

The Pedagogy of Mobile Learning In Supporting Distance Learners

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ABSTRACT

The aim of this paper is to investigate the pedagogic approach that best support effective use of cell phones in the distance education context. Many distance education scholars agreed that students need to be supported both cognitively and affectively through mediated forms of interaction. Distance education institutions have used a variety of technologies to enhance interaction but none has been so readily available and accessible as cell phones. The usage of cell phones in supporting students is most suitable in Africa because it is affordable and has the ability to connect less privileged people to information. Despite evidence that show that cell phones can be used successfully as a cognitive delivery tool, the pedagogical affordances of cell phones have not yet been fully explored in most developing countries. To understand the pedagogy for mobile learning, it is important to look at distance education theories to determine the importance of interaction on the efficacy of distance learning. The idea is to map the role of interaction in the distance education transaction with the aim of facilitating and devising pedagogical strategies and techniques that can be used to assist students and lecturers to use cell phones. Therefore, the use of cell phones in teaching and learning should be grounded on sound theoretical and pedagogical principles.

Author Keywords

Distance education theories, interaction, cell phones, pedagogy

INTRODUCTION

One of the main barriers of learning in distance education is the absence of interaction in a learning environment. The distance education character of individual form of learning and the absence of interaction is a challenge for both students who need help and lecturers who want to assist students in cognitive development. The key to the successful enactment of interaction in distance education, “rests on the philosophy of distance education which informs the decisions about techniques and technology” (Evans & Nation, 1989, p.154) and not only on the way the course is presented and delivered. The nature of distance education compels providers to use mediated forms of interaction to support their students. This enables students to communicate with their lectures and talk with each other in an effort to understand the course content. Throughout the history of distance education, theorists and researchers have been concerned with explaining the functioning of the

concept of interaction in enhancing and supporting learning in distance education. The idea is to find an accessible and available technological tool that can be used to support distance education students. Studies have shown that students' development is determined by social interaction through problem-solving under the guidance of a teacher or in collaboration with capable peers (Brindley & Paul, 2004; Garrison & Shale 1990; Lave & Wenger, 1991). Mobile technologies, such as cell phones, hold a lot of promise for distance education as a cognitive delivery tool to enhance interactive collaborative learning while addressing the challenge of student isolation which is often associated with the correspondence nature of distance education.

To address the problem of student isolation, distance education institutions, especially in developing countries have used numerous intervention programs such as tutorial support, counseling services and peer-group support to enhance interaction. Where it is not possible to offer face-to-face tutoring, tutoring via telephones, videos and computers have been used to support a two-way communication between the teacher and the learner. It is only recently when other distance education institutions have been used Short Messaging Systems (SMS) to communicate with their students. Most people in developing countries are likely to own a cell phone than any other technology. In South Africa alone, the cell phone penetration is estimated at 98 percent. A recent survey found that 39% of urban South Africans and 27% of rural residents are now browsing the internet from their cell phones (Rao, 2011). Cell phones are more accessible to most rural communities in terms of cost, geographic coverage and ease to use. "Interestingly in Africa, consumers might not have shoes, but they have cell phones", remarked Brian Richardson, a founder of a mobile service company (Rao, 2011). Most communities in Africa including peasant farmers, health workers, migrant labourers, rural extension workers are using cell phones not only for communication purposes, but to carry out their daily business.

More 98 percent of University of South Africa (UNISA) students' already use cell phone for social purposes. Even the low-end cell phones have some software features such as pictures, video, games, instant messaging that can be used for tutoring, assessment and collaboration amongst students and teachers. Some of these features can be harnessed to develop formal learning opportunities for distance education students. Despite evidence that show that cell phones have occupied every facet of our lives, the pedagogical affordances of cell phones have not yet been fully explored in most developing countries. "It is not technologies with inherent pedagogical qualities that are successful in distance education," according to Keegan (2005), "but technologies that are generally available to citizens" (p.3).

Although many technologies have been used in the past to enhance interaction in different types of learning contexts, Simonson et al. (1999) argued that learning through distance is fundamentally different from learning in a classroom setting even when the technologies are used. "Just as a triangle and a square may have the same area shapes, the experiences of the local (classroom) learner and the distant learner should have equivalent value even though these experiences might be very different" (Simonson, 1999, p.71). It is therefore important that the pedagogy that is used to support distance learners should be tailored to the distance education context. What separates distance education from other learning contexts is that students are physically, emotionally and socially separated from their lecturers, their peers and their institution. The problem arises when interaction amongst stakeholders is not as constant as what exists in other learning contexts. Interaction, according to Anderson (2010) is the core of the educational experience and the nature of distance education compels providers to use mediated forms of this interaction to support their students. Without interaction, teaching becomes simply "passing on content as if it were dogmatic

truth," (Garrison & Shale 1990, p.29). The aim is to investigate the pedagogic approach that best support effective use of cell phones in a distance education.

This will be done through highlighting some of distance education theories to argue for the principles that guide pedagogy and practice in using cell phones for the purpose of supporting distance education students. The role of theory is "to create conceptual order and provide simplicity in describing complex phenomena" (Garrison, 2000, p.4). The focus will be on distance education theorists who dealt specifically with communication or interaction. These theories will be used to map out the role of interaction in the distance education transaction with the aim of facilitating and devising pedagogical strategies and techniques that can be used to assist distance education students and lecturers to use mobile technologies in the education environment. Anderson (2011) argues that technologies have a major impact on the pedagogy in that "the technology sets the beat and creates the music, while the pedagogy defines the moves" (p.2). Both technology and pedagogy are intertwined and therefore it is important to look at how they work together to support different models of learning.

THEORIES OF INTERACTION IN DISTANCE EDUCATION

To understand the pedagogy for mobile learning, it is important to look at different theories that impact on teaching and learning. Education theories, be it distance or not, leads to an adoption of specific teaching and learning process. Distance education theories were classified into three groups: theories of independence and autonomy, theories of industrialization of teaching, and theories of interaction and communication (Keegan, 1986). Each of these theories was trying to explain the processes and practice of distance education. In most distance education contexts, interaction between the lecturer and the student is done through student sending a completed assignment to the teacher who marks it and sends it back with comments and feedback. This form of interaction was not sufficient for most students who needed much more. An effective support that students were expecting, according to (Brindley & Paul, 2004) should personalize the learning process; encourage and facilitate interaction between students and stakeholders; and facilitate learning within courses. Therefore s study materials and assignments should be designed in such a way that students are encouraged to analyze, summarize and draw conclusions on the content of the study material (Holmberg, 1993). The idea is to establish a personal relationship with the students and course developer and "find ways to non-contiguously cater for something functioning in the way that dialogue does" (Holmberg, 1983, p.69). The real or two-way conversation could be done through the written, personal and telephone interaction.

In distributed learning environments such as distance education, "what is known lies in the interaction between individuals and artifacts, such as computers and other technological devices" (Dabbagh, 2005, p.30). These technologies are used to enhance two-way communication in distance education. Garrison (1989) argues that two-way communication can only be sustained if students are also in control of the educational transaction. His concept of learner control is based on the students' "ability to influence and direct a course of events" (Garrison, 1989, p.27). The nature of mobile learning is that it supports student centredness which aims to develop in each student a sense of responsibility for his or her own learning by focusing on individual student's experiences, perspectives, background, interests, capabilities and needs (Pullist, 2001).

The distance education character of individual form of learning is at the centre of some of the problems within this system. The assumption is that distance learners, do not need mediation or support as they go through their learning experience. Many studies revealed that students need

mediated conversation between themselves and their teachers as they go through integrated and structured dialogue in the study material and in other interventions aimed at formative development of a student (Holmberg, 1983; Moore, 1993). Moore (1993) argues that distance education, not only a geographic separation between the teachers and the learners, is a pedagogic concept. In this separation there is a “psychological and communications space to be crossed, a space of potential misunderstandings” between instructors and students who are physically separated (Moore, 1993, p.22). To address this transactional distance, Moore (1993) believes that interaction between student and content; student and student; and student and lecturer should be encouraged. “Deep and meaningful formal learning is supported as long as one of the three forms of interaction... is at a high level” (Anderson, 2003). These forms of interaction should be used to promote learning regardless of how students are linked to the resources they require (Simonson et al., 1999).

While Moore looked at interaction from a students’ point of view, Anderson and Garrison (1998) focused on the educational phenomenon of interaction from the multiple-perspectives. They argued that teaching and learning is not only about students, it also includes other forms of interaction that takes place in distance education system. The idea was to clarify the costs between independent-oriented and interactive-oriented learning strategies and activities. Anderson (2010) stressed “the importance of cost and sustainability as well as pedagogical value in choosing appropriate mixes of interaction” in his equivalency theorem framework.

Central to any education experience irrespective where students are studying is mediated interaction (Garrison, 2000). The relationship between the interaction that occurs between the person who is giving instruction and the one who receives it determines the distance between the student and the lecturer (Moore, 1983). Moore (1993) and Garrison (2009) concepts of dialogue, structure and learner autonomy or control are central to two-way communication. The use of technology is an essential component of supporting two-way communication in the education transaction (Garrison, 2009). The idea is use technologies that students are already using and are comfortable with to adapt to formal learning environments. However, the successful implementation of using cell phones is dependent on student and teachers understanding of why they are using it in an educational environment and how they should use it (Hillman, Willis & Gunarwerdena, 1994). Student and teacher need “to operate from a paradigm that includes understanding not only the procedures of working with the interface, but also the reasons why these procedures obtain results” Hillman et al., 1994, p34. It is only when both teachers and students understands why and how they can use cell phones in their learning environment would they be convinced of its potential and educational value.

PEDAGOGY OF MOBILE LEARNING

In trying to understand how mobile technology can be appropriated for teaching and learning at a distance, we should start by looking at how different is mobile learning from other technologies that are used in teaching and learning (Laurillard, 2007). The strength of using mobile technologies is that they offer learning that is intimate, spontaneous, pervasive and versatile. Mobile learning “provides an enhanced cognitive environment in which distance learners can interact with their instructors, their course materials, their physical and the virtual environment” (Koole, 2009, p.38). The difference between mobile learning and other technologies is that it has the ability support situated learning (Kukulsa-Hulme & Traxler, 2005). Mobile learning provides students with

opportunities to engage in authentic activities. In this context, students are able to explore, share and interact with each other as they try to learn together in their real life learning environments.

The nature of mobile learning is that it tends to ascribe to the student-centred approach. This pedagogical approach assumes that students come into the learning environment with their own perceptual framework and therefore they need to be encouraged to construct their own meaning by talking and listening to each other, writing and reading as well as reflecting on content. When students are in control of their learning, they are able to link up with other students in collaborative learning networks. Through peer collaboration, according to Laurillard (2007) students are more likely to be motivated to share their work with each other as well as to augment their conceptual understanding with others. In the distance education context, social interaction relates to the socio-emotional aspect of group forming and group dynamics (Kreijens, et al., 2003). UNISA students were able to set-up study-groups through MXit – a cell phone social network system, to help each other through difficult areas of their courses (Makoe, 2010). Mobile learning was able to facilitate this process through building communities of learners who are committed to working together to achieve a goal. “Collaborative learning leads to deeper level learning, critical thinking, shared understanding and long term retention of the learned material” (Kreijins et al., 2003, p.336) as well as developing communication and social skills. The question is how do we harness mobile technological features to support learning?

Studying through printed media will and still remain one of the main medium of instruction in most developing countries such as South Africa. The pre-produced self-contained study material are developed with an explicit understanding that they facilitate access to learning especially to those people who live in marginalised, remote communities. However, several studies have reported that cell phones can be used in conjunction with printed material to support interactive pacing; just-in-time instruction; network databases; interactive prompting; self-check assessment; facilitating summative and formative assessment; problem solving and collaborative learning. The challenge is how distance education providers integrate these activities to enhance the learning experience for distance education students.

Theoretical framework	Pedagogical focus	Uses of cell phones
Guided didactic conversation Holmberg (1983)	Study material should be written in a personal style; easily accessible; offer explicit advice, suggestions and invite exchange of views. Mediated conversation should facilitate the development of learning relationship between the lecturer and the student	Cell phones can be used in conjunction with printed materials to give and get feedback from lecturers and students; access learning games; simulations; self-assessment quizzes; podcasts and videocasts. Content can be broken into small chunks to make access easier and avoid scrolling.
Transactional distance (Moore,	Learner – lecturer: The lecturer provides an organised curriculum to ensure that the student masters the	A lecturer can send an SMS that is meant to trigger discussion on a particular topic and then encourage

<p>1989; Moore and Kearsley, 1996)</p> <p>Hillman, Willis, and Gunawardena (1994)</p>	<p>content</p> <p>Learner – learner: Students form peer support groups</p> <p>Learner-content: Student reads a book, views or listens to DVDs and CDs and interacts with inanimate learning resources.</p> <p>Learner-interface: interaction between the student and the technologies used to deliver the instruction</p>	<p>students to engage on a discussion.</p> <p>Students can form peer support study groups through cell phone social networks such as MXit, WhatsUp, BBM etc. They can support each other synchronously or asynchronously</p> <p>Student can interact or get clarity on a difficult concept by checking it on the internet using cell phones. Podcasts and videocasts can be created to record, store and deliver content (Anderson, 2010</p> <p>Lecturers and students can acquire different technological skills and competencies they need to understand and know how to use different mobile features and applications for teaching and learning.</p>
<p>Theory of integration of the teaching and learning acts</p> <p>Keegan, (1990)</p>	<p>The course is designed and developed using networks of diverse applications such as Open Educational Resources (OERs), wikis, blogs, discussion boards, conference sessions, social networks such as Twitter, Skype and podcasts.</p>	<p>Students can be asked to access certain OER material on the internet; and be asked to offer their own ideas and post them in their cell phone social networks where they share them with their peers and lecturers. Students can take pictures, share with others and hold discussions on how to solve a particular problem using different cell phone applications.</p>

Table 1: Theories and the pedagogies that supports the use of cell phones in distance education context.

DISCUSSION

Distance learning, unlike classroom based learning, has always been challenged by the problem lack of communication in the education transaction. That is why distance education theorists have always looked at how to address this problem through mediated technologies and face-to-face intervention. Since cell phones can be used as a tool to facilitate interaction through synchronous and asynchronous learning, it is suggested that different cell phones applications are harnessed for teaching and learning. Students can also be encouraged to use cell phone social networks such as MXit, WhatsUp, BBM to form study groups and work collaboratively on projects. Through these

communities students will be able to get together, engage in joint activities and discussions, help each other and share information about the course. Communities develop their practice through problem solving, requests for information, coordination and discussing developments, mapping knowledge and identifying gaps.

In distance education, the process is usually reduced from a dialogue to a monologue where a lecturer sends out pre-packaged study material to students. The assumption is that distance learners, do not need mediation or support as they go through their study material. However, many studies have reported the students need for mediated conversation between themselves and the teacher through integrated and structured dialogue both in the study material and in other interventions aimed at formative development of a student (Holmberg, 1983; Moore, 1983, 1993; Thorpe, 2001). The lack of contact and limited feedback from their lecturers is of great concern for distance education students. Most of them do not have the confidence to learn independently and as a result they have trouble in self-evaluation. Students need lecturers to help and support them as they engage with their study material. To keep students motivated, lecturers should send students feedback almost immediately because students rely on lecturers' comments on their assignments and they can also send motivational SMSs. When the lecturer send information via personal and situated devices such as cell phones, students feel supported, they develop a positive relationship with their lecturers and the university and they find learning more pleasurable and this in turn supports their motivation.

Cell phones can also be used to enhance this interaction through weekly self-assessment quizzes where students can test themselves on basic factual information. This will also encourage students to pace themselves as they go through their study material. Cell phone downloadable audio files can also be used to add a voice and provide a narrative to the content. The combination of printed study material, cell phone based self-assessment quizzes and audio can guide a student through the maze of learning material while assisting them to pace themselves.

CONCLUSION

All these theories that have been mentioned in this study were trying to provide direction and new approaches that can be used to bridge the distance associated with the correspondence nature of distance education. It was therefore important to draw from distance education theories in order to understand the pedagogical suitability of using cell phones in enhancing interaction. New technologies such as cell phones provide unique technological attributes that could be harnessed to enhance teaching and learning. These new technologies can be used to support personalised, immediate and situated learning. These features are particularly important in distance education because they can enable interaction between a student and a lecturer as well as between a student and his or her peers thereby addressing the problem of isolation.

Despite reported successes of using cell phones, lecturers in developing countries are not convinced about the mobile learning potential to develop new ways of teaching and learning. The success of using cell phones in education depends on the lecturers' attitudes and how they integrate the use of devices into the learning process. It is only when the teachers understand the pedagogy that supports its use; and they are empowered with the necessary skills; that they will utilise the affordances of mobile technologies to engage and support students in the learning processes.

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