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Mobile Technology: Implications of its Application on Learning

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Abstract

Learning in Nigeria is considered to have taken a new dimension as the Distance Learning Centre (DLC) of the University of Ibadan has created wider access to learning through the application of mobile technology to learning with particular reference to mobile phones use for the teaching and learning process. By this, the Centre seeks to achieve one of the major objectives of the Nigerian National Policy on Education, which is the provision of equal educational opportunities to all citizens at different levels of education. The paper therefore presents the attendant challenges of introducing such an innovative idea to learning at the University of Ibadan using a sampled population of 201 in a Focus Group Discussion (FGD) held among learners under the Distance Learning platform to establish the benefits and problems of using mobile phones for learning in the University of Ibadan.

Keywords: distance education; distance learning; mobile phones; mobile technology

Introduction

There are estimated to be 1.5 billion mobile phones in the world today and presently, Nigeria alone has over 107.4 million mobile phone subscribers (Prensky, 2004; NCC, 2012). In fact, roughly half of the world's population already has some type of mobile phone, making it the most wide spread technology and most common electronic device in the world. This implies that mobile phones are more than three times the number of personal computers (PCs) and most of today's phones have the processing power of an average PC. These facts and the range of computer-like functionality offered by mobile phones and PDAs, are leading some observers to speculate that many people in the not so distant future will start to see the mobile phone as an alternative to a PC. It is to this background that mobile phones have been seen to become relevant in the world of learning.

It is interesting to note that mobile devices such as phones and PDAs are much more reasonably priced than the PCs and therefore represent a less expensive method of communicating in the learning environment. Many claims about the potential and benefits of M-learning to make learning possible anywhere, anytime, in anyway and anyhow have been reported (Salmon, 2000; Young, 2002; Adedoja & Oyekola, 2008; Adedoja, Omotunde & Adelore, 2010).

The need to explore this new trend in pedagogical/andragogical shift is therefore crucial if progress in terms of ICT use is to be made. As noted by Green (2002); Campbell (2004; 2006); Hooper, Fitzpatric and Weal (2008), the use of ICT and newer technologies in the form of PDAs and mobile phones can indeed help to increase communication and interaction and enhance the quality of learning, particularly in distance education. Hooper *et al.* (2008) argue that mobile technologies are increasingly being used to create innovative mobile learning experiences for learners; and a key benefit has been in learners' collaboration around the use of the PDAs and mobile phones.

The objectives of the study on the use of mobile phones at the Distance Learning Center (DLC) of the University of Ibadan are to:

a) Determine the benefits of using mobile phones for learning;
b) Reveal the attendant challenges of using mobile phones for learning among University students;

The Distance Learning Centre, University of Ibadan

The Distance Learning Center (DLC) of the University of Ibadan was established in 2002 to cater for the needs of distance learners. The Center also seeks to achieve one of the major objectives of the Nigerian National Policy on Education, the provision of equal educational opportunities to all citizens at different levels of education- widening participation.

National Universities Commission's policy guidelines for open and distance learning in Nigerian universities (NUC, 2009) encourage the use of technology in deploying distance education programs. In this regard, content delivery should be based on resource-based pedagogies and marking of assignments should be automated.

A number of Educational Technology Initiatives (ETIs) are currently being pursued. Amongst others, some key reasons for investing in educational technology at the University of Ibadan are to:

- Implement discipline-specific pedagogical strategies that require students' active engagement and develop problem-solving and problem-posing skills in the context of technology-assisted learning environment;
- Create interactive learning that is technology driven;
- Achieve learner-centered teaching and learning, using ICT tools that enable open and distance learning; and
- Develop teachers who can, through a technology driven environment, make learning relevant, exciting and effective, at the same time achieving efficiencies that will give them time to embark on other activities expected of them, like research and community service.

In line with the National Universities Commission (NUC) (2009) policy guidelines, the current project explored the use of radio broadcasting and the mobile phone in supporting distance education students, although the report on radio instructional delivery is still underway. Data on this is still being collected; therefore this report is based on acceptance of mobile phones for tutorial delivery in distance education. Pedagogical underpinning for the integration of mobile phones in education emanates from 3 very strong reasons. First, distance learners are in diverse geographical locations and are thereby learning in isolation. In order for them to maintain connections with institution and other learners, mobile phone affords both academic and administrative support. Second, on-the-go- learners have the ability to carry the device with them wherever they go. Third, mobile phone penetration in Africa is high and is relatively cheaper for users than the PC.

Against this backdrop, visionary educators, designers and developers within the University are beginning to consider the implications of using mobile devices for the modern teaching and learning environment. In such an environment, contents and services can be relayed to a university student by personal wireless mobile devices. This will add another layer to the personal computer-based model of teaching and learning. This also means e-learning will take place in conditions that will be radically different from those educators and learners are familiar with. Providing university students with services, content instruction and information outside the traditional learning space is becoming more acceptable among education providers who predicate their services on the routine use of advanced information and communication technologies.

This paper therefore presents the result of the study carried out showing the perceived benefits and perceived problems of using mobile technologies for learning as presented by the sampled students of the Distance Learning Centre, University of Ibadan.

Theoretical Framework

The study's framework was based on Davis (1986) Technology Acceptance Model (TAM), which made use of the Theory of Reasoned Action (TRA). TRA postulates that an individual's attitude

towards behaviour is influenced by his/her belief. Notably, the model deals with the acceptability of an information system/tool, how it can be used to predict acceptability of the system/tool, and modifications to be made for acceptability.

The model assumes that acceptability is majorly determined by two factors:

(a) Perceived Usefulness (PU); and
(b) Perceived Ease of Use (PEU)

PU can be described as the degree to which an individual believes that the use of a system/tool will improve his/her performance while PEU refers to the degree to which an individual believes the use of a tool/system will be effortless or require minimum effort. The model postulates that the use of a system/tool is determined by behavioural intention, individual's attitude to its use and the perception of its utility (figure 1). Davis (1986) posits that the attitude of an individual is not the only factor that determines his/her use, but the impact the tool or system will have on his/her performance is also a significant factor.

Many studies have been carried out using Davis' (1986) TAM. Most conclude that the model is incomplete because it fails to account for social influence in the acceptance, adoption and utilization of a new tool/system. It is important to take this into account because human beings are influenced by their social environment. However many studies have used the construct of PU, PEU and subjective norms to explain technology acceptance and usage for a variety of instructional systems including online learning.

Mun and Yujong (2003) exposed students to Microsoft applications for a period of eight weeks. After a two-week trial period it was found that learners' self-efficacy, enjoyment and learning goal-orientation determined the actual use and acceptance of the system. Shen, Laffey, Lin and Luang (2006) explored the extent to which subjective norms (influence of instructors, mentors and peer) influence and shape the perception of learners towards the use of course delivery modes. Results of the study show that instructors' influence had significant contribution to students' PU while mentors' influence is significant to PEU of the learning system. This shows the importance of instructors' role in shaping impressions of the value of using course delivery system. Miller, Rainer and Corley (2003) find that PEU and PU have a significant positive relationship with the amount of time students spend on a course. They also note that both are significant factors for predicting intention to use. Sumak, Hericko, Pusnik and Polancic (2011) show that the use of MOODLE by learners depends on behavioural intentions and attitude. PU is found to be the strongest and most important predictor of attitude.
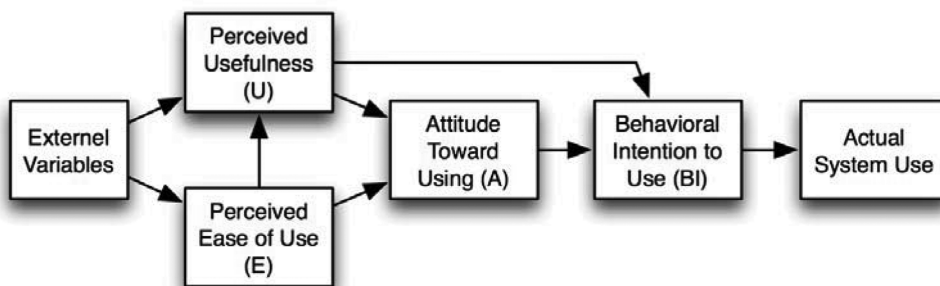

Figure 1: TAM Model Showing the Relationship between Perceived Usefulness, Perceived Ease of Use and Actual Use (Davis, 1986)

Research Methodology

Basically, for this study, the responses of the respondents were measured along the line of their perceived usefulness, perceived ease of use, perceived benefits and perceived problems of mobile technology for learning which they were exposed to. The Focus Group Discussions (FGD) questions were channeled towards gathering information to determine the perceived use, perceived ease of use, perceived benefits and perceived problems of using the identified mobile technology- mobile phone, for learning.

The study adopted a qualitative research method. An outline of questions was developed for the Focus Group Discussions to measure the perceived benefits and problems of using mobile phones for learning instruction among distance learners of University of Ibadan. The population of this study comprises students of Distance Learning Centre of University of Ibadan. A sample of 201 students was drawn from the faculties of Arts and Education. The sample was further stratified into 25 groups with the groups having a minimum of 5 and maximum of 10 members; all in the third year of the distance-learning program.

Two sessions of the FGD were held for the 25 groups within the space of two weeks in the Faculties of Arts and Education among students who receive the courses: *Production of Speech* (LIN 241), *Primer Writing* (ADE 205) and *Introduction to Instructional Technology* (TEE 353). Due to the peculiarity of the distance learning students, students were informed of the FGD through bulk SMS service informing them of the date, time and venue of the discussion. After an informal welcoming and a quick overview of the FGD by the facilitator, each group was then asked to choose a group leader and a recorder.

Questions used during the FGD sessions were the following:

1. What are the benefits of using mobile phones for learning?
2. What are the problems you are likely to encounter when using mobile phones for learning?
3. Can you imagine learning on mobile phones?
4. What forms of education do you consider feasible for mobile phone use?
5. Have you ever tried using your mobile phone for an assignment?

Results and discussion

The analysis of students' responses to the above questions as asked during the FGD sessions reveals the following:

1. In response to question 1 about benefits of using mobile phones for learning, most students who have used this technology responded that mobile phones have actually reduced their learning stress and greatly eased up their learning activity. They equally agreed that mobile phone use for learning has made learning more interesting and attractive.
2. Respondents, in response to question 2 about problems likely to encounter when using mobile phones for learning, submit that network failure and poor supply of electricity greatly affected their participation in using these devices. Poor supply of electricity -which usually leads to low cell phone batteries and network failure- could make instant messaging and accessing content a serious setback to using mobile phones. Sometimes electricity supply is unavailable for several days at a go, thereby making charging of batteries impossible. This usually is taken care of by the use of generators that are used in many homes and institutions, irrespective of geographical locations. They also concluded that small screen sizes would lead to small text size, which can make the viewing of information from the mobile platform a tiring experience. This, they claim, may cause fatigue especially if they stared at the screen for too long.

3. About imagining learning in mobile phones, some 90% of the students in each group see mobile learning as a welcome innovation into their course and advancement in their learning process.
4. Regarding the question about forms of education feasible for mobile phone use, three out of the nine different focus groups agreed that quiz would be the most feasible form of activity on the mobile platform. Four groups agreed that reading short texts and lecture notes would be the most feasible form of activity. One group agreed that all reading texts and lecture notes, taking quiz and tests are all feasible forms of activities on the mobile platform. One group however did not respond to the question.
5. In response to question 5, five groups indicated that they had never used their mobile devices for assignments. Although, it was noted that a few of the students in these groups had attempted the use of their mobile device for assignment (searching for information in the web). Four other groups indicated that they have at one time or the other used their mobile phones for assignments.

Besides, in the course of the project, the following challenges were encountered with respect to students using the mobile platform:

- Login difficulties: Some students found it difficult to log in, as some names for login were not correctly written -e.g student's name: *Joshua*, registered name: *Josua*-; these login problems made students become confused and frustrated.
- Network problems: Some students complained about loss of Internet connectivity, e.g. a student complained of not being able to log in because of rain. This is usually the case with MTN Mobile network infrastructure anytime it rains; connectivity is lost.
- Special needs*:* Students with physical challenges were not catered for in the project as they were not able to interact with content, which is wholly text-based. Some of these students complained and requested that their physical challenge should be factored into the design and implementation of the mobile learning project.
- Computer skills: During quizzes, some students complained about not being able to initiate the quiz (this complaint was made about TEE - *Introduction to Instructional Technology-*course quiz,) or to submit the quiz questions after answering them, due to low computer skills.
- Mobile platform: Students also complained about the way and manner in which the mobile platform works and their inability to navigate it. This also boils down to the problem of poor or low Internet skill. This complaint, among others, instructs that at the student orientation programme there is the need to intimate students with the way the mobile platform works.

Conclusions

The paper has considered the great benefits and the possible challenges of using mobile phones for learning. The study, among other things, has shown that the application of mobile technology—particularly mobile phone- into learning has made learning become easier and more interesting. It has been able to bridge the divide of time and space that is the peculiarity of the erstwhile formal mode of learning. These benefits notwithstanding, mobile phone use for learning has its peculiar challenges or problems as experienced by learners in the Distance Learning Programme of the University of Ibadan. While some learners had issues with adequacy of IT skills, others had problem of power supply to sustain their phone batteries for use, among other raised issues.

In spite of the attendant challenges, the good that mobile phone use for learning has got to offer, as shown by the study, is of greater value. So, it is important to note that a study of this magnitude is of great importance to our educational system, particularly at such a time when the world is

craving for equal access to qualitative education. Institutions and educational providers should work with every sense of purpose to reduce the challenges raised by this study and further studies should be encouraged in the area of application of mobile technology to the teaching and learning situation towards the attainment of mutual access to qualitative education by all and sundry.

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