

Use of Mobile Technology in Higher Educational Institutions: Students and Lecturers Perspective

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Abstract: *The rapid growth in Information and Communication Technologies (ICT) has brought remarkable changes in the 21st century as well as affected the demands of modern societies. Therefore, there is an increasing demand on educational institutions to use ICT facilities which include mobile technologies. This quantitative study focuses on investigating the perceptions students and lecturers have towards the use of mobile technology as a learning tool in Higher Educational Institutions (HEIs). The study also investigated the usage patterns of mobile devices. Findings revealed that lecturers and students are using mobile devices for various educational purposes. However, there is a problem of addiction to technology and negative perceptions.*

Keywords: ICT, mobile devices, mobile learning, HEIs

1. Introduction

The Information and Communication Technologies (ICT) rapid growth have brought significant changes in the twenty-first century. The demands of modern societies have as well been affected; therefore, ICT is increasingly becoming significant in our lives daily and in our educational systems (Charles, 2012). Furthermore, there is an increasing demand on educational institutions to make use of ICT facilities which includes mobile technology, to teach students the skills and knowledge they need for the 21st century.

Mobile learning allows learners to obtain learning content anywhere anytime via moveable devices. But low power processing and memory limitations of mobile devices, slow transmission of network, expensive network connection fees and inadequate educational resources basically limit the mobile learning development (Li, 2010). Despite those constraints a study done by Donaldson (2011), positively stated that mobile learning is believed to improve opportunities for building an interaction, learning community and collaboration amongst students. Similarly, Kritpolviman (2016) argued that Student's sometimes cannot make it to attend class because of several issues, which can cause a drop in the quality of their learning engagements in specific areas. Thus, mobile learning should be applied for student support to access virtual-laboratory environments from anywhere at any time by just using their own laptops, smartphones, or any other hand-held device.

2. Problem Statement

Mobile technology is an emerging field and there are many challenges faced in its implementation, considering that there is lack of access to devices such as desktops for learning, the ease of access and low cost of mobile devices has made it a vital platform for teaching and learning globally (Botha & Butgereit, 2012; Pimmer, Brysiewicz, Linxen, Walters, Chipps & Gröbhiel, 2014). Therefore, mobile technology integration into teaching and learning is expected to have great influence on the performance and experience of learners (Mac Callum, & Jeffrey, 2013). This study intends to investigate the students and lecturers' perceptions towards the mobile technology usage in Higher

Educational Institutions (HEIs). To achieve this, the paper will investigate usage pattern of mobile devices by students and lecturers in HEIs.

3. Literature Review

The use of mobile technologies to support teaching and learning in Higher Education is becoming much more widespread and even essential as younger generations that will eventually become HEIs students are already acquainted with ICT (Henderson & Yeow, 2012; Looi, Zhang, Chen, Seow, Chia, Norris & Soloway, 2011; Looi, Lim, Pang, Koh, Seow, Sun, Boticki, Norris & Soloway, 2016; Pegrum, Oakley & Faulkner 2013). A study by Tsinakos & Ally (2013), explained that mobile learning is being implemented by various higher education organizations in order to provide learning flexibility. The use of mobile technology to reach students will benefit higher education by having a broader population of students and increasing enrolment, since different age groups of students will have the ability to access course materials anytime and anywhere (Lowenthal, 2010).

Mobile device usage in learning has become the modern trend in higher education where an individual might not need a computer set necessarily to access learning materials electronically. The remarkable roles mobile devices play in learning have been revealed by several authors. For instance, in the works of Valk, Rashid, & Elder (2010), they noted that learning has been made more flexible by smartphones and other hand-held devices, which have aided to reduce the ultimate inherent conservative classroom learning. It is further argued that mobile devices such as smartphones do not only allow students to read materials and access them, but students can also take abstract concepts' pictures that are taught in class with their smartphones' camera so that they can be able to relate them with ideas that are concrete at a later date, mostly in distance education. (Norries, Hossain & Soloway, 2011). This form of learning always brings about positive perceptions towards technology.

Allen (2011), examined students' perceptions of the possible effect of ICT use on their learning in one of the teacher education Colleges in Namibia. The study found out that

third-year student teachers perceived themselves to hold good skills in all computer applications. It also indicated that a high proportion (79%) of third-year students agree that they were learning with ICT and that ICT increases their learning experiences.

In another study by Osakwe, Dlodlo and Jere (2017), on the perception of teachers and learners towards the use of mobile learning technology in Namibian high schools, the study found that although a majority of learners and teachers

in Namibia possess mobile devices which can be utilised for mobile learning, the mobile technology introduction in schools would only work in a setting where there is sound ICT infrastructure. They also highlighted that affordable access to internet and skillful ICT teachers are also a challenge.

4. Results and Analysis

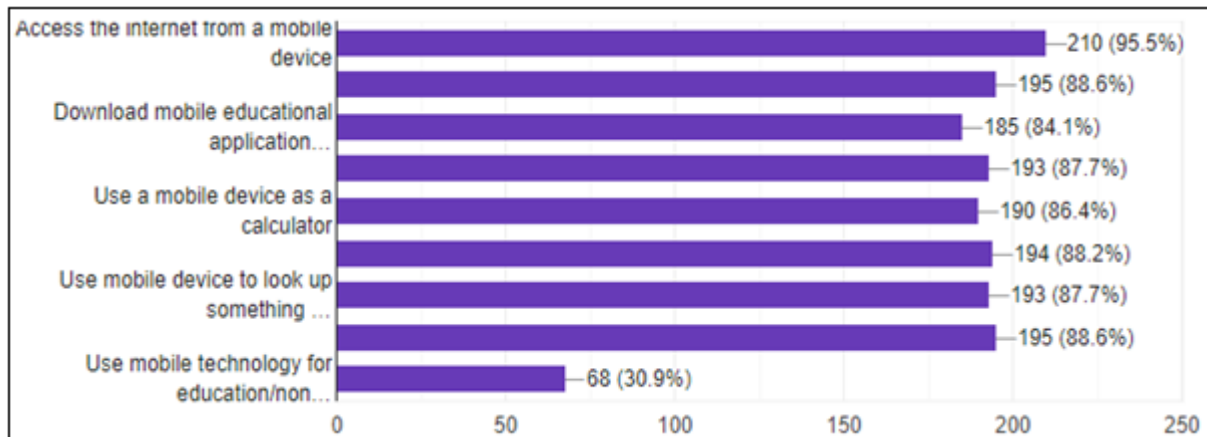


Figure 1: Usage pattern of mobile technology by students at NUST

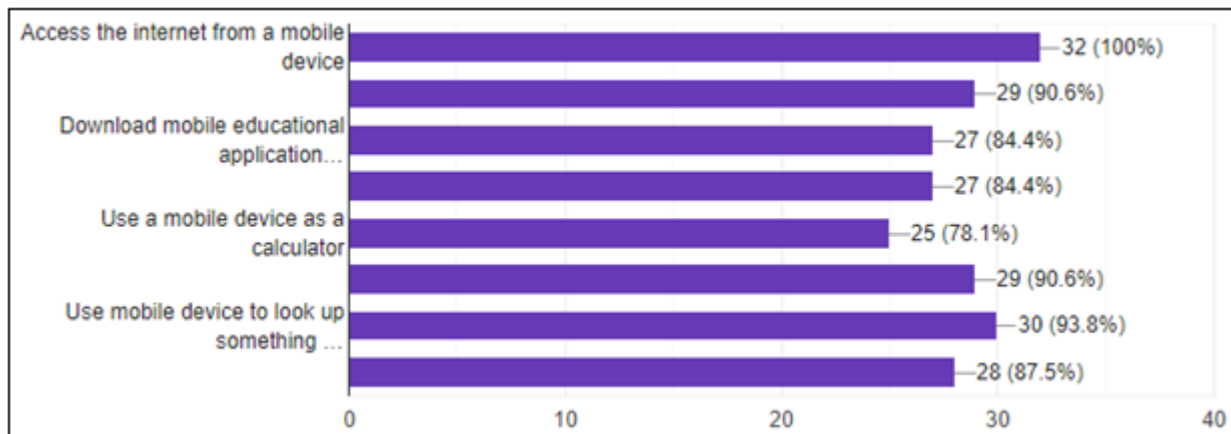


Figure 2: Usage pattern of mobile technology by lecturers at NUST

5. Methodology

The study employed the quantitative research approach using survey questionnaires. According to Cohen, Manion & Morrison (2011), questionnaires enable respondents to freely express their views without feeling that they are being monitored. The population of the study were students and lecturers from 4 out of 7 faculties of Namibia University of Science and Technology (NUST) namely Computing and Informatics, Human Sciences, Management Sciences, Natural Resources and Spatial Sciences. Hence, a sample of 220 students and 40 lecturers was selected using simple random sampling.

Students and lecturers from NUST were asked to indicate how they use mobile technology by ticking appropriate boxes in the questionnaire. According to figure 1, a considerable proportion of students (95.5%) knows how to access internet from a mobile device, 88.6% of students also

indicated that they use mobile device to look up for something they do not understand, 88.1% of students showed positively that they know how to download mobile educational applications. However, using a mobile device for non- education is indicated by the least percentage which is 30.9%.

According to the results in figure 2, all lecturers indicated that they know how to access the internet from a mobile device, 90.6% of the lecturers showed positively that they know how to download mobile educational applications while 93.8% also indicated that they also know how to use mobile device to look up for something. Furthermore, using a mobile device as a calculator is indicated by the least percentage which is 78.1%.

The results from the students and lecturers it shows that both lecturers and students are knowledgeable in accessing internet from the mobile device, additionally they both showed positively that they know how to download mobile

educational applications. Students have indicated least percentage in using mobile device to download non-educational and lecturers showed least percentage in using mobile device as a calculator.

6. Perception of Lecturers and students on the use of Mobile Learning Technology in HEIs

The study examined the perception of lecturers and students towards the use of mobile learning technology in HEIs. A four-point Likert scale from 1-4 was used to measure the items whereby (1- strongly agree, 2- agree, 3- disagree and 4- strongly disagree). The results are depicted in the tables below.

Table 1: Students’ perceptions towards the use of mobile technology

| Descriptive Indicators | Likert Scale | | | |
|---|--------------------|-----------|--------------|-----------------------|
| | Strongly agree (%) | Agree (%) | Disagree (%) | Strongly disagree (%) |
| I would find using mobile technology useful in my learning. | 56.6 | 26.7 | 6.3 | 10.4 |
| Using mobile learning devices enables me to accomplish learning activities more quickly | 48.9 | 32.1 | 7.2 | 11.8 |
| If I use mobile learning devices, it will increase my chances of getting better grades | 35.6 | 38.3 | 14.9 | 11.3 |
| My interaction with mobile learning devices would be clear and understandable | 33 | 48.9 | 9.5 | 8.6 |
| It would be easy for me to become skillful when using mobile learning devices | 35.1 | 46.2 | 11.3 | 10.4 |
| When using mobile learning devices, I will be too addicted to it. | 26.1 | 32 | 25.7 | 16.2 |
| When using mobile learning, I will forget the work I must do | 13.5 | 23.4 | 45 | 18 |
| Using mobile learning devices will give enjoyment to me for my learning | 28.8 | 42.8 | 18.5 | 9.9 |
| I will like to use mobile learning devices to learn in future | 42.3 | 36 | 11.7 | 9.9 |
| I will be happy to use mobile learning devices if they are introduced for learning & teaching | 45.5 | 35.1 | 9.9 | 9.5 |
| People who influence my behavior think that I should use mobile learning devices | 21.3 | 40.3 | 26.2 | 12.2 |
| will find mobile learning devices helpful when having a group discussion | 41.6 | 34.8 | 12.2 | 11.3 |
| Although it might be helpful, using mobile learning will certainly not be compulsory in our class | 30.1 | 42 | 20.5 | 7.3 |
| The use of mobile teaching devices should be made mandatory in universities | 26.2 | 38.5 | 22.6 | 12.7 |
| I have the resources necessary to use mobile learning devices | 36.2 | 41.2 | 15.4 | 7.2 |
| My university has facilities for mobile learning | 25.7 | 41.9 | 19.8 | 12.6 |

Table 2: Lecturers’ perceptions towards the use of mobile technology

| Descriptive Indicators | Likert Scale | | | |
|--|--------------------|-----------|--------------|-----------------------|
| | Strongly agree (%) | Agree (%) | Disagree (%) | Strongly disagree (%) |
| I would find using mobile technology useful in my teaching. | 65.6 | 25 | 0 | 9.4 |
| Using mobile learning devices enables me to accomplish Teaching activities more quickly | 41.9 | 51.6 | 6.5 | 0 |
| If I use mobile teaching devices, it will increase my students chances of getting better grades | 53.1 | 37.5 | 6.3 | 3.1 |
| My interaction with mobile teaching devices would be clear and understandable | 40.6 | 43.8 | 15.6 | 0 |
| It would be easy for me to become skillful when using mobile teaching devices | 40.6 | 46.9 | 12.5 | 0 |
| When using mobile learning devices, my students will be too addicted to it. | 34.4 | 31.3 | 28.1 | 6.3 |
| When using mobile learning, my students will forget the work they must do | 34.4 | 18.8 | 37.5 | 9.4 |
| Using mobile learning devices will give enjoyment to me for my teaching | 43.8 | 43.8 | 12.5 | 0 |
| I will like to use mobile learning devices to teach in future | 56.3 | 34.4 | 9.4 | 0 |
| I will be happy to use mobile learning devices if they are introduced for teaching and learning | 56.3 | 37.5 | 3.1 | 3.1 |
| People who influence my behavior think that I should use mobile teaching devices | 43.8 | 46.9 | 9.4 | 0 |
| will find mobile teaching devices helpful when my students have group discussion | 43.8 | 46.9 | 9.4 | 0 |
| My students and I will be happy to use mobile learning devices | 46.9 | 43.8 | 6.3 | 3.1 |
| Although it might be helpful, using mobile teaching will certainly not be compulsory in my class | 37.5 | 37.5 | 21.9 | 3.1 |
| The use of mobile teaching devices should be made mandatory in universities | 25 | 34.4 | 21.9 | 18.8 |
| I have the resources necessary to use mobile teaching devices | 15.6 | 40.6 | 31.3 | 12.5 |
| My university has facilities for mobile teaching | 25 | 31.3 | 34.4 | 9.4 |

In this section the percentage of lecturers and student who agree and strongly agree will be totalled as one while the percentage of the lecturers and students who strongly disagree and disagree will also be totalled as one.

6.1 Usefulness of mobile technology for teaching and learning

According to Osakwe et. al., (2017) academic achievement can be enhanced through mobile learning technology. This is

because of the belief by learners that mobile devices have the capacity to improve their academic performance through various types of learning engagements. The results from the analysis above indicates a positive perception on the use of Mobile Learning Technology in HEIs. For instance, 65.6% of the lecturers strongly agree that they would find mobile technology useful in their teaching while 25.6% agreed. Giving a total of 90.6% of the lecturers who are of the view that they would find using mobile technology useful in their teaching. On the part of the students, a total of 56.6% and

26.7% of the students strongly agree and agreed respectively that they would find using mobile devices useful in their learning. This gives a total of 83.3% of the students who agreed that they would find using mobile technology useful in their learning.

On the other hand, a total of 16.4% of the students (6.3% of those who disagreed and 10.4% of those who strongly disagreed) disagreed that they would find using mobile technology useful in their teaching. The results above is indicative that both the lecturers and the students are in agreement that using mobile devices will be useful for both teaching and learning.

6.2 Using Mobile devices to achieve teaching and learning activities more quickly

Numerous research are indicative of the fact that technology can enhance multitasking (Junco and Cotton, 2010; Rosen et. al., 2013; Kirschner and Karpinski, 2010). It is also evident that mobile technology has the capacity to enable teachers and student accomplish learning engagements quickly as a result of the various features built in them Osakwe et. al, (2017). A majority of the lecturers (93.5%) indicated that using mobile devices will help them to achieve teaching activities more quickly. This 93.5% of the lecturers is made up of 51.9% who agreed and 41.9% who strongly agreed that using mobile devices will enable them achieve teaching activities more quickly. For the students, a total 81% of them are of the view that using mobile devices will enable them achieve learning activities more quickly.

However, 6.5% of the lecturers and 19% of the students disagreed. In as much as the percentage of the lecturers and students who disagreed are few, considerations should be given to them in order to ascertain why there are disagreements.

6.3 Using mobile learning devices, will increase students' chances of getting better grades

A total of 90.6% of the lecturers indicated that using mobile learning devices will increase their students' chances of getting better grades while 9.4% of them disagreed. On the other hand, 73.9% of the students indicated that mobile learning technology will increase their chances of getting better grades while 26.1% disagreed. The results show that the lecturers believe that students' engagement with mobile device will enhance their learning engagement is increase their grade and the students are in agreement to that.

6.4 Interaction with mobile learning devices are clear and understandable

The views of lecturers and students on the statement that using mobile learning devices will be clear and understandable are positive. This can be seen from their responses where 84.4% of the lecturers indicated that their interactions with mobile devices are clear and understandable and 81.9% of the student are also of the same view. That notwithstanding, some of the lecturers and students (18.1% of the students and 15.6% of the lecturers) do not really believe that their interaction with mobile

learning devices would be clear and understandable. Some reasons can be attached to this. For instance, it could be due to the small screen size of the devices or due to the fact the some of the lecturers and students are not yet technology savvy.

6.5 Becoming skilful when using mobile learning devices

One of the reasons why most users of technology have negative perception towards its use is lack of skills (Osakwe et. al, 2019). However, in some of these innovative technologies, there are features that could assist users in gaining skills that can be used to operate them. This could be one of the reasons why the lecturers and students who use mobile devices believe that they can become skilful when using mobile learning devices. From the results, 87.5% of the lecturers indicated that they will become skilful when using mobile learning devices while 81.3% of the students agreed to the fact that they will also become skilful when they use mobile learning devices.

6.6 Addiction leading to forgetfulness When using mobile learning devices

One area in the use of mobile learning technology that needs to be considered is the tendency of being addicted to the technology. Studies have shown that students usually get addicted and consequently forget the work they must do. This is one of the reasons why most institutions find it difficult to adopt the use of mobile technology for pedagogy. From the results, one can also see that the lecturers and students are also concerned in this regard. For instance, 65.7% of the lecturers believe that students will be addicted while 53.2% of the lecturers also believe that the students can forget the work they must do while using mobile devices.

On the part of the students, 58.1% of them indicated that they will get addicted while using mobile devices while 36.9% of the students also noted that they will forget the work they must do.

6.7 Enjoyment for learning/teaching when using mobile devices

The view of lecturers and students on the statement that using mobile devices gives them enjoyment for learning/teaching is highly positive. For instance, a total of 71.6% of the students are in agreement that using mobile devices gives them enjoyment for their learning. However, 9.9% of students are disagreed. On the other hand, 87.6% of the lecturers indicated that using mobile devices gives them enjoyment for teaching.

6.8 Using mobile devices for teaching and learning

The question on whether lecturers and students would like to use mobile devices to learn/teach in future is positive. For instance, 78.3% of students and 90.7% of lecturers are in agreement that they would like to use mobile devices for learning or teaching in the future. However, 9.4% of lecturers and 11.7% of students indicated that they would

not like to use mobile devices for learning/teaching in the future. Therefore, the results above show that both lecturers' and students are eager to use mobile devices for learning/teaching in the future if it is adopted for pedagogy in HEIs.

6.9 Happy to use mobile devices if they are introduced for teaching and learning

Students' and lecturers' view on being happy to use mobile devices if they are introduced for learning and teaching is positive. For instance, 80.6% of students are in agreement that they will be happy to use mobile devices if they are introduced for learning and teaching. Another proportion of students (19.4%) disagreed. On the part of the lecturers, 93.8% of them indicated that they will be happy to use mobile devices if they are introduced for learning and teaching.

6.10 Influence on the use of mobile technology for teaching and learning

A high proportion of students (61.6%) and lecturers (90.7%) are of the view that people who influence their behaviour think that they should use mobile devices for teaching and learning. However, 9.3% of lecturers and 38.4% of students disagree with the statement that people who influence their behaviour think that they should use mobile devices for learning and teaching.

6.11 Mobile devices learning is very helpful during group discussion

A total of 76.4% of students indicated that they do find using mobile devices for learning very essential and helpful when doing a group discussion. The lecturers (90.7%) are also of the same view that their students will really benefit a lot from using mobile devices for learning during group discussions. Extensive literature and research have shown the benefits of peer and collaborative learning. For instance, it was noted that interactive engagement takes place in groups by where learners work and learn through exchange of ideas, experiences and skills (Boud, Cohen and Sampson, 2002; Osakwe et. al., 2017). However, 9.4% of lecturers and 23.5% of students disagree with the statement and feel that using mobile devices for group discussion is not helpful.

6.12 Using mobile teaching will certainly not be compulsory in class

A high proportion of students (72.1%) indicated that even though mobile devices might be helpful, it should not be made compulsory in their class. On the side of the lecturers, at total of 75% think that the use of mobile technology should not be made compulsory in the class. However, 25% of lecturers indicated that the use of mobile technology should be made compulsory in the classroom while 24.2% of the students think the same. The results reveal that students and lecturers are skeptical about introducing mobile learning technology in the classrooms not minding the fact that that technology will be helpful to them. The skepticism could be due to that fact that they

may want some grey areas such as addiction and perceived playfulness to be tackled first.

6.13 The use of mobile devices should be made mandatory in universities

In as much as the students and lecturers are not too favourably disposed to using mobile learning technology in the class, they still want HEIs to make it mandatory. Therefore, for the institutions to make the use of this innovative technology mandatory, they should first of all tackle the perceived negative perceptions of the students and lecturers in the area of putting up policies that will guide and regulate the use of mobile learning technology in the HEIs.

The results indicate that 64.7% 59.4% of the students and lecturers respectively, want the Universities to make the use of mobile learning devices mandatory. 35.4% of the students and 40.7% of the lecturers disagree.

6.14 The availability of resources necessary to use mobile learning/teaching devices

According to Sarrab et. Al., (2015), a conducive environment and administrative support are vital for the adoption of mobile learning technology in educational institution. A total of 56.2% of lecturers and 77.4% of students indicated that they have the necessary resources to use mobile devices for teaching and learning. This means that they have mobile devices, they can access internet, download learning materials and have the necessary facility for mobile learning.

Not minding the fact that a majority of the lecturers and student indicated that they have the necessary resources for mobile learning, the percentage of the other respondents, even though it is low, should not be overlooked since all should be carried along. Therefore, the necessary authorities are supposed to make sure that this digital divide is bridged in order to have equal access to enough resources by both the lecturers and the students.

6.15 HEIs have facilities for mobile learning

For mobile technology to be adopted and used in HEIs, there must be consideration for availability of infrastructure. This means that if technology infrastructure is not available, it will be difficult to adopt mobile learning technology. The results from this study indicates that most of the students believe that their institutions have enough infrastructure for mobile learning. For instance, 67.6% of the students noted that their universities have facilities for mobile learning.

On the other hand, 56.3% of the lecturers also noted that there is availability of necessary infrastructure for mobile learning technology. However, 32.4% of the students and 43.7% of the lecturers disagreed.

7. Conclusion and Future Research

The study intended to investigate the perceptions of students and lecturers towards the use of mobile technology and their usage pattern at Namibia HEIs. The major findings from the study is that most students and lecturers use mobile devices every day and a high proportion used it for academic purposes.

Future research can consider carrying out more studies and make a great effort to see to it that this innovative technology is added to pedagogy. Hence all limitations of this study must be resolved to yield better results. Furthermore, the appropriate use of mobile phones particularly smartphones and IPADs amongst students needs to be encouraged culturally so that they familiarise with the advantages of m-learning through training courses.

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