out there which they would love to

use. For example, one lecture mentioned that he/she would love to use clickers, as illustrated verbatim below *"I would love to use the "clickers" which I have seen being used once before. As I understand it, a question is posed by the lecturer and the students all use the clicker to choose the correct answer from four options (A, B, C or D)........ This is a valuable tool to assess instantly what the general level of understanding is in a large lecture hall. It helps the lecturer to know which areas need to be reinforced etc. Another thing I would love to be able to do is insert video clips into my slides. This is very useful for my subject where many of the classic experiments and interviews are available on YouTube. At the moment I cannot because the big teaching venues do not have speakers."* Again this demonstrates that if other technologies could be made available, promoted and supported, lecturers would be motivated to use them to enrich their teaching and learning environments. Personal preferences about technologies need to be entertained to encourage lecturers to use what best suits their environments. It has been noted in the first research question that lecturers use different technologies, with or without support. And the results seem to support that lecturer preferences should be encouraged more in the integration of technology into teaching and learning. This finding suggest that the agential support, can assist in allowing for choice, diversity, and a consideration of the conditions that call for the use of other teaching and learning technologies other than Blackboard v-drive and the e-mail system. Again, the lack of agential influence on the part of the lecturers who responded to choose the best technology for their classroom environment contributes to the downplay of other technologies. The response earlier on, on the use of clickers, also suggests a structural impediment in the form of large teaching venues without sound enhancers. These structural impediments do not only inhibit the use of clickers but also things like, audio materials and lecturers who can't speak louder. This research argues that unless the lecturers who have the know-how of the technologies and their use-value do not motivate for their use, their agential influence will not change the cultural and structural impediments on the ground when it comes to availability and support of these teaching and learning technologies. Beldarrain, (2007) suggests that integration of emerging technologies into new models of teaching must also take into consideration cultural differences and learning tendencies, respecting the individual.

4.4 *Are you getting any support for the technology that you are using?*

Most of the responses about support offered were mostly leaned towards those using Blackboard, v-drive and e-mail. These lecturers were positive about the support and training offered for Blackboard and made it clear that this was one of the reasons they selected to use Blackboard. However, a few acknowledged that whatever they were using was selected by them and no support in terms of training or any other technical issues was offered by the university. It is evident from one of the lecturer's responses to the question on awareness that lecturers are aware of other technologies and the capabilities and functions they can bring to the teaching and learning environment. The challenge is to motivate that the constraining factors that are inclusive of structural, cultural and agential influence are discussed and considered to promote such technologies.

5. Conclusion

The premise from which this research paper departs is that lecturers should be given preference in selecting the technology of their choice, when it comes to the use of the technologies meant to enhance teaching and learning. Failure to do so, not only limits their choices of engagement and interaction with their learners, but also stifles creativity and innovative teaching and learning made possible by other technologies. Instead of the institution supporting one technology, support should be there for other technologies in order to enrich the teaching and learning environments. The promotion of one technology at the expense of others may also lead to negativity on the part of lecturers who are using other technologies, as they also need to benefit from the support offered. While educational technologies have traditionally focused on the use of technology as a tool in instruction. Veletsianos, (2010) highlights the negotiated and symbiotic relationship between pedagogy and technology, also notes that technology shapes educational practice and educational practice molds technology use.

This research paper set out to determine what other technologies are there and what support can be made available for encouraging widespread use of different technologies. Lecturers felt positive about their current use of Blackboard and the support given. A few indicated that the use of other technologies could be far enriching in their teaching and learning environments if there was support given. Lecturers focused mainly on what is available instead of indicating what other technologies are there that could be far more enriching for their context than Blackboard or technologies that can enhance the capabilities of Blackboard. The majority of comments were consistent with the expectations that lecturers maybe reluctant to use other technologies due to lack of support. This research recommends

that other technologies be used strategically, even if it's a selective number, to enrich teaching and learning, with enough support being given. So as to create a competitive advantage which may lead to lecturers being more aware of what is available out there to enhance teaching and learning?

References

Archer, M. S. (1996). Culture and Agency: The Place of Culture in Social Theory. Cambridge
University Press.
Babbie, E. R. (2007). The Practice of Social Research (11th ed., International student ed.). Belmont, CA: Thomson/Wadsworth.
Beldarrain, Yoany. (2006). Distance Education Trends: Integrating new technologies to foster Student interaction and collaboration. Distance Education, 27(2), p139-153.
Burke, M., Marlow, C., & Lento, T. (2010). Social network activity and social well-being. In Proc. CHI 2010: 1902-1912.
Davis III, C.H.F., Deil-Amen, R., Rios-Aguilar, C., & González Canché, M.S. Social media and
higher education: A literature review and research directions. Report printed by the University of Arizona and Claremont Graduate University.
Garrison, D. R., & Kanuka, H. (2004). Blended learning: Uncovering its transformative potential in higher education. Internet and Higher Education, 7, 95−105.
Maxwell, J. A. (2005). Qualitative Research Design: An Interactive Approach. Applied social research methods series (2nd ed.). Thousand Oaks, Calif: Sage Publications.
Moxley, J. (2006). Teaching wiki. University of South Florida. Retrieved January 31, 2006, from http://teachingwiki.org
Neuman, W. (1997). Social research methods: Qualitative and quantitative approaches (3rd ed.). Needham Heights, MA: Allyn & Bacon.
Reuben, R. (2008). The use of social media in higher education for marketing and communications: A guide for professionals in higher education.
Veletsianos, G. (2010b). A Definition of Emerging Technologies for Education. In G.Veletsianos (Ed.), Emerging Technologies in Distance Education (pp. 3-22). Edmonton, AB: Athabasca University Press.