

## Benefits and Barriers toward Effectiveness of Mobile Learning from Students' Perspective in the Higher Education

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**Abstract:** The main purpose of this research study is to find the benefits and the barriers of mobile learning from students' perceptions towards the effectiveness of mobile learning. This paper reports on the results of the interview of eleven undergraduate and graduate students in the University of Kansas (KU). An analysis of the qualitative interview questions findings is presented focusing on the effect for mobile-learning (m-learning) practices in university learning environments. The author has attempted to determine how this technology can be optimally used to assist student learning at The University of Kansas if they avoid the barriers. Six themes developed from the responses and each of them was examined to develop fundamental categories that related to those themes. The data came up with positive perspectives toward the effectiveness of mobile learning in higher education and they also shared some of their experiences of the barriers of using mobile learning as a supplemental tool in higher education. The findings show that mobile learning in higher education is affordable, easy communication among students themselves or between students with teachers. On the other hand, there are some barriers such as distracting and limited functions.

**Keywords:** mobile learning, M-Learning, ML, distant learning, online learning, and e-learning.

### Introduction:

Our world is becoming more and more techno-driven world; not knowing about technology and computers can make you at the rear of the pack. Computers are dominating everything in our everyday life. In fact this world has turned into an e-world where everything is just a simple click away.

Educational technology means that technology is "integrating to education to sustain the education process and become as ethical practice of facilitating learning and improving performance by creating, using, and managing appropriate technological processes and resources." (Richey 2008)

Technology develops day by day rapidly. Teacher and students must be synchronized with the technology to improve teaching and learning process and goals.

Education procedure moved from traditional method of learning to distant learning to E-Learning and finally to the mobile learning.

The term mobile learning or "m-learning", has many meanings for many societies, covering a variety of pictures including educational technology, distance education and e-learning, that focuses on learning with

mobile devices. Mobile learning is defined as "learning across multiple contexts, through social and content interactions, using personal electronic devices" (Crompton 2013). So, it is learning anywhere and at any time by using mobile devices as helpful device in learning such as Laptops, Notebooks, Tablets, Smart Phones, MP3 players and others.

### **Theoretical Framework:**

There are many classification activities around learning theories: 1) Informal and long-life activities theory. 2) Collaborative by which is meant activities which support learning through social interaction. 3) Transformative learning is presented by discussing with others and supporting reasons for interpretations by critically examining evidence, arguments, and alternative points of view. (Learning theory (education) n.d)

#### **1. Informal and long-life activities theory:**

Informal and lifelong activities help learning outside conventional environments. Daily life learning opportunities make the outdoor environment a source for information such as through conversations, TV and newspapers or even by accident. Hence, technology and mobile devices that are used to support learning should be blended with everyday life in the same way that learning is blended with everyday life. Mobile technologies, with their small size and ease of use, offer the potential to support such activities. With regard to accidental learning, learning periods are hard to predict. The personal and portable feature of mobile technologies makes them very strong candidates for recording, reflecting on and sharing this type of informal learning (Naismith et al, 2004).

#### **2. Collaborative Learning:**

The collaborative learning theory is structured around the principle that variety of knowledge and experience as the learning outcome. This theory incorporates Jean Piaget's theory that learners must be cognitively ready to learn and advance to higher levels. Along the way they would require additional aid to get them there. By grouping students together, the concepts are combined to serve the ultimate goal of the learning (Firestone, n.d).

Mobile devices provide a major ground for advancing collaboration because of the capabilities and wide-ranging of contexts for use which play a vital role. Ease of communication between mobile devices is an surrounded feature that all devices are equipped with, so the students can share data, files and messages by mobile devices. These devices are also usually used in a group setting and new interactions and collaboration among learners (Naismith et al. 2004).

Faculty members thought that students used mobile devices as social tools in the classrooms. However, students stated that they sometimes used texting and engagement in social network for educational purposes. Sharing resources and discussing class materials were reported among activities performed on mobile devices. Students added that they would like to further discuss classes on forums from their devices (Pollara, 2011).

### **3. Transformative Learning:**

Transformative learning is “the cognitive process of effecting change in a frame of reference. A frame of reference defines our view of the world. The emotions are often involved. Adults have a tendency to reject any ideas that do not correspond to their particular values, associations and concepts” (Educational Theories, n.d).

Transformative learning in mobile learning is a valuable process where learners can come to new knowledge or analytical connections between concepts. It was reported that combining this process with mobile learning could be especially beneficial to a learner. It was added that when teachers teach in a mobile, transformative environment while using self-directed techniques, it enables learners to substantially increase their ability to explore deeper into the subject. When an instructor in the online environment supports transformative learning, the environment can have positive effects on student beliefs, preconceived ideas and capability to act on new thoughts (Classroom Aid, 2014).

Teachers play a pivotal role in managing classrooms especially when resources and feedback are involved. For example, providing learning enhancing feedback and learning activities to students. Therefore, understanding students’ strengths and weaknesses are key to determine adequate feedback (Martinez-Maldonado et al, 2015).

### **Purpose and Question of the Study:**

This study will design to uncover student’s perspectives toward mobile learning in the higher education. The study will address the following question:

What are the benefits and barriers of mobile learning from students’ perspective as a supplemental tool in higher education?

The goal of this study is to present an understanding of effectively using mobile technology related to student learning.

In summary, mobile learning is one of type E-Learning. My research is structured to explore factors to improve it, benefits, barriers, and students’ perception toward effectiveness of mobile learning in higher education. The researcher interviewed students about experience of using mobile device in learning. This

research will find the relationship between students' characteristics and their perspectives towards mobile learning. This will show a broad view about the best way of using mobile learning approach effectively.

### **The Important of the Study:**

There are more than a billion and a half of mobile phones in operation around the world, and a large percentage of them are in the hands of college students (Alsaadat, 2010).

To emphasize why of the exciting in mobile learning education, it is important to take a look at the developments and technologies, which is making learning accessible to people on a click. The availability of mobile information on the affordable devices has significantly influenced the way people interact with knowledge daily by easy ways (Basics, n.d.).

Gupta and Koo (2010) states that in 2004, half of the world used mobile phones. They expected 80% would use mobile phones in 2013. In the United States, mobile devices such as smart phones every day grew from 10.8 million to 22.4 million in one year between January 2008 and January 2009. In 2008, 15.6% of people used active mobile Internet and about 40 million mobile subscribers who use these services each month.

Mobile technologies are developing at a fast pace of which educational applications cannot make good use. In 2011, 79% of United Kingdom (UK) were online users, and on a weekly basis people who use mobile devices to perform online tasks has increased 300% since 2009. It is argued in Terras and Ramsay's article that understanding challenges of psychological nature is imperative in dealing with mobile learners. Terras and Ramsay (2012) define mobile learning as using a hand phone to perform tasks such as using the calculator, checking date and time, and setting up reminders. A person performing these tasks is defined as a person who has been subjected to mobile learning of some kind. These methods of use are considered as ways of conceptualizing mobile learning. They argued the use of a mobile device is considered a type of e-learning (Terras and Ramsay, 2012).

Moreover, mobile learning is important in my country Saudi Arabia because it give solutions for many problems in the higher education. For example, the lack of computer labs; in this case, the student could bring his mobile device such as his laptop or tablet to work in class materials in the classroom. In addition, increase communication among students and instructors by using any chat app or send emails by using the mobile device everywhere. Moreover, mobile device give students to use search engine to look for any concept that they like gathering more information about it even in the classroom.

I think using mobile learning as supplemental tools for learning will increase and facilitate learning for the students.

### **Definition of Terms:**

**Distance education:** delivered the instructional resources by satellite, television, telephone, cable digital networks, or videotape by mail (Buckland & Dye, 1991).

**Electronic Learning or Online Learning:** Roffe (2002) defined online learning as a technique people interconnect and learn electronically. It is the use of the Internet technologies to deliver a group of results that improve awareness and performance (Rosenberg, 2001).

**Mobile Learning, M-Learning, Or ML:** "learning across multiple contexts, through social and content interactions, using personal electronic devices"(Crompton, 2013, p.3). Electronic Learning or E-Learning: learning directed through electronic media, typically on the Internet (E-Learning, n.d).

### **Literature Review:**

Mobile learning is defined as a subset of e-learning, educational technology, and distance education (C. O'Malley et al, 2003). Adrich (2004) defined mobile learning as a broad combination of processes and content by using computers and networks to scale and/or process one or more important elements of an education value series, including administration and delivery. Rosenberg (2001) defined e-learning as solely related to the internet: the use of internet technologies to deliver a broad range of clarifications that improve understanding and performance.

For the purpose of this study, mobile learning defines that the learner takes advantage of the learning opportunities offered by mobile technologies, so the focus is on learning with the use of mobile devices as helpful tools in learning such as laptops, notebooks, tablets, smart phones, and others. (Saylor 2012)

Cheon et al, 2012) address many benefits of mobile learning, such as learning everywhere and anytime by using mobile applications. Also, it is cheaper than traditional learning; for that reason, the U.S. government is looking to reduce costs by encouraging schools to transition from paper-based to digital textbooks within the next five years. Therefore, students should be adapted to mobile learning. It was observed that higher education students may be ready to adopt mobile learning sooner than K-12 students because more college students have their own mobile devices. Nevertheless, mobile learning in higher education is still in the early stages of development. For example, while many universities provide free applications, the contents are mostly non-instructional (e.g., news, event calendars, and maps). In order for mobile learning to succeed in higher education, it is necessary to understand the factors college students' consider important in the adoption of mobile learning (Cheon net al, 2012).

Mobile learning is a specific type of e-learning, while e-learning uses many types of computer technologies to support individual learning. Therefore, mobile learning encapsulates many features of e-

learning, such as multimedia contents and communications with other students, but it is distinctive in terms of time and location flexibility. There are three specifications of mobile devices: (1) portability: mobile devices can be easily carried out and used in different locations, (2) context sensitivity: mobile devices can be used to find and collect real or simulated information, and (3) immediate connectivity: mobile devices can be used to access a diversity of information anytime and anywhere. These three characteristic features of mobile learning can represent a unique learning experience. In addition, advanced hardware of mobile devices (e.g., camera, accelerometer) and various software (e.g., Apps) availabilities provide more qualifications to organize, manipulate, and generate information for learning and teaching (Cheo net al, 2012).

Motiwalla (2007) states also some benefits that the use of information and communication technology (ICT) in higher education has developed learning where learners can exchange information with the lecturer asynchronously at the learner's own time or place. Moreover, mobile devices are highly individualized and collaborative communications tools, which give students and faculties' flexible tools for complementing the existing technologies and extending the learning beyond the classrooms and homes from remote places like airports or trains where students do not have access to computers.

Motiwalla (2007) gives an example, from the University of Massachusetts; the mobile learning applications were pilot-tested for two semesters with a total of 63 students from undergraduate and graduate courses. The students used mobile devices with the mobile learning environment and then they described their experiences through a survey and interviews at the end of the semester. The outcomes from this pilot study supply a better understanding on the role of mobile technology in higher education. This study find that the classroom which use mobile devices is more interactive in discussions with instructors and students and getting feedback faster than the other class that doesn't use mobile device. Mobile learning is a new contest concept in the e-learning field. Whereas popular mobile communication devices, such as cell phones, cannot directly provide accommodation for traditional synchronous content due to the major limitation of display size, other restraints also restrict convenient interactions while using mobile devices in a synchronous learning environment. For that reason, it was designed with context-awareness of synchronous learning systems to improve models for achieving mobile interaction in a synchronous learning environment.

For that reason, (Huang et al. 2008) seeks to design context-awareness in synchronous learning systems and to develop a corresponding pedagogical framework with the mobile devices. That model is for increasing achievement in mobile interaction with a synchronous learning environment, which enables interactions between teachers and students through short message delivery called Interactive Service Module. To supply adaptation to the variety of devices, several content styles have been developed and an appropriate style can be selected for a learner. The outcome showed that the system could facilitate synchronous learning

by enabling students to access lessons conveniently and efficiently from any location, using common mobile communication devices.

Cheon et al (2012) are reporting that mobile learning supports potentially all forms of education. For that reason, universities play big roles in supporting the integration of student-centered mobile learning because mobile devices are everywhere in universities. Mobile learning does a lot of things in academic higher education student life. As an example, students get fast feedback from their instructors via mobile device. Also, easy-to-check electronic resources supplement the face-to-face class. Moreover by using mobile devices instructors could do different tasks, such as checking attendance and learning progress. Many of the famous universities, such as Stanford, the University of Washington, and Abilene Christian have been establishing mobile learning; but implementing mobile learning in higher education is still challenging because of social, cultural, and organizational factors. For example, student's accepting of using mobile learning as dependent tool, usefulness of mobile learning and how people accept new system, social influence such as the school support or not support using mobile learning, and self-management of learning. For that reason, the recognition of perceptions toward mobile learning should be the first step to implementing mobile learning on college campuses (Cheon et al, 2012).

The task of expressing an accountable theory of mobile learning is to first consider the unique advantages that mobile learning has over conventional learning or even all learning types for that matter. One way to conceptualize mobile learning is to view it from the point of the device itself, which is an on-the-go device. Learners with mobile devices can have learning resources with them in various locations. Therefore mobile learning might be the solution to keep students engaged in learning wherever they might be.

#### **Limitations of the Study:**

The study focused only on higher student perspectives toward m-learning and the benefits, barriers in a selected sample of students in the University of Kansa. The study relied on self-opinion; therefore, the participants may have a different measurement level of themselves in responded to the interview questions. This study applied within only The University of Kansas and would not generalize to all universities and institutions.

#### **The Plan:**

The participants in this study will be college students in higher education. And students in higher education will be:

Freshman -Sophomore -Junior -Senior –Master- Doctorate students in The University of Kansas. I interviewed students who are very useful with technology and mobile device and see their perceptions of the

benefits of mobile learning. On the other hand, I interviewed with students who are not very useful with using mobile device in learning and see the barriers that prevent them of using these devices in learning.

Since researcher going summarize benefits, barriers of using mobile learning. Researcher is going to interview students and ask them some questions to gather information about their experience of using mobile device in learning, and their perception toward mobile learning. This study also will gather information about benefits and barriers of using mobile learning in the higher education. This will give a broad view about the best way of using mobile learning approach effectively. The study goal in is having 13 questions (try to keep it short) with maintaining high of validity to measure the area of effectiveness different sub-domains: benefits and barriers mobile learning in higher education.

### **Interview and Analysis:**

Higher education students were interviewed to investigate their perspectives on the effectiveness of mobile learning in their academic lives. It is also to find the students' perceptions, experience, and thoughts on the benefits and barriers of mobile learning in higher education institutions. The eleven interviewees were voice recorded and fully transcribed. Then the transcripts were analyzed to answer the research question: What are the benefits and barriers of mobile learning from students' perspective as a supplemental tool in higher education? Then the analysis was made to categorize these participants' interviews into meaningful themes.

### **Discussion of Research Findings:**

Most of the higher education students' interviewed in this study showed a positive perspective toward mobile learning. They talked about their experiences with the benefits of mobile learning and how to use it as a helpful way to learn. On the other hand, they talked about the barriers to using mobile learning in higher education. Six themes emerged from the responses and each theme was examined to develop fundamental categories that related to those themes. Generally, the themes are: 1) ownership of a device. 2) usage of mobile devices. 3) communications by email and social networking. 4) convenience (such as affordability and effective apps, Internet access, ease of use, and university support for mobile learning. 5) social influence. 6) barriers to using mobile learning, such as distractions, weak support from the university and staff, difficulties of use, weak Internet signal, low battery life, heaviness of device, etc.



### **1. Ownership:**

The first question, “Do you own a mobile device such as a laptop, notebook, tablet, iPod or smart phone?” “If yes, what types of mobile devices do you have?” This question was asked to gather information on all the types and names of mobile devices that participants owned and used and to find out what popular devices higher education students usually use. However, if the participants’ response was that they do not own any mobile device, follow-up questions were if they used or borrowed the mobile device from the university library or somewhere else, and if they were able to access it.

All participants in this study own many mobile devices and they are able to use most of the functions in them such as accessing the Internet, emails, research engines, calculators, and other functions for learning and classes.

I have at work, I have a laptop that I use for work and school, I have cell phone a Samsung like I told you. I used it mostly for reading news. And I have an iPad that also for work we do a lot of work on the iPad with couples in projects and that is set, I think for mobile. And I have an iPad but I did not really use that very much.

One of the participants has experienced borrowing laptops from the KU library, which shows easy availability of the mobile device at the University of Kansas.

Yes, I do borrow laptop because last week my laptop crashed. So you know because of my classes I have to use laptop. So I borrow laptop from KU library. They have extended laptops, which is available to give it to students. There are some conditions but they are not hard conditions for students. They gave for a week, which is great because some universities give just for one day; but KU for a week and if you like to extend it they give for another week. I was talking to the librarian to extend it and they say yes because we have external laptops right now and it should not be a problem you can extend it as much as you need. I asked them to download few programs because I need it in my courses and they agree.

### **2. The usage of mobile devices in general life and in academic life:**

To find out how frequently people access their mobile devices, I asked, “Could you tell me how often you use your mobile device in general?” All participants declared that they usually use their mobile devices all the time except when sleeping. For example, using the cell phones in waiting areas, on the bus, or to check emails while walking, using Facebook and Twitter, reading news, texting, checking the weather, using the calculator, chatting, playing games, watching a movie, or listening to music. Cheon et al. (2012) addresses many benefits of mobile learning, such as learning everywhere and anytime by using mobile applications. In addition, people use tablets in an office, rest area, waiting room, or for reading PDF files, eBooks, and word

documents, besides the things that cell phones can do. Moreover, with a laptop people could do everything in their office, school, library, or coffee shop.

I use them too much is probably the right answer [laughing] especially for cell phone; so I'm always like even I'm just sitting somewhere, waiting, or other been just watching people, or anything. I'm usually reading the news. I'm using my phone, I'm using my laptop every day five hours probably [laughing] but my phone probably like 4 hours a day. And also I'm watching Netflix on my iPad.

In the follow-up question, "Could you tell me how often do you use your mobile device in learning? Give examples", I liked to encourage participants to add deeper information about their mobile device usage in their academic goals. Most of the participants used the mobile devices for their goals and gave many examples. They usually bring their laptops and tablets to the classrooms, read the class materials from mobile devices, use search engines to look for new information, use email to communicate with professors and classmates, and use other applications.

**2.a. Research engines on the Internet:** Mobile devices can be used to access a diversity of information anytime and anywhere (Cheon et al, 2012). One participant said, "If I'm in class and the professor mentioned some examples beside the topic but related to the class. I can check it really quickly from my mobile device and find more information."

**2.b. Email: Immediate connectivity:**

"...by email I observed the quick response from my friends and sometime with my professors. So some time I just send an email and then I got response in few minutes and I find that they send it from their cell phones. It is very fast because they could check and response everywhere... also students could check frequently with the cellphone because he carry it all the time, then he could know about the last announced if the class canceled or there some changes."

**Other response:**

In the past, I used response mails after hours of communication. He would send me an email maybe at the morning and I sometimes; I would not check my emails at afternoon or maybe at midnight until I found a pc computer. But now, since I have my smart phone I check my email every time everywhere because it usually in my hand all the time. And I could response to him if we need quick meeting. I think mobile device give you the abilities communicate faster in the main time and that in graduate level is important because students get frustrated of getting late response from teacher. This is the primarily benefits from mobile learning. Now when I send an email to my advisor to ask further information or appointment, he immediately responds. So, it is very fast way to communicate.

**2.c. Applications:** Cheon et al (2012) address many benefits of mobile learning, such as learning everywhere and anytime by using mobile applications.

One response was,

Because for learning KU system uses Blackboard system to have all the lectures notes and everything are available in the Blackboard which is access to the laptop and my phone. So, I usually check my mobile device.

### **3. Communication by social media:**

That model is used for increasing achievements in mobile interactions with a synchronous learning environment, which enables interactions between teachers and students through the short message delivery called Interactive Service Module (Huang et al., 2008).

Mobile devices are highly individualized and collaborative communications tools, which give students and faculties flexible tools for complementing the existing technologies and extending learning beyond the classrooms and homes from remote places like airports or trains where students do not have access to computers (Motiwalla, 2007). All participants believe that using mobile devices for social media communications, such as Twitter, Facebook, and the BBM service in BlackBerry, is faster for posting comments or questions and for getting responses from classmate and teachers. In addition, it enriches the relationship between students and teachers and becomes deeper even after the student finishes the academic year because the student still keeps the page of his/her teachers and classmates and still knows what they post on their wall or tweet and he could get a response to them.

I definitely see that on follow students on especially when I been friend with them on Facebook there was a lot of immediate communication between students. I think I get BlackBerry in 2009 and then become more and more popular and my relationship with students. I can see definitely like classmate definitely change after that and grow... So one thing has been great about Facebook such as post graduations. I had a lot of my professors make me their friend on Facebook. Facebook on the phones become easier to communicate.

One participant found that communication by social media is faster among students but not so much between students and instructors because with mobile devices students find it easy to send emails to the professor but the professor gets a lot of emails and he/she cannot respond that fast.

I think there has not much been changed with professors probably a couple of reasons that learning with technology been one of them and also I think professor talked about in class that for her like with ease for us to email her now that we do not have to set in front of computer just type it. She probably gets more emails than she used to it makes harder for her to respond.

#### 4. Convenience of using mobile devices:

Students are inspired to use mobile devices for learning because it can enrich their knowledge about class topics, expand classroom performance, and assist in solving some problems or answering some questions faster. No certain question was asked about convenience. However, there were many questions and answers about the convenience of using mobile devices in learning. All participants' interview data showed a lot of convenience by using terms like "quick", "faster", "easy", "free access", and "exploring." There are many sub-topics under convenience.

**4.a. Ease of use:** No participants declared any difficulties in using mobile devices. All participants indicated the ease of using mobile devices because they all have the same design strategies. One participant said, "I found it's pretty easy to integrate Outlook with my Samsung phone, too, and with my iPad. I think that pretty easy." Another response:

Whenever I get first cell phone I kind of figure out how to use it. I had BlackBerry, then I had different device Android phone; so I think you did something new you figure out how to use it; but for me it takes less than two hours because I know where I look how to search for things as well.

**4.b. Device attributes and functions:** Participants talked about numerous mobile device attributes and functions that help them in learning and in academic purposes. For example, they talked about using mobile device calendars, calculators, recording, and some specific apps.

##### 4.b.1. Calendar:

"I use my phone's calendar as an organizer to set appointments with my advisor or other professors or other students because my phone is usually on my hand; so it easy to set any appointment rather write it on paper then may I lost this paper. And I connect my phone calendar with my Google calendar on my laptop. So it is easy to schedule an appointment and see it on my computer in the same time. And my phone calendar has good alert feature to give me sound or message to remind me about the appointment before one day or one hour, as I want. And it is usually on my hand to check calendar and to hear the alert sound."

##### 4.b.2. Calculator:

"I have a lot of classes which I need calculator. I usually use the calculator on my Samsung phone because it is full-function calculator. I used it in class or to do homework, or even in the exam in the class. Because it is easy to use and clear and my phone is with me all the time."

**4.b.3. Recording:**

“For one class instructor, he usually records himself in his class and post his recording in the webpage and I could listen to it from my phone. And one of my seminar class, since he was talking the recording in my phone was the best. Then when I was at home if I missed anything not in my written notes, I could use the recording.”

**4.b.4. Specific apps:**

“There are apps for abbreviated information like IPA (International Phonetic Alphabet) symbols for what we have in my field of linguistics and how to pronounced sounds. There are free apps that help pronunciations. And I use also Blackboard app for KU from my iPad or laptop.”

**4.c. Affordability:**

There were no questions about whether the mobile device was affordable for the participant or not, but it appears that all of them own more than one type of mobile device with different versions and company names that have different prices.

**4.d. KU support:**

Mobile learning potentially supports all forms of education. For that reason, universities play major roles in supporting the integration of student-centered mobile learning because mobile devices are everywhere in universities (Cheon et al., 2012). Most participants state that the University of Kansas is “doing great” in technology. They offer free Wi-Fi for all students with a KU ID, offering to loan laptops, laptop chargers, iPads, Smart phones’ charging area, and electrical outlets to charge mobile devices everywhere.

“They have external laptops to give students loan to get it to their home. There are a large area with tables and electricity outlets to make students set charge their laptops and mobile device all the time. And free Internet available on campus for all students by signing in with their KU id. They are doing great. I heard that they give loan tablets for KU students in LRC in education building. I never borrow it but I see the signs of that. And they give loan for recording stuff.”

However, there was one negative response about KU support for technology: “I could say the wireless network needs a lot of work in at least different area at least this area they have to improve the wireless network more, but I finally got on Internet wired to be faster. I see the Internet not fast at least for staff. The Wi-Fi on my phone in this building is not great.”

### **5. Social influence:**

The researcher asked, "Can you provide me with an example of how an instructor has encouraged/discouraged its use?" All participants said that professors usually do not encourage or discourage students from using mobile devices but they accept using the mobile device in the classroom because they are higher education students and more responsible and the professor respects that. One of the participants said that one of her professors forced students to bring their laptops or tablets to the class: "But another class he record the lecture to hear it at home and encourage to bring our devices in the class like forcing us to bring our device in class."

### **6. Barriers:**

Participants talked about many barriers and disadvantages of using mobile devices and this was analyzed from their conversations. In addition, they were asked, "Is there anything that makes you reluctant or unwilling to use your cell phone or mobile device for personal learning or academic learning?" And they were also asked, "What do you think that KU should offer to help students get more benefits from mobile devices?", to make them focus on the biggest barriers they face in using mobile learning and what more they need from the University of Kansas to help increase the benefits of mobile learning. The biggest barrier the participant was talking about is "distraction" because a mobile device has many interesting features which may be used besides learning, such as reading news, watching a movie, checking Facebook and Twitter, texting, and shopping. It could be reading news, and Twitter kind of enriches social or science information, so it is inside the learning cycle even if it is outside of academic purposes; but sometimes it will not be not learning at all, such as playing non-educational games (fighting or racing games).

"I distracted with mobile devices specially with cell phones because they sort of promote quick use and interrupted use you get more shallow knowledge rather than like in-depth knowledge so like when I read the news I feel like skim through things on my phone more than if I'm sitting down in front of my monitor; so I think mobile learning not so great specially for me I have ADD Attention Deficit Disorder, which is a big deal in the US"

A second barrier, which most participants affirmed, is the weak signal of Wi-Fi at the University of Kansas, which makes the student unwilling to download learning videos or programs and it wastes a student's time

"I could say slow signal. It make me that say oh I'm not going do that, or never mind because of slow signal if it is taking forever. Say a teacher sign a video to watch and in place where I can't get a good signal I'm not going try to use that there."

Additional barriers – which are different from one participant to another – are the limited functions of mobile-design apps, which make students unwilling to use apps such as Blackboard apps and prefer to use them on laptops or desktop computers. One participants said, “It is like software versus an app which has very limited functionality compared to a website.” In addition, another participant preferred not reading a file from the screen but prints it out and reads it from the printout. “A lot people in class they not print off paper they just read them from the laptop and I cannot read that much on the screen because it more comfortable for my eyes”. Moreover, the battery life of a mobile device is one of the concerns that students should consider so they should carry the charger with them everywhere besides the mobile device, and try to find and sit near an electrical outlet to charge their devices.

“The biggest issues that make not to use the mobile device is the battery life for phones or other mobile devices; so mainly, I’m reluctant to exploit that either the laptop or phone for learning purposes. When I set in class, I like to be sure that I’m close to outlet to charge my device and be sure my batteries not ran out.”

### **Summary of Finding:**

In sum, this study shows the higher education students’ perceptions toward the benefits and barriers of using mobile learning as supplemental tools. The finding is focused on information related to the research question. The study was limited to eleven graduate students at the University of Kansas to collect the data from the interview. The data came up with positive perspectives toward the effectiveness of mobile learning in higher education and they also shared some of their experiences of the barriers of using mobile learning as a supplemental tool in higher education. The findings show that mobile learning in higher education is affordable, easy communication among students themselves or between students with teachers. Moreover, higher education students feel the convenience of using mobile devices, and finally, social influence supports using mobile devices. On the other hand, students talked about their experiences of the barriers to using mobile learning, such as distracting students from academic learning because of the other features that a mobile device has which lets people look for something fun such as playing games. A weak Internet signal is another barrier to students that prevent them from downloading something related to their academic learning. Limited functions of the app cause some students to prefer using computers. Finally, limited battery life is an issue in using mobile devices.

### **Recommendations:**

Mobile learning has been regarded as a tool to support students. The adaptation of mobile devices in learning may prove beneficial to students. Facilitators and teachers should be introduced to effects of mobile devices on their classes. Also on one hand, students should obtain certain basic skills of dealing with their

mobile devices. On the other, education institutions should encourage an approach that show how mobile learning may increase students' perception to class activities. This could be attained by providing workshops or targeted training to guarantee a positive outcome of student use of mobile devices in learning. And provide more facilities to support a good environment for using these mobile devices such as free fast Wi-Fi, mobile devices chargers, and build good educational applications such as Blackboard with easy accessible digital features to avoid the barriers.

### **Suggestions for Future Research:**

Based on the results of this study, the following suggestions should be considered for future research:

- 1- Future research needed to address influence of mobile learning on achievement and performance.
- 2- A qualitative study on mobile learning should be conducted students; faculty members and designers to find a good model of mobile learning.
- 3- Future studies must look at the best strategies for effectively applying mobile learning into higher education.
- 4- The psychological and social impact of mobile learning is also an interesting and innovative field of research that may be investigated.
- 5- To add generalizability, future research could combine qualitative and quantitative research by using survey instrument and randomly large sample of college students.
- 6- A continuation of this dissertation research using many colleges or universities might increase generalizability to the findings.

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## فوائد وعوائق تجاه فعالية التعليم النقال من وجهة نظر الطلاب في التعليم العالي

الملخص: الغرض الأساسي لهذه الدراسة هو إيجاد الفوائد والعوائق للتعليم النقال من وجهة نظر طلاب التعليم العالي نحو فعالية التعليم النقال. هذا البحث يعرض نتائج مقابلة أحد عشر طالباً من الطلاب الجامعيين وطلاب الدراسات العليا في جامعة كانساس. أظهرت نتائج التحليل النوعي لأسئلة المقابلة التي ركزت على أثر تعليم النقال على البيئة التعليمية في الجامعة. وقد حاول الباحث تحديد كيفية استخدام هذه التقنية للمساعدة في تعليم الطلاب في جامعة كانساس والابتعاد عن العوائق. ستة مواضيع كتبت من استجابات الطلاب وكل واحدة منها اختبرت لتطوير التصنيفات الأساسية المتعلقة بتلك المواضيع. البيانات أظهرت نتائج إيجابية تجاه فعالية التعليم النقال في التعليم العالي وقد شارك المشركون بعرض بعض تجاربهم في العوائق من استخدام تقنية التعليم النقال كأداة مساعدة في التعليم العالي. بينت النتائج أن التعليم النقال في التعليم العالي سهل التوفر، سهل التواصل بين الطلاب أنفسهم وبين الطلاب والمعلمين. ومن جهة أخرى، يوجد بعض العوائق مثل التشويش ومحدودية الوظائف.

الكلمات المفتاحية: التعليم النقال، التعليم عن بعد، والتعليم الإلكتروني.