

Mobile Learning a new Wave of Learning: A Survey among University of Dodoma Students

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ABSTRACT

Mobile technologies are increasingly becoming an integral part of student's lives in academia. Devices such as smartphones, tablets, and e-book readers connect users to the world instantly, heightening access to information and enabling interactivity with others. Applications that run on these devices let users not only consume but also discover and produce content. As such, they continue to transform how college students learn, as well as influence their learning preferences, both within and outside the classroom. This study survey the adoption of mobile phones among university students and their attitudes on the uses of cell phones as a venue for learning their class handouts and hunt ground for educational materials. The findings show that 53.3% of students own smart-phones while 41.8% own basic cell-phone (Featured phone). 42.4% of them use their cell phones to search educational reference materials online, 7.3% of them use cell phones to play games, 24.3% use their cell phones to read online news, 33.3% use their cell phones to connect to social networks. Overall these results suggest mobile phone as promising device for delivering learning materials to students.

General Terms

Mobile Learning

Keywords

E-Learning, Mlearning, Mobile phone.

1. INTRODUCTION

The advancement of Information and Communication Technology (ICT) has a vital role to play in development and the success of economic prosperity in any country. Innovations in mobile and digital technologies are moving at a pace that poses a promising and an exciting future of various sectors in developing world. Nowadays, people live in a mobile oriented world where many of them carry a powerful, easy mobile computer in their pockets. Mobile phone are now in the hands of more than 96% (6.8 billion) of the 7 billion global population, 128% in developed countries and 89% in developing countries [1]. These staggering numbers are indicator of the growth and reach of mobile phones around the world.

Educational sector as one of the major sectors that drives economies, cannot get its pace forward without taking advantage of the growth in ICT. ICT has evolved into many facets of education that encompasses eLearning, computer and web based learning or training (WBLT). Learning systems needs to keep the pace with the technology, so the new direction must take advantage of the emerging technologies such as cloud computing, web 2.0 and mobile telephony [2]. Mobile and wireless technologies are swiftly growing in a

way that could be reaped to improve education in developing countries. The services that mobile phones offer are beyond communication services. Mobile phones are nowadays used in health, agriculture, business, banking and government sectors [3]. The growing capabilities of mobile phones promise an incredibly exciting future of various sector especially educational sectors.

The notion of exploiting mobile technology for educational purposes coined as mLearning can be defined in two main perspectives, one is technological and two is pedagogical. In technological perspective, mLearning refers to the use of portable mobile or wireless devices for the purpose of learning while on the move. Mobile devices that can be used for mobile learning include cell phones, smartphones, palmtops, and handheld computers(Tablet PCs, Laptops) and personal media players (iPod) [4]. Pedagogically, O'Malley et al., [5] defines mLearning, As “*any sort of learning that happens when the learner is not at a fixed, predetermined location, or learning that happens when the learner takes advantage of learning opportunities offered by mobile technologies*”. This study focuses on the technological perspective of mLearning. However, it also light touches the implication of technology on pedagogical perspective.

The stance on mLearning is promising. The opportunities presented by mLearning, particularly for learners who lack access to high quality education, is immense. The accessibility and portability of mobile phones in educational perspective implies that learning can now be “everywhere anytime” and become a part of life rather than an isolated activity, which occurs in classrooms. The progression of mobile broadband acceptance and the growth in 3G and 4G latest wireless technologies add fuel to the succession of efforts of harnessing mobile devices capabilities for educational purposes [2].

Despite of the considerable potentials that are presented by mobile technology, schools and colleges are still reluctant at tapping these opportunities to improve educational outcomes. However, there are has been challenges in harnessing the opportunities brought by mobile in facilitating learning, these includes relating to policy, culture and ICT infrastructure in the developing world [6].

Furthermore, there is few or no scholarly work that directly focuses on the use of mobile wireless technologies in the higher education setting [7]. Moreover, the students' perspectives and usage of mobile phones as an educational learning tool is unknown.

This paper present and discuss the result of the survey carried at the University of Dodoma (UDOM) that assessed the usage of mobile phones by students.

2. METHODOLOGY

In this study a survey is carried to assess the adoption of mobile phones for educational purposes among University students. A questionnaire containing both open and closed ended questions was distributed among the students. The population of the study was students of the University of Dodoma (UDOM). A sample of about 150 students from different colleges of UDOM was given questionnaire, whereas 122 students responded to the survey. Thus the response rate was 81.33%. Gathered responses were analyzed with the help of SPSS (Version-16). Results of the data analysis are presented and discussed in result section.

3. RESULTS

The results show that of the 122 respondents, 68% were male and 32% were female.

3.1 Kind of Mobile phone

It was found that, most of respondents owns smart-phone (about 53.3%) followed by Basic-Cell-Phone (about 41.8%) and the rest was not sure on kind of mobile phone they owns (about 4.9%). Table 1 summarizes the results.

Table 1: Types of Mobile Phone used by respondents

		Frequency	Percent
Valid	Smart-phone	65	53.3
	Basic Cell-Phone (Featured phone)	51	41.8
	Not Sure	6	4.9
	Total	122	100.0

Furthermore it was found that; most of the mobile phone of respondents was installed with Android platform (about 44.26%), followed by Nokia (Symbian) (about 24.59%) and the least one was iPhone (iOS) which has contributed to 2.46%. However, about 0.82% which shows the missing information reflects on the respondent, who didn't know on type of mobile platform which is installed in their mobile phone. This indicates that studies/projects which will advocate in building mobile services for students, should be piloted in Android based platforms.

Figure 1 depicts how mobile platforms have been adopted by students at UDOM.

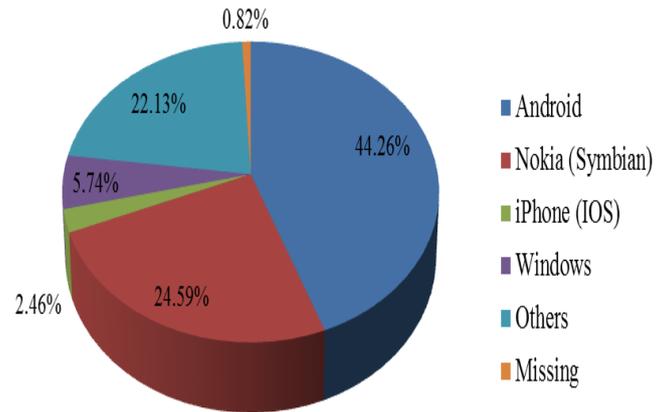


Figure 1: Mobile Platform

3.2 Mostly exploited mobile phone services

It was found that, most of students found at UDOM, use their mobile phones for sending and receiving SMS and least of them use their mobile phone for playing games. About 33.6% respond to Sending SMS as their common services while 7.3% respond to playing games as their common services.

Figure 2 shows mobile phone services usage by UDOM students.

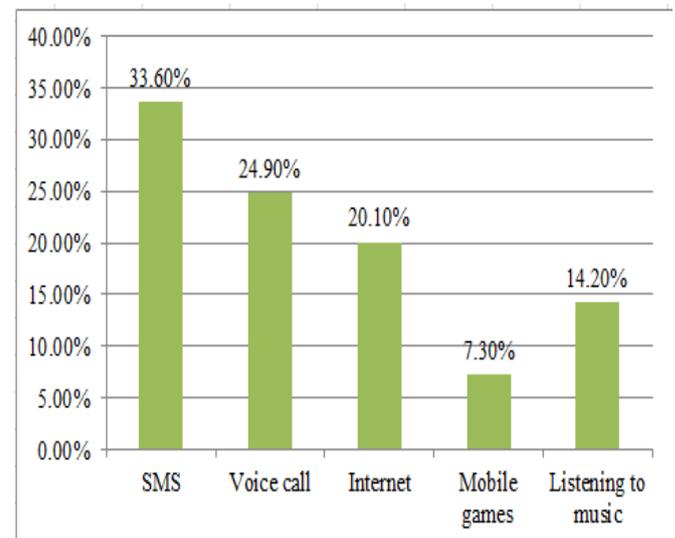


Figure 2 : Mobile Phone Service Usage

This study found out that, students uses Mobile phones to access the internet more that even with University Computers (University Internet Services). About 39.3% of students said they use their mobile phones to connect to internet services.

Figure 3 show the tools used by students to connect to internet services.

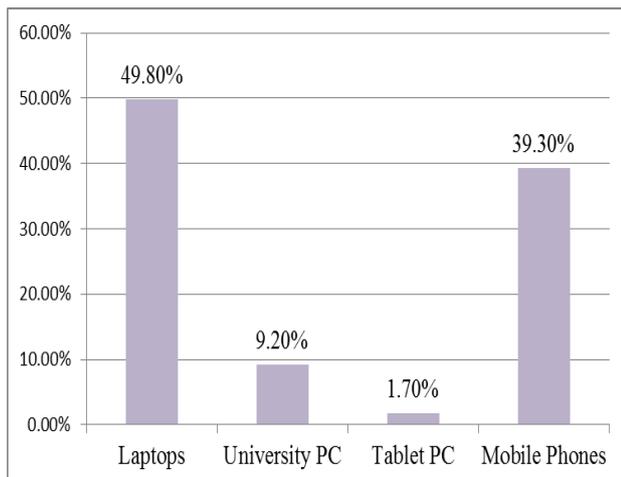


Figure 3 : Tools used by students to access internet

This study found out that, the common internet service used by the UDOM's students was searching for education referencing materials which account for 42.4%, while the least internet common services was reading online news which account for 24.3%. Hence this is good news since most of students prefer to use internet for searching educational referencing material. This can be depicted in Table 2.

Table 2: Internet services accessed via mobile phones

		Responses			of
		N	Percent	Cases	
Internet services	Searching educational referencing materials	89	42.4%	84.8%	
	Reading online news	51	24.3%	48.6%	
	Connecting to social networks	70	33.3%	66.7%	
Total		210	100.0%	200.0%	

Regarding the cost of using mobile services, this study found out that 96.61% of students spend less than Tsh 1000 (0.625 USD), and 3.39% spend between Tsh 1000-2000 (0.625-1.25 USD) for mobile phone communications per day. Therefore students spend about 13% of their daily allowances for mobile communications. This implies there is a significant investment on mobile services by students which can be tapped to improve educational outcomes.

3.3 Benefits of using Mobile Technology for education (MLEARNING)

There is a bunch of advantages in using mobile devices for facilitating learning, these includes functionality, portability, connectivity, space and power saving, and cost saving [8]. The portability of mobile devices with an enhanced battery life assures the high availability of the m-learning content and providing instant access for the learner whenever anytime. M-learning benefits from the communication ability and computational power of mobile devices that enable effective

collaboration between learning peers. Pedagogically this 'collaborative characteristic' is advantageous [9].

Boja et al. [10] study on the quality of mLearning, weighs mLearning as an important asset for the education process because it affects the way the information is understood and is learned by students. Mobile Learning creates a window for improving educational quality by introducing new pathways for learning and improving the existing educational offerings. mLearning complement the existing educational investments such as textbooks, infrastructure, hardware, training and learning contents [11].

Mobile technology can therefore be used to bridge that gap poised by lack of computers in homes for learning by delivering the most up-to-date content that are accessible immediately and from anywhere and can be repeatedly reviewed for better comprehension and understanding and this via permutation of video, audio and textual applications

The current trends of mobile technology growth can be leveraged to prove the potentials of mobile learning. The emergence of HTML5 frameworks such as JQUERY-Mobile1 solves the challenges of cross platform way of delivering materials in different mobile devices. With toolkits such as Adobe Captive62 and Phonegap3, HTML5 is taking mLearning in a next level of a simplified way of publishing of learning content in multiple mobile platforms.

The continuous adoption of Cloud computing technologies cloud escalate the success of mobile learning paradigm through virtual infrastructure facilities [12][13]. Cloud services such as Infrastructure as a service (use an electronic learning solution on the provider's infrastructure), Platform as a service (use and develop an learning platform based on the provider's development interface) and Software as a services (use the learning management system solution by the provider) could be one of the strategies for institutions to realize m-learning [14]. Furthermore, cloud computing technologies could enable institutions that do not have the technical expertise to support local infrastructure to get access to computing on demand [15].

With cellular networks and internet connectivity increasing dramatically in Tanzania, the expectation is mobile technology to continue to supplant old ways of learning as well as open up exciting new opportunities for innovating teaching in higher education.

4. DISCUSSION

Learning through mobile devices is emerging as a new wave of innovation for teaching and learning globally. The findings of this study show that 42.4% of the students use their mobile to search for reference materials. This implies that mobile phone could be a new frontier for teaching and learning in institutions of higher education and eventually it will become the learning environment of choice.

Furthermore, the documentary analysis reveals that mobile technology would soon or later be a fertile ground for innovating methods of teaching and learning. However, scholars must draw a closer look at some issues and challenges of mobile technology before adopting and using them for education. Among many issues, challenges relating educational policy, technical infrastructure and pedagogical

¹ Available at : <http://www.jquerymobile.com>

² Available at : <http://www.adobe.com/products/captivate/>

³ Available at : <http://phonegap.com/>

issues needs to be addressed in adopting mobile learning environments. Multiple agencies, both governmental and non-governmental must chip in collaboratively, in the process of addressing these challenges for effective reaping of mobile technology for improving educational outcomes.

There is a huge load of advantages that can be grasped from the mobile telephony arena to enhance the educational outcomes, these includes allowing students to self-gain the information and knowledge and to integrate them in their learning contexts; enabling students to be active, independent and creative in approaching problems using real time references; Allow students to work collaboratively through communications and forums. Moreover, mobile learning could be an important tool for promoting global literacy by supporting the adult education initiatives

5. CONCLUSION AND FUTURE WORK

The significant adoption of mobile phones for education or among University students signifies that today's education is not bounded in a fixed setting. The significant investment by students on mobile communications can be leveraged to improve the educational delivery system. As the cost of mobile phone ownership declines, mobile devices could be effective in reducing the cost of education that is spent in preparing and delivering of classical resources based on printed paper.

However, there are still enormous hills to climb in changing mindsets of the practitioners on embracing the emerging technologies particularly mobile technology in improving educational outcomes.

This paper calls educational leaders and policy makers to re-visit and re-think the potentials of ICT particularly mobile technology in education.

In this paper, the researchers have surveyed the use of mobile phones for learning by students of UDOM. Although this survey is restricted to a group of University of Dodoma students, the data obtained provide some insights into how students in Tanzania are exploiting mobile technology for both formal and informal learning and communication. Future studies in this research area could attempt to develop the baseline in investigating the best practices of developing interactive mobile contents for educational purpose. Future work could further give a closer look at pedagogical aspects of mLearning. The future work that will engage in developing mobile-based tools for education can pay attention on evaluating key metrics such as bandwidth, hardware, software, training for student and teacher, content and policies in order to deliver both impact and scale.

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