

Apr 15th, 1:35 PM

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Mogie Rajkoomar, "Blended learning in Library and information Science (LIS) education and training."
Proceedings of the IATUL Conferences. Paper 1.
<https://docs.lib.purdue.edu/iatul/2013/papers/1>

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Blended learning in Library and information Science (LIS) education and training

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Abstract

Educators and students have a vital role to play as being in control of the education process. Introducing blended learning could be one of the means of improving the quality of teaching and learning in higher education. Blended learning has become an emerging and prominent delivery mechanism and approach to course design in higher education. The core interest in blended learning lies in the need to provide more engaged learning experiences with recognizing the potential of the Internet and Information and communications technology. Information and communications technologies (ICTs) have had a profound impact in the Library and Information Science (LIS) field. The LIS sector is deeply rooted in digital technology, therefore the use of digital technologies requires thoughtful and through integration into pedagogy, that reflects carefully articulated instructional and learning outcomes. These changes need to lead to changes in curriculum content as well as in methods of teaching and learning. This paper explores rethinking the purpose of current teaching and learning practices in LIS education and training and examines teaching and learning strategies using technology enhanced teaching and learning. The paper reports on a pilot study adopting a mixed method approach by implementing both qualitative and quantitative research methods in order to explore the educational and pedagogical issues in blended learning. A self-administered Web-based exploratory survey questionnaire to LIS educators to ascertain the extent of current practices in the delivery of the LIS curriculum at South African universities was administered. Semi-structured face-to-face interviews with LIS educators and telephone interviews with facilitators (individuals at educational units that aid in teaching and learning) as well as focus group discussions with LIS students exposed to blended learning interventions, explored the educational and pedagogical aspects of blended learning. The study explored transformative and interactive teaching and learning practices in LIS

education developing a framework for designing and implementing blended learning in LIS education.

1. Introduction

In present society, the global marketplace and the information age tend to drive the type and design of the teaching and learning environment. Today there are many challenges facing higher education in South Africa as well as globally. These challenges include: the diversity of the student body, cost efficiency, achieving measurable outcomes, the potential of new and advanced technologies to provide personalised learning against the traditional ideas of the purpose of education (Nel and Wilkinson 2006: 553). There is a move towards a global higher education community that is in search of more effective teaching and learning within a diverse and technological environment (Nel and Wilkinson 2006: 553).

The Net generation can be defined as the population of young people that have grown up or are growing up in constant contact with digital media (Beyers 2009: 220). Technology pervades almost every sphere of life from home to work to play and also has profound implications for teaching and learning. The Net generation students learn in different ways than the traditional student and the challenge of educators to meet the needs of the Net generation students is daunting.

It has become a global trend in higher education to be searching for more effective teaching and learning in an increasingly diverse and technological environment (Nel and Wilkinson 2006: 553). Garrison and Vaughan (2008: 3) propagate that educators in higher education reexamine current practices and to actively engage students in achieving higher-order learning outcomes needed in higher education.

2. Statement of the problem

Advances in information and communications technologies (ICTs) have had a profound impact in the Library and Information Science (LIS) field as well as in all aspects of our daily life. Bawden et al (2007:14) confirm that the information environment is continually changing with advances in telecommunications and social networking featuring Web 2.0 and Library 2.0. These changes have lead to changes in curriculum content as well as in methods of teaching and

learning. The increasing use of the Internet by higher education students calls for a transformation of the teaching and learning environments in higher education settings.

Further technological advances constitutes a major aspect in which the LIS sector operates where advancing technologies and technology based services has an impact on user expectations with regard to accessing and sharing information resources.

Some of the issues and challenges with using technology for the purposes of teaching and learning include different levels of students with regard to computer literacy; the role of learner choice and self-regulation; technical support and training; finding the balance between innovation and production and implementation and dealing with the digital divide. Time and working in the confines of the classroom with traditional classes and restrictive timetables is another challenge that students and educators are faced with, the reliability of new technologies and the time that needs to be invested in learning new technologies and the technical support also pose further challenges (Ward and Selvester 2011: 112; Annan 2008: 14). The learning process needs to be extended beyond the confines of the core curriculum and the physical walls of the classroom (Beyers 2009: 223). Despite the challenges of using technology in teaching and learning in higher education, the use of instructional technology in the higher education context is a “necessary ingredient for academic success and future employment” for higher education graduates (Grineski 1999). Therefore the higher education sector needs to take advantage of the social and personal technologies capable of supporting teaching and learning (Kukulka-Hulme 2011: 248)

Most higher education institutions are equipped with technologies linked to the Internet yet technology has not yet had a significant effect on instructional practices, although it is argued that instructional methods using technology in teaching affects learning where an interactive and participatory learning environment enables flexibility and self-pacing in the learning process (Adegbija 2011; Broere, Geysers and Kruger 2002: 6). The capabilities of using technology in teaching and learning calls for a shift from the educator-centred environments to a student focused paradigm (Broere, Geysers and Kruger 2002: 8; Garrison and Akyol 2009: 21). However Hannan (2005: 975) cautions that what higher education institutions need is a climate that encourages attempts to improve teaching and learning where pedagogical and curriculum concerns need to drive technological developments and not the other way around.

Presently pedagogical traditions in higher educational institutions exist where teaching and learning has been and is to some extent facilitated predominately by dialogue and discussion in higher education classrooms as is the case with Library and Information Studies (LIS) education and training at Durban University of technology (DUT). Educators and students are therefore accustomed to direct oral communication. The key question therefore is, are students and academics in higher education ready and eager to embrace innovative methods of teaching and learning, using technology in teaching and learning.

3. Literature review

Classroom teaching still remains the dominant mode in the higher education setting. Most higher education academic staff still relies heavily on lectures and seminars as the main and time-honoured means of disseminating knowledge and maintaining some sense of staff/student contact (Sweeney et al. 2004: 312). However lecturers do support student learning that include a variety that include lectures, seminars, workshops, student presentations, student performances, group work, distance learning, e-learning, individual supervision and work integrated learning (WIL). Many higher education institutions offer education programmes that are primarily classroom-based and contain a large amount of information that must be transferred to students. Educators themselves have been trained to operate on a two dimensional level where they rely on a syllabus bound prescribed text book where many educators grew up and were trained without computers and ICTs (Beyers 2009: 220). Therefore educators need to be pedagogically skilled to be able to meet the learning needs of their students. Presently some higher education institutions are running short courses training educators in the use of current technology like using online learning management systems and iPods to enhance teaching and learning practices. Higher education institutions are looking at technology to improve instruction and allocate resources to integrate technological infrastructure into existing classroom facilities (Delany et al. 2010: 8).

In terms of online learning, technology enables the students to not be only restricted to the transmission mode of pedagogy which is often the dominant practice in higher education classrooms. Students are able to find more information for them and join communities and discussions where facts, information and knowledge are challenged and tested. Students are able to engage in a dynamic, interactive and reflective online environment, with rapid feedback and multiple interfaces (Jones 2007: 3). Other advantages of online learning cited in the literature

include less time in the classroom, less money on travel, more course availability, and decreased student inhibitions as the result of the removal of psychological and social barriers to interaction and increased flexibility. The disadvantages include the lack of student-to-instructor and student-to-student interaction. Other disadvantages include privacy issues, technological difficulties, and a focus on technology rather than the content (Jackson and Helms 2008: 7).

4. Tools and Strategies using technology for teaching and learning

There are many different types of technologies that can be used separately or as an integrated system of delivery. The choice of technologies, the combination of technologies and the integration of different technologies depends on factors such as the target population, the learning environment, the learning outcomes, types of learning activities, assessment criteria and cost effectiveness of the technologies (Broere, Geyser and Kruger 2002: 7). Some of the tool (Learning Management Systems (LMS), podcasts and blogs) and strategies using technology for teaching and learning are discussed below.

4.1 Learning Management Systems (LMS)

LMSs are used primarily in e-learning applications. LMS is available in open source software as well a commercial software packages. Open-access (OA) literature is digital, online, free of charge, and free of most copyright and licensing restrictions. What make it possible are the Internet and the consent of the author or copyright-holder (Suber 2004). Examples of LMSs include Blackboard (WebCT) which is a commercially available software package and Moodle which is an open source software package.LMS is primarily used as a supplement to in-class lectures or for distance-learning. LMSs consist of course announcements, assessments, lecture notes and slides can also be posted electronically on the system. Learner guides, links to relevant readings for the course, online discussion forums, calendars, chat, email and any other course content can also be accessed on the LMS via the Internet. LMS are used for a various purposes, including distributing learning material, making timely announcements, making available online learning modules, and allowing discussions and feedback through tools such as discussion forums and chat-room (Farley, Jain and Thomson 2011: 99). Presently in the higher education scenario there is a move from using commercially available software to open source software as open source software development can provide the necessary flexibility to combine languages, scripts and lesson plans effectively without the cost and rigidity of commercial packages

(Georgouli, Skalkidis and Guerreiro 2008: 227). However it must be noted that the LMSs are not only restricted for educational purposes, it can also function as a means of communication. Thus it can be seen that LMSs can be used on many levels, at the institutional level and at the educator level. In deciding to adopt using a LMS to either redesign a traditional in-class course or to develop a new course one needs to, firstly, thoroughly study the tools that are provided by the chosen LMS and to ascertain how the tools could be used effectively to support educational methodology and the learning objectives. Educators or facilitators also need to become familiar with the functionality of the software in order to be able to use the services effectively and confidently. Education programmes in higher education institutions can be improved by using LMS, which will improve the quality of the learning experience, increase the availability and accessibility of learning materials, support collaborative activities and strengthen the feeling of belonging to a community (Georgouli, Skalkidis and Guerreiro 2008: 227).

4.2 Podcasts

A podcast is a digital media file that plays audio (sound) or sound and vision (also referred to as vodcasts) is made available from a website; can be opened or downloaded (taken from a website offering it and placed on something of their own and played on a computer or portable player designed to play sound and/or vision. Podcasting can be defined as the action of creating and distributing the podcast (Salmon et al.2008: 20). Podcasting is also a means automatic distribution of asynchronous digital media to groups of subscribers using RSS feeds (Middleton 2009: 144). Podcasting as a content delivery has been instrumental in shaping new mobile learning communities in higher education (Kukulska-Hulme 2011: 249). Ways that podcasts can be used for teaching and learning in higher education institutions include providing summaries for lectures and as additional learning resources; student created podcasts to record, evaluate and share learning experiences; audio and visual guides for fieldwork for observation and instructions for activities to be carried out, as well as audio-visual instructions for using particular instruments and procedures in the field (Salmon et al. 2008).

Rangusa, Chan and Crampton (2009:680) advocate that podcasts can be used as a market driven product for Generation Y. Students expect education to be pragmatic and directly useful to their individualized needs. Podcasting is an inexpensive technology to produce and use one that is

portable and stimulates listeners. Educators in higher education are disseminating instructional content via podcasting as many believe in the potential benefits of using podcasting. The benefits include: facilitation of self-paced learning, remediation for slow learners, enrichment for advanced and /or highly motivated students, assistance for students with reading and or other disabilities, auditory support for multi-lingual education (Walls et al. 2010: 372). Furthermore the ability to download podcasts immediately and permanently gives students unhindered access to educational content they need. They also have the flexibility to listen to and/or watch education material anywhere (e.g., on the taxi/bus/car, at home etc) and at any time where they can choose the best time to listen, and or can review the same educational material several times.

On the other hand there are also concerns about the risks of the damaging effects that might accompany the adoption of podcasting, such as lower class attendance. The literature offers numerous disadvantages of using podcasting in education. The cognitive theory of multimedia learning hints that the potential negative outcome of offering podcasting as an additional resource for students that are already using multiple resources for learning; if the student does not realize the benefits of the self-pacing multimedia characteristics of podcasting it contributes to cognitive overload. Also most students use their digital media like mp3 players and iPods, for entertainment purposes. It may take time for students to view these as tools for studying and learning (Walls et al. 2010: 372).

4.3 Blogs

A blog (weblog) is an online reflective journal in which other Internet users can post comments. Blogging tools integrated in Virtual Learning Environment or LMS allow access to be restricted to members of a closed group (for example, a course module or tutorial group) to support formal learning activities (University of Edinburgh 2009: 1). A way of incorporating blogging into a course is to create a single class blog and post case studies, news items or topics for commentary. Another option is to assign students to post notes along with their thoughts on material where other students in the class comment on the postings (Orlando 2010: 6)

Blogs have the potential to create engaging learning environments. Blogging can be used as a part of a wider blended learning strategy to develop skills of critical thinking and reflection. Blogs can also be established as an established mode of assessment. The blogging activity

increases participation by all students in reflective activity, improving the engagement with relevant reading. Blogs also provide a record of discussions that can act as an aid for revision. Blogging increases student confidence and ownership of learning (University of Edinburgh 2009: 1).

5. Purpose of the study

The primary purpose of the pilot project was to identify the viability of using technology in teaching and learning in the Library and Information Studies (LIS) education and training.

Research questions

- Are students and academics in the Library and Information Studies (LIS) education and training ready and eager to embrace innovative methods using technology in teaching and learning?
- What effective technology tools can be used in the LIS programme to enhance teaching and learning?

6. Methodology

6.1 Mixed method

Johnson, Onwuegbuzie and Turner (2005: 19) define MMR as

The class of research where the researcher mixes or combines quantitative and qualitative research techniques, methods, approaches, concepts or languages in a single study or set of related studies. This type of research should be used when the contingencies suggest that it is likely to provide superior answers to a research question or a set of research questions.

Researchers use mixed methods research when a single approach cannot fully investigate the phenomenon especially when the phenomenon is complex and multifaceted. Mixed methods research therefore allows the researcher to address issues more widely and more completely than

a single method and thereby enriches the complexity of the research findings. The use of different methods also allows for flexibility in the research process that may create insights and possibilities that a single method cannot produce. The quality of the research can be improved when biases, limitations and weaknesses of a particular method counterbalances or compensates for, by mixing with a method belonging to another approach (Fidel 2008: 266- 267).

6.2 Web survey questionnaires

The number of surveys being conducted over the World Wide Web (WWW) is increasing dramatically. The use of the WWW to conduct surveys provides vast opportunities as well as challenges. The cost advantage of collecting large amount of data at very little cost means that more web survey questionnaires are being used. The availability of open source software like Monkey Survey is making the use of designing and administering web survey questionnaires much easier. However issues such as security, anonymity and controlling access are some of the challenges of using web survey questionnaires. There are also important criteria for designing response friendly web surveys: compliancy with technology available to the respondent; bridging between the logic by which respondents expect the questionnaire to operate and the logic associated with operating a computer (Dillman, Tortora and Bowker 1999: 14). Web surveys are also proving to be a valuable tool to collect survey information. Answers collected from the respondents are immediately stored in a computer database and ready for further processing. This reduces time, costs and errors arising from the transcription of paper questionnaires (Carini et. al. 2003: 2). The survey questionnaire to LIS educators was developed for this study using LimeSurvey software.

6.3 Interviews

An interview involves direct personal contact with the participant who is required to answer questions relating to a particular research problem (Bless; Higson-Smith and Kagee 2006: 116). Interviewing also allows for free interaction between the researcher and participant and allows opportunities for clarification and discussion. Interviewing provides access to the participants' ideas, thoughts and memories in their own words. The researcher can also verify emerging themes and interpretations and can therefore incorporate new questions as needed (Mertens 1998: 110). Some sources of bias in interview data can occur when the participants are

interviewed while they are extremely busy or not in good humour. The introductory sentence, the personality of the interviewer, inflection of the voice, could introduce bias. Awareness of the sources of bias enables the researcher to obtain relatively valid information (Sekaran and Bougie 2010: 194). Semi-structured face-to-face interviews were conducted with LIS educators and telephone interviews with facilitators of blended learning.

6.4 Focus group discussions

According to Gorman and Clayton (1997: 143) “a focus group session is a small group discussion (6-12 people), guided by the facilitator and used by a facilitator to gain an understanding of participants’ attitudes and perceptions relevant to a particular topic.” Bless, Higson-Smith and Kagee (2006: 122) further highlight that the “advantages of using focus groups are that participants are able to discuss the issues in question with each other. One person’s ideas may set off a whole string of related thoughts and ideas in another person.” The focus group sessions will enable the researcher to ascertain students’ perceptions and experiences with regards to as well as ascertain the educational benefits and challenges relating to the use of technology in teaching and learning in the LIS programmes. Focus group discussions were conducted with LIS students (three second level students, three third level students and two BTech. students). The sessions were recorded using a digital recorder. Data analysis included looking for trends and themes and breaking the data down to issues pertinent to the research questions.

- **Findings and discussion**

Students indicated that they were pleased to access course material as well as other content such as discussion forums, calendars and readings from the e-classroom at anytime. Students indicated that they appreciated the constant availability of the e-classroom. Students were also able to discuss issues with regard to particular topics within the subject with the lecturer as well as with other students. The e-classrooms and the blogs proved to be valuable communication tools as messages could be sent easily to all students. Students were required to access the e-classrooms on a regular basis. Some students were unable to access the e-classrooms regularly as they did not have Internet access away from the institution. Most students however were able to access the e-classroom, blogs and podcasts from their work place, on campus, via their mobile phones

or at Internet cafes. The researcher used action research to integrate research and practice to inform her on how to become a better educator and to critically reflect on teaching and learning in LIS education.

The analysis of the focus group discussions and interviews with LIS educators showed that all the participants were eager to embrace innovative methods using technology in teaching and learning in the LIS programme at although some LIS educators had some reservations with regard to student attendance, language issues and cost to the students.

Student Attendance

The concern of students not attending classes was addressed by the LIS educators. It was established that the podcasts should not be as a tool to replace lectures but to supplement the material as well as for reinforcement of the course content. It was established that class attendance was compulsory for all LIS subjects where attendance registers will be taken so the issue could be addressed if it was found that attendance was poor. It must also be noted that the literature Lonn and Teasley (2009: 88) have found that students use podcast materials mainly for reviewing concepts and issues raised in lectures that they have previously attended.

Language

With regards to the language issue the group was divided. Some participants indicated that they understood the content better when they were exposed to the content in the language of their choice and that they were better able to translate the material into English rather than the material disseminated to them in English. Other felt that they needed to be proficient in English in the working environment and they therefore needed to be taught in English to improve their proficiency in English. With regard to the language issue, a discussion ensues with collaborating with Languages and Translations department at DUT to establish the viability of translating the podcasts into one or two languages of the students' choice. Walls et al. (2010: 372) indicates that auditory podcasts supports multilingual education.

Cost

On the issue of cost, participants indicated that vodcasts might cost too much and that they were not in a position to spend too much money, this also led to the issue that this might also alleviate

the issue of non-attendance as the students could only use the podcasts in emergencies where they will not be disadvantaged if they have missed a lecture. However one participant indicated that they would not mind incurring the cost if it was beneficial and improved their grades or marks. Students also wanted to be given choices of downloads as some wanted have the podcasts published on the Internet, e-classroom, the blog and as well as in the LAN in the LIS department as downloading from on campus computers would incur no cost to the students.

Accessibility and flexibility using LMS, blogs and podcasts

All students indicated that they enjoyed using the LMS system, blogs and podcasts and cited the following advantages:

- Easy access to notes
- They were able to access the classroom anytime.
- Reinforcement of content
- Preferred the visual content with You Tube videos and pictures
- Students were able to use self-paced learning

Walls et al. (2010: 372) in the literature also concurs that podcasts can be used as facilitation of self-paced learning, remediation for slow learners and enrichment for advanced and /or highly motivated students.

Considering that the concerns from the LIS educators, can be addressed and the enthusiasm of educators and students to implement tools and strategies using technology it is therefore viable to continue using technology in teaching and learning in the LIS programmes.

- **Conclusion**

The traditional ways of teaching and learning is undergoing a sea of change. Educators in higher education need to create a learning environment that embraces new technologies. The use of technologies enables academic staff, to address and maybe even meet the challenges of having to teach students from diverse academic, social and language backgrounds.

Instructional technologies such as LMS, podcasts and blogging provide tools for teaching and learning and for building the bridges to students that are entering the higher education environment. Pedagogically it will be beneficial for educators in the higher education context to implement innovative ways of teaching and learning. Teaching with technology has made a contribution at attempts to improve teaching and learning in the higher education context as well as act as initiators and enablers of innovation.

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