THE INTERNATIONAL JOURNAL OF HUMANITIES & SOCIAL STUDIES

Implementation of Mobile Learning Apps for Instruction: Faculty Awareness and Accessibility in Nigerian Universities

Oladunni Olufunmilayo Adeyemo
Works at Government Day Secondary School, Odo Okun, Kwara State, Nigeria
Abiodun Christiana Bada
Secondary School Teacher, Excellence Base College, Lagos State, Nigeria

Abstract:
This paper assessed lecturers' awareness and accessibility to mobile learning apps in Nigerian Universities. The demand of mobile learning has continually increased due to recent advances in modern technologies. However, as with any relatively new technology, its implementation is dependent on the stakeholders' awareness and access to it. Therefore, stakeholders, especially faculty members, are expected to give serious consideration to how mobile applications can be integrated and sustained into the instructional process if their institutions will continue to remain relevant in the face of these developments. In this study, 128 lecturers from three universities were surveyed. The study employed a descriptive research design using a researcher-made questionnaire to collect data from the respondents. The results showed that university lecturers are not aware of most mobile applications that can be utilized for instructional purposes; however, they had access to some of these m-apps. Also, no significant influence of gender on lecturers' awareness and access to mobile applications was discovered.

Keywords: *Mobile learning (m-learning), mobile applications (m-apps), accessibility, awareness, implementation, faculty members*

1. Introduction

The proliferation of mobile phones and other handheld devices has transformed mobile learning from a researcher-led, specialist endeavor, to an everyday activity where mobile devices are personal tools helping people learn wherever they go, through formal training or informal support and conversation (Kukulska-Hulme & Traxler, 2007). Regardless of the fact that e-learning has not reached the explosive growth figures which were commonly predicted in the mid-1990s, scholars and industry representatives' attention are now being turned towards m-learning (Feng, Hoegler & Stucky, 2006) which in-turn could help overcome the limitations of e-learning (Nasiri & Deng, 2009). Mobile technologies potentially create a wide variety of uses and limitations that differ significantly from desktop and laptop technologies. Hence, the development of m-learning as a new strategy for education has implications in the way students and tutors in educational institutions interact.

Mirski and Abfalter (2004) defined m-learning as an emerging form of distance learning that offers both teachers and learners the opportunity to interact with educational material using a wireless handheld device. Smrikarov, Georgieva and Georgiev (2005) stated that m-learning is based on the use of mobile devices supported with wireless technology. Mobile technology offers a new generation of learning for people of all ages anywhere and anytime. Besides, m-learning provides many advantages including: Freedom to study with flexibility, low cost, timely application (Alzaza & Zulkifli, 2007), improvement experiential, authentic and reliable learning situations, enhanced availability of guidance, ease of use, support in learning situations (Seppala, Sariola, & Kynaslahti, 2002), fast production of digital learning materials and flexibility of learning (Sharples, Corlett, & Westmancott, 2002).

The implications of mobile learning in education are far-reaching as it has potential effects on teaching and learning system. In the next few years, there would be an evolutionary rather than revolutionary rapid growth in mobile learning. There has been a continual expansion of mobile learning with the overture of smaller components, more sophisticated and powerful gadgets that are capable of delivering data in various formats regardless of time and distance. There will be a continual change in the trend towards mobile learning as the mobile computing devices in present days have more computational power than the largest computers previously (Corbeil & Valdes Corbeil, 2007).

The development of the mobile phones, which comes in a variety of shapes, sizes and functionalities, has more improved mobile learning applications in different ways, such that the majority of mobile phone and its value will outnumber the use of personal computers and other previous technologies (Ifinedo, 2013). Mobile applications for teaching and learning utilization refer to the use of mobile technologies for educational purposes. These devices can offer learning opportunities that

are: impulsive, comfortable, appropriate, convenient, anywhere, pervasive, and personal (Kukulska- Hulme, 2011). Mobile application is gaining its popularity as it is accepted to be an effective technique of delivering lesson and acquiring knowledge anytime and anyplace. It can be utilized in many ways in the education industry.

Huang and Hwang (2010) noted that mobile learning applications can facilitate students not only learning contents conveniently but also interacting with others collaboratively anytime and anywhere. Although the benefits of mobile applications are well-documented, the developments of an adoption rate of mobile application technologies are increasing on a global scale, there is considerably interest from educators and technical developers in exploiting the universal appeal and unique capabilities of mobile application technologies for the use in education and training setting (Sahu, 2013). Mobile application most commonly referred to as an application, is a type of application software designed to run on a mobile device, such as a smartphone or tablet computer. Viswanathan (2016) defined mobile applications or mobile apps as applications developed for small handheld devices, such as mobile phones, smartphones, and so on. Mobile apps can come preloaded on the handheld device as well as can be downloaded by users from the internet.

Crompton (2013) suggested that as many as 60 per cent of mobile apps send information about users to app developers or third parties. A change of teaching approach style might be needed by lecturers in order to accommodate the use of mobile applications so as to foster a more technologically inclined and convenient teaching and learning process. The implementation of mobile applications suggests that the manner towards learning responsibilities and communication can be enhanced and so the message is not only increasing the capacity to learn only, but to make teaching and learning meaningful. While a mobile phone, which possesses quite a lot of capabilities and functionalities, is essentially for communicating, mobile applications aim at optimizing these properties in a learning setting.

Moreover, use of mobile applications is growing rapidly in the higher education environments. Already, there are numerous applications for mobile technologies in education from the ability to transmit learning modules and administrative data wirelessly, which enable learners to communicate with instructors and peers immediately (Steve, Patrivan, & Brown, 2008). Such applications are Smart dot, Edmodo, Teacher Pal, Teacher tools, Power Teacher, Dropbox, Evernote, Educate, Attendance, video conferencing, skype. Mobile applications in the classroom are becoming more and more important. Tablets are replacing textbooks and research can be done on anything on smart phones. Mobile technology is increasingly becoming popular and has affected the standard of living. Educators have seen the importance of mobile applications and think that mobile applications have a positive impact in the educational process (Sung, 2016). Students are also being prepared to grasp the need the technological skills to be relevant in the society by educators who has recognized the benefit of m-learning. The impact of mobile applications in schools today has been quite essential.

These mobile applications have totally changed how faculty members teach and students learn. Lecturers are learning how to teach with mobile learning applications (Tablets, Ipads, Smart phone), while students are using mobile applications to shape the learning system. By embracing and integrating mobile applications in the classroom, students are being set up for a successful life outside of school by getting more occupied and competent when mobile devices are used in the classroom. The use of mobile technologies in the classroom has become a trend in higher education, growing rapidly as it overcomes the limitation of learning location with multiple advantages for the learning experience (Gikas & Grant, 2013). Mobile technology relegates and changes the use of hardware, operating system, networking and software, as well as content, learning platforms, and application. Even so, the effective design and development of mobile learning applications and experiences, and their evaluation, are still core activities where specialist expertise, initiatives and insights of teachers and learners, have important roles to play. (Kukulska-Hulme, Sharples, Milrad, Arnedillo-Sanchez, & Vavoula, n.d)These technologies also hold promise for the disabled learners (Henning, 2016) and can provide learning specific or directed content applications (Campbell & McColgan, 2016).

In the context of mobile applications, there is a need for lecturers and students to be aware of the various potentials inherent in mobile apps for instructional purposes. The reason of the context awareness is to enhance teaching and learning, agreed that lecturers and students might have very diverse skills and motivations to teaching and learning in varying contexts. Current research on context awareness has turned in the direction of supporting pervasive environments and this is attached with the rising trend in considering teaching and learning environments from an informal teaching and learning standpoint. Introducing mobility to teaching and learning in a significant way emphasizes the response. The goal of adaptive, context awareness of mobile learning systems should be to support this goal by making it as easy to be utilized.

Gender difference in the adoption of technology has been studied in literature, producing mixed results. Regarding the internet, usage studies have indicated that adult women are more likely to use communication tools or social engagement activities (Tseti, 2016). However, adult men are likely to use internet for information, entertainment, and commerce (Christopher & Evangelia, 2016). Thus, this study intends to investigate the awareness and accessibility of university lecturers towards mobile applications for instruction in Kwara.

2. Research Questions

- Are lecturers aware of mobile applications for instruction?
- What mobile applications does lecturers have access to for instructional purposes?
- What is the influence of gender on lecturers' awareness of mobile applications for instruction?

2.1. Research Hypothesis

This study also adopted one research hypothesis, to elucidate the influence of gender on lecturers' awareness of mobile applications

- Ho_1: There is no significant difference between female and male lecturers' awareness of mobile applications.

2.2. Research Methodology

This study adopted a descriptive research design of the survey type which was used for the evaluation of lecturers' awareness and access to mobile applications. A researcher-designed questionnaire was used for data collection. The questionnaire was validated and tested for reliability using Cronbach's alpha, and the reliability value of 0.77 was derived. The respondents were 128 lecturers from three universities in Kwara State (University of Ilorin, Ilorin; Kwara State University, Malete; and Al-Hikmah University, Ilorin). Quantitative analysis using mean was used to address all research questions. Hypothesis 1 was tested using an Independent Sample t-Test.

3. Results

3.1. Research Question 1: Are Lecturers Aware of Mobile Applications for Instruction?

S/N	Mobile Applications for Instruction	Mean
1	Google Docs	1.23
2	Google Classroom	1.31
3	Flip board	1.51
4	Grade Rubric	1.64
5	Grade pad	1.61
6	Edmodo	1.46
7	Smart Dot	1.49
8	Dropbox	1.37
9	Course Smart	1.50
10	Power Teacher	1.45
11	Skype/Yahoo Messenger	1.09
12	YouTube	1.09
13	E-book reader	1.23
	Grand Mean	1.38

Table 1: Mean Responses on Lecturers Awareness of Mobile Applications for Instruction

Table 1 shows lecturers' awareness of mobile applications for instruction, using the bench mark of 1.5, the respondents are not aware of Google Docs and Google classroom with 1.23 and 1.31 mean scores respectively. While, the respondents are more aware of flip board, grade rubric, and grade pad with 1.51, 1.64, and 1.61 mean scores respectively. 1.46 was the calculated mean score for the lecturers' awareness of Edmodo, Smart dot also had the respondents' mean score of 1.49, with drop box also having the mean score of 1.37 all below the bench mark of 1.5. Course smart on the other hand, had the mean score of 1.50, while, power teacher and Skype/yahoo messenger both had the mean scores of 1.45 and 1.09 respectively, 1.09 and 1.23 were also mean scores of YouTube and E-book reader respectively. The grand mean score of 1.38 is however below the bench mark of 1.5, which means that the respondents (lecturers) are generally not aware of mobile applications for instruction.

3.2. Research Question 2: What Mobile Applications Does Lecturers Have Access for Instructional Purposes?

S/N	Mobile Applications for Instruction	Mean
1	Google Docs	1.50
2	Google Document	1.54
3	Flip board	1.71
4	Grade Rubric	1.78
5	Grade Pad	1.73
6	Edmodo	1.60
7	Smart Dot	1.69
8	Dropbox	1.46
9	Course Smart	1.63
10	Power Teacher	1.57
11	Skype/yahoo messenger	1.15

S/N	Mobile Applications for Instruction	Mean
12	YouTube	1.13
13	E-book	1.31
	Grand Mean	1.52

Table 2: Mean Responses on Lecturers Access to Mobile Applications for Instruction

Using the bench mark of 1.5, Table 2 shows the results of lecturers' access to mobile applications used for instructional purposes. Google docs and Google document had the mean scores of 1.50 and 1.54 respectively. 1.71, 1.78, and 1.73 were mean scores for flip board, grade rubric, and grade pad respectively. Edmodo and smart dot also had the mean scores of 1.60 and 1.69 respectively. Dropbox had the mean score of 1.46 which is below the bench mark, 1.63 and 1.57 were mean scores for course smart and power teacher respectively. Although, Skype/Yahoo messenger, YouTube, and E-book had the mean scores of 1.15, 1.13, and 1.31 which are all below the bench mark of 1.5 respectively. The grand mean score of 1.52 is still above the bench mark of 1.5, which shows that lecturers had access to mobile applications for instructional purposes.

3.3. Research Question 3: What Is The Influence of Gender on Lecturers' Awareness of Mobile Applications for Instruction?

Gender		Aware	Not Aware	Total
	N	%	%	
Male	73	65	35	100
Female	55	56	44	100
Total	128			

Table 3: Male and Female University Lecturers' Awareness of Mobile Applications for Instruction

The results on Table 3, showed that 65% of male lecturers involved in this study are aware of mobile applications for instruction, while only 35% are not aware of mobile applications for instruction. On the other hand, 56% female lecturers are aware while 44% are not aware of mobile applications for instruction. It can be deduced from the results, that with the highest percentage of 65%, male lecturers are more aware of mobile applications for instruction than their female counterpart.

3.4. Research Hypothesis 1

- Ho_1: There is no significant difference between female and male lecturers' awareness of mobile applications.

Gender	N	Mean	SD	df	*t*	Sig.	Remark
Male	73	14.3	2.3				
				126	-1.321	0.19	Accepted
Female	55	14.8	2.5				

Table 4: T-Test Analysis of Female and Male Lecturers' Awareness of Mobile Applications for Instruction

To address this research hypothesis, statistical analysis for an independent sample t-test was used. The results (Table 4) show that at 0.19, there is a significant difference between female and male faculty members awareness of mobile applications. Therefore, the null hypothesis is accepted.

4. Discussion of Research Findings

The research finding on the awareness of lecturers of mobile applications for instructions shows that lecturers are not aware of mobile applications. This is in support of the findings of Chipangura, Van Biljon and Botha (2014) in a study of lecturers readiness to mobile centric services, that there are lecturers who are not aware of the existence of some mobile services. It was established that the lack of awareness could be as a result of ignorance of technological advancement, negative attitude or lack of interest by the lecturers.

Additionally, results on the access of faculty members to mobile applications reveal that some lecturers have access to mobile applications. This is in agreement with the findings of Veerappan, Wei, Wong, and Paramasivam (2014), which state that lecturers accesses and use their mobile phones through different applications to download media, and prepare podcasting or podcasting lectures, tips, messages, and review other learning materials. However, Chipangura, Van Biljon and Botha(2014) study indicated that lecturers don't use mobile applications due to lack of access and necessary skills that enable them to provide students with mobile centic services that facilitate information access and interaction.

Lastly, the study showed a significant difference between female and male lecturers on their awareness of mobile applications for instructional purposes. Supporting this view, Christopher and Evangelia (2016) and Tseti (2016) revealed that adult women are more likely to use apps that enables them to communicate and be active in social engagement, whereas, adult

men are likely to use apps that gives information, entertainment, and commerce. However, few literatures noted no difference in female and male access and utilization of mobile applications as both male and female have access to and utilise them (Dimaggio, Hargittai, & Celeste, 2004; Odell, Korgan, Schumacher, & Delucchi, 2000; Van, 2004)

5. Conclusion

The trend towards the usage of mobile applications for instruction is being embraced by lecturers and students as it has features that can improve the learning system. The use of mobile applications in the classroom has become a trend in higher education, growing rapidly as it overcomes the limitation of learning location with multiple advantages for the learning experience.

It was discovered through the study that despite the advantages mobile applications offers to the educational process, only few lecturers are aware of these apps and have access to them. Applications specifically geared towards classroom usage such as Course Smart, Power Teacher among others has a low awareness and accessibility rate compared to social media applications. This gives the reason why 70% of instruction is still carried out within the four walls of the classroom.

6. Implications of the Research

Based on the findings of the study, the following implications could thus be established. It can be deduced from the findings that lecturers are not aware of mobile applications, thereby, affecting their access to it. Therefore, they could be limited in the use of these apps, depriving them of the benefits which it offers. The implication is that if lecturers use mobile applications, there will be greater benefits and improvement. This can be achieved by regular updates of themselves in this era of emerging technologies by attending workshop, trainings and seminars which will help increase their knowledge.

7. Limitations

The method of data collection was restricted to the use of close-ended questionnaire, thereby giving the respondents the inability to express themselves. Qualitative method of data collection like interview, observation, focus group and so on were not used to enrichen the type of data being collected.

8. Suggestions for Further Research

Future research should involve many more participants and could be replicated using qualitative and experimental messssthod of gathering data. Also, other issues like students awareness and access, lecturers self efficacy skills and institutional support strategies for the implementation of mobile applications.

9. References

i. Alzaza, N. S., & Zulkifli, A. N. (2007). Mobile Based Library Loan Service (MBLLS). Proceedings of the Rural ICT Development Conference (p. 18). Malaysia: Sintox. Retrieved from http://najishukri.files.wordpress.com/2010/05/papermblls.pdf

ii. Campbell, A., & Mcclogan, M. (2016). Making social work education appi'er: The process of developing information based apps for social work. Journal of Education and Practice, 36, 297-309

iii. Chipangura, B., Van Biljon, J., & Botha, A. (2014). The provision of mobile centric services in higher educational instutions:A case of lecturer readiness. Proceedings of the 8th International Development Informatics Association Conference, (174-188). Port Elizabeth.

iv. Christopher, D., & Evangelia, A. (2016). Gender preferences in technology adoption:An empirical investigaton of technology trends in higher education. International Journal of Gender, Science and Technology, 8(3), 1-15

v. Corbeil, J. R & Valder-Corbel, M. E. (2007). Are You Ready for Mobile Learning? Educase Quarterly, 2, 51-58.

vi. Crompton, H. (2013). The benefits and challenges of mobile learning. Learning and Leading with Technology, 38-39.

vii. Dimaggio, P., Hargittai, E., & Celeste, C. (2004). Digital Unequal Access to Differentiated Use. Newyork: Russell Sage Foundation .

viii. Feng, H., Hoegler, & Stucky, W. (2006). Exploring the critical success factors for mobile commerce. Proceeding of the International Conference on Mobile Business (26-27). Denmark: IEEE Xplore Press. doi:10.1109/ICMB.2006.15

ix. Gikas, J., & Grant, M. (2013). Mobile computing device in higher education. 19-25.

x. Henning, C. (2001). Assessing Europe's Monetary Union:Lessons from the Short History of the Euro . Center for Strategic and International Studies\: Washington.

xi. Huang, Y. M., & Hwang, W. Y. (2010). Innovations in designing mobile learning applications. Educational Technologies and Societies, 13(3), 1-2.

xii. Ifinedo, E. (2013). Mobile learning for instructional purpose in Nigeria. Retrieved Octonber 28, 2016, from URN:NBN:fi:jyu-201401071029pdf;sequen:https://jyx.jyu.fi/dspace/…/URN:NBN:fi:jyu-201401071029pdf;1

xiii. Kukulska-Hulme, A. (2011). Learning Cultures on the Move:Where are we heading? Journal of Education Technology and Society, 9(15), 4-14.

xiv. Kukulska-Hulme, A., & Traxler, J. (2007). Designing for mobile and wireless learning. In H. Beetham, & R. Sharpe, Rethinking Pedagogy for a Digital age:Designing and Delivering E-Learning. London: Routeledge.

xv. Kukulska-Hulme, A., Sharples, M., Milrad, M., Arnedillo-Sanchez, I., & Vavoula, G. (n.d). Innovation in mobile learning:A European perspective. International Journal of Mobile and Blended Learning, 1(1), 1-22.

xvi. Mirski, P. J., & Abfalter, D. (2004). Knowledge enhancement on site-guests'attitudes towards m-learning. Proceeding of the Information and Communication Technologies in Tourism, (592-600). Cairo, Egypt.

xvii. Odell, P., Korgan, K., Schumacher, P., & Delucchi, M. (2000). Internet use among female and male college students.

xviii. Sahu, S. K. (2013). Students' Awareness about Mobile Learning in Higher Education environment. University of Delhi, Department of library and information science, New Delhi.

xix. Seppala, P., Sariola, J., & Kynaslahti, H. (2002). Mobile learning in personnel training of university teachers. Proceeding of the IEEE international Workshop on Wireless and Mobile Technologies in Education, August 29-30 (136-139). Vaxjo, Sweden: IEEE Xplore Press.

xx. Sharples, M., Corlett, D., & Westmancott, O. (2002). The design and implementation of a mobile learning resource. Personal Ubiquitous Computer, 220-234.

xxi. Smrikarov, A., Georgieva, E., & Georgiev, T. (2005). A general classification of mobile learning systems. Proceeding of the International Conference on Computer Systems and Technologies-CompsysTech (11-16). Bulgaria: Varna.

xxii. Steve, C.Y., Patrivan, K., & Brown. (2008). Mobile learning: Learning on the go. iAFOR Journal, 16(8), 12-30.

xxiii. Sung, Y. (2016). The effects of integrating mobile devices with teaching and learning on students learning performance. A Meta-analysis and Research Synthesis, 252-275.

xxiv. Tseti, E. L. (2016). Digital divide 3.0:The mobile revolution. Smartphone Useand the emerging device gap. Doctoral Dissertation, University of Arizona.

xxv. Van, B. (2004). Domains and determinants of university students' perceived computer competence. 43-46.

xxvi. Veerappan, V., Wei, H. S., Wong, S. P., & Paramasivam, S. (2014). Mobile assited teaching and learning in an institute of higher education. International Review of Social Sciences and Humanities, 8(1), 68-79.

xxvii. Viswanathan, P. (2016, November 2). Lifewire. Retrieved Febuary 12, 2017, from What is a mobile application: www.lifewire.com/what-is-a-mobile-application-2373354