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## **Schoology! Netbookology! Learning with Mobile Devices: A Case Study of EMU undergraduate IT Students**

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**Abstract** -Nowadays, mobile learning is anticipated as an important instructional device that provides students with the opportunity of being involved in learning and teaching environments whenever and wherever they want. Thus, mobile learning will turn into being one of the most significant environments of distance instruction. The purpose of this study is to analyze perceptions of EMU undergraduate IT students for mobile learning, particularly in terms of effectiveness and expectations. Furthermore, negative and positive perceptions of the students on how mobile learning is being used and whether it enhances learning are assessed through questionnaires. This study is designed as quantitative research. For this purpose close-ended questions are conducted as a data collection method.

**Keywords:** Mobile learning, Technology dependency, Student's perceptions

### **1. Introduction**

Over the last decades, the initiation of mobile devices such as mobile computers, cell phones, tablets and notebooks provides with it the capability to deliver knowledge to learners wherever and whenever they need (Johnson et al., 2011; Pohio & Falloon, 2010). The logic of carrying out study in learners' perceptions towards the mobile instructional environment stemmed

from the fast innovation of technological revolution, particularly in the telecommunication field. Mobile learning has mostly affected the younger generation, especially students that are spending most of their time using their beloved devices. Surveys have shown that the consumption of mobile devices among university students has been increased dramatically and it is also more outstanding in learners who achieve academic success (Chase and Herrod 2005). Hence, mobile devices have enabled the educators to send educational messages in flexible ways. For instance, the instructors and students can make communication through voice and images as well as text.

Furthermore, mobile device utilization has become a common instructional aim of learners' expectations (Lan & Huang, 2012). For example, Valk, Rashid, and Elder (2010) proved how mobile devices facilitate learning for students in developing countries and also increase the access to instructional services and materials, especially in the rural and remote regions. In addition, students have reported their request in order to get more options to make their instructional tools more convenient so that they will be able to study when and where they would like to. Naturally, the utilization of mobile devices gives students a learning ownership that would lead to positive learning language experiences (Kukulka-Hulme, 2009). Nevertheless, the innovation of the technology-based learning (referred to as Mobile Learning Language or MLL) carries on to challenge learners in order to develop new teaching and learning approaches.

Additionally, today, instructors and students resist change in educating and learning with new technologies due to not thinking of themselves as a part of a novel learning culture. Besides, the resources and trainings of the oriented technology may not meet the requirements and needs of both instructors and learners in understanding of learning nature (Thornton, Houser, 2002). Stockwell (2007) pointed out that the mobile learning survey results in the setting of the classroom will be different when students have a choice to utilize mobile devices. Also, later on Stockwell (2008, 2010) argued that educational, psychological and technological issues or limitations, mostly barricade students from choosing mobile devices like smartphones for learning activities while they have a positive opinion of learning with mobile devices.

### **1.1 Purpose of the study**

The main purpose of this research is to assess the undergraduate students' perceptions towards mobile learning in their learning process. In order to reach the goals above, this study seeks to answer the questions listed below:

- I. What are the students' perceptions towards using mobile devices for learning?
  - i. Acceptance level of the students
  - ii. Understanding level of the students
- II. How do students' perceptions of learning experiences differ from a traditional versus mobile learning approach?

### **2. Related works**

Learning with mobile devices has taken many educators' imaginations, particularly in higher education due to allowing them to capitalize the embedded options and features in powerful mobile devices (Hung & Zhang, 2011).

Vavoula (2005) indicated in his study that as a part of the MOBILElearn project, "Mobile learning approach includes more interactive, contact, communication and collaboration with people and also comprises more 'bustle' " (p. 17). He also established a model of task for mobile learning method (Taylor, Sharples, O'Malley, Vavoula, & Waycott, 2006).

Besides, some researchers such as Al-Fahad (2009), Chase and Meghan (2007) and Barkatsas (2007) carried out studies to find out students' perceptions about mobile learning. They figured out that students approved to use mobile devices in the learning process. Their study results cheered investigators' interest in study approaches of catering information by using modern logical tools.

Al-Fahad (2009) carried out research in order to investigate the attitudes of students and understand the influences of mobile learning. The result of the research showed that most of the students advocate the idea that the wireless networks are so effective in flexibility of having more access to the resources of learning. Hence, students are able to preserve their time, effort and money.

Chase and Meghan (2007) investigated the students' engagement with technology on campus at Slippery Rock University. Their research showed that their topics of research got more satisfaction with the utilization of mobile devices in the instructional process.



In order to indicate the power of Mathematics and Technology, Barkastas (2007) examined 350 students from 6 schools. Although research indicated that male students showed more confidence in technology rather than female students, all the students had an extensive range of attitude towards learning Mathematics by using technology.

Zhu et al (2012) carried out research about students' acceptance of mobile learning. The aim of their study was to understand and enhance the students' acceptance of incorporation of mobile learning approach, inside and outside of the classroom, in the Technology Acceptance Model (TAM), at three universities in China. Through the study, the authors found out that students are positive about mobile learning approach, although they were not strongly willing to be adopted to this method. Hence, the proposed TAM model can enhance the students' stimulus by offering the factors which are effective for improving the perceptions and acceptance level of mobile learning approach.

Kim et al (2013) indicated the study about how students perceive the utilizing of mobile devices in order to make an individualized learning experience outside of the classroom. The participants comprised 53 graduate students who registered in TESOL classes. All the students accomplished five class projects which were designed to help them find experiences of mobile learning with their own devices, including technologies like YouTube and VoiceThread. This study showed that mobile learning method has the potential to cater novel learning experiences and also students are able to engage more in the activities of learning outside of the classroom. Hence, this method provides them with more opportunities of learning experiences through their studies.

Furthermore, Vyas and S. Nirbn (2014) examined the study about the students' attitude and perceptions regarding the effectiveness of mobile learning. They applied the method of using mobile devices on 100 students from first degree and higher degree program at an academic institution. The result shows that utilization of mobile learning technology optimally enhanced the instructional practices in Indian context.

Moreover, another study by A. Barrah et al (2015) is focused on how mobile learning via using Facebook and SMS can be effective for students' learning in the department of Mathematics and Computer Science class at the University of Djibouti. The outcome of the study presents that mobile learning technology by using SMS and Facebook could be utilized as a supplemental feature to enrich students' learning in order to achieve their learning goals.

Besides, some investigators have even used mobile devices for improving the tourists' experience of a museum (Boehner, Gay, & Larkin, 2005). By having these related works, one can determine that mobile learning approach can be a helpful tool for learning or improving the teaching-learning process, since it rises access. Furthermore, it is accessible anywhere, anytime. Like e-Learning, mobile learning approach can also be interfaced with many other media technologies like video, audio, the Internet, and etc. Due to usability of new technologies, there are two perspectives that must be measured: 'against it' and 'in support'. In case of mobile learning technologies, some users may find it not very conducive to learning (i.e., screen size; physical environment), whereas for others, the profits of being able to learn are very convenient. So, clearly, students' perceptions of mobile learning do matter.

## **Research Method**

The survey was conducted with 65 undergraduate students in the school of Computing and Information Technology at Eastern Mediterranean University, N. Cyprus. The reason to choose the school of Computing and Information Technology to apply the survey was that there are noticeable number of courses offered to undergraduate students at this certain school with a lot of reference to Moodle and online sources and materials including supplementary pdf files, multimedia files and videos and online tutorials. These are part of the lesson which can be transmitted to the students and teachers via Bluetooth in their free hours.

This data of this study is collected by the quantitative research method. The questionnaire was a paraphrased version of the questionnaires designed and developed by Hembelala & Suresh(2013) and Zhu et al (2012). The questionnaire of this research included a total of 23 close-ended questions to examine the students' perceptions about mobile learning approach and also perceptions about the differences between traditional learning and mobile learning.

The questionnaire is divided into three sections; the first part includes demographic information (gender, age, nationality). The second part contains 15 questions using a five point Likert scale. The Likert scale for the questions was set as: Strongly Disagree (1), Disagree (2), Neutral (3), Agree (4), Strongly Agree (5). The questions, measure the students' perception level of using mobile learning approach. Section three, same as the previous section, also comprises 8 questions of five-level Likert scale.

These queries were designed to measure a broad understanding of students' perceptions of mobile learning methods against the traditional learning method.

#### 4. Findings and Discussion

This study is applied on 65 undergraduate students, in IT department at EMU University. The figure 1 show that 75.38% were Male and 24.26% female students from different countries that participated in this research.

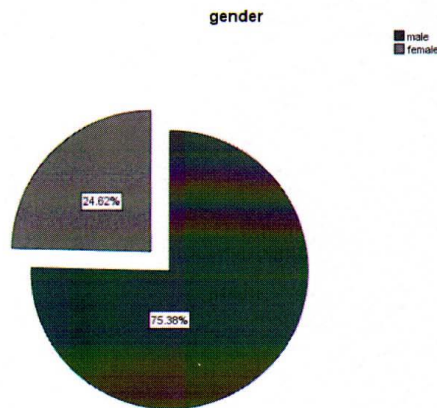


Fig. 1. The demographic information of students

Table I below illustrates the outcome of the students' perception towards mobile learning approach, The first fifteen questions in the questionnaire were designed to derive the level of acceptance and understanding of the students.

Table. 1. Questions for Students' Perceptions about Mobile Learning

Questions	M	SD
1. Video lessons are easy to understand and learn from	4.0462	.95902
2. Mobile learning is a popular or supplementary source of learning	3.6769	.77273
3. Mobile learning is a very good approach for self-study	3.8308	.87624
4. Mobile and wireless devices increase interest and motivation in learners	3.6769	.73117
5. Everyone can financially afford to have a mobile device these days	3.4000	1.04283
6. Mobile learning allows me to try different learning styles	3.5846	.86408
7. The traditional value system of learning can be harmed by mobile learning	3.0154	.90988
8. There is more privacy in learning via mobile devices	3.4308	.93490



9. Mobile learning makes it possible for learners to study and revise anywhere, anytime without limitations	3.7385	.90618
10. Mobile learning approach helps use travelling time (on bus, train...) efficiently	3.7692	.96451
11. Mobile devices make learners feel confident cause they can carry their data almost everywhere	3.9231	.90671
12. Mobile learning approach makes the whole learning process more flexible in terms of time and place	3.7846	.83838
13. It can be problematic to use mobile devices in an academic environment	2.9385	.91646
14. Mobile devices can promote creativity in learning	3.6000	.88034
15. Learners are allowed to use mobile devices or wireless handled devices inside classrooms	3.7231	1.09698

Putting aside questions 7 and 13 (which hold a negative attitude towards the concept of mobile learning) the average of 'strongly disagree' and 'disagree' answers to the remaining 13 questions turned out 9.46%. In addition, the mean of 'neutral' replies to the same questions was 28.62%. These figures indicate that the biggest proportion of the students has a positive perception of learning via mobile devices.

Question 2 mainly challenges learners' acceptance level of mobile learning as a good supplementary resource throughout their learning process, to which 36.9% of learners were neutral whereas a total of 58.4% agreed. Figure.2 illustrates the data related to question 2. Next key question related to their understanding level of mobile learning is question 6 with the focus of mobile learning providing the environment for them to try different learning styles. To this question, 29.2% of the learners reacted neutral. However, 60% of them chose to agree or strongly agree.

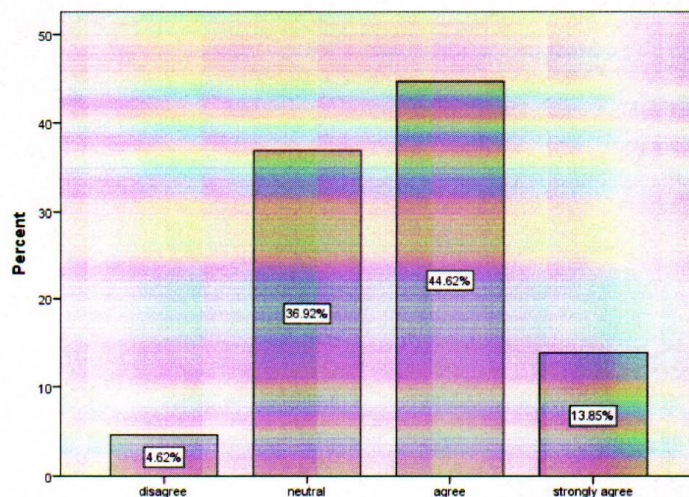


Fig. 2. Mobile learning is the additional or supplemental source of learning

Another important question which clarifies students' level of understanding towards mobile learning is question 11 which digs into how confident they feel having their mobile devices which allows them browse the required data anywhere and anytime. To this question, a surprising figure of 73.9% agreed or strongly agreed. Only 16.9% replied to be neutral and 9.2% disagreed. There was 0% of strong disagreement to this particular question. Figure.3 is related to data derived by this question.

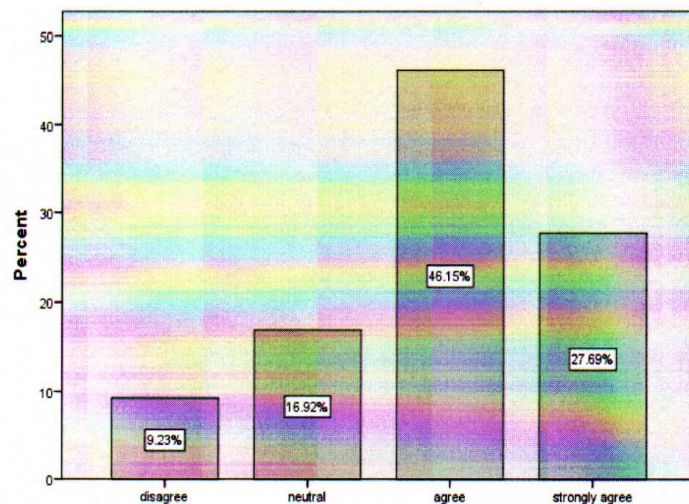


Fig. 3. The learner feels convenient to carry their data with them to almost all the places



The next challenging question in terms of assessing learners' understanding of the benefits of mobile learning was question 12 which discussed the flexibility of learning process with time and place. 67.7% of the answers fell in the 'strongly agree' and 'agree' categories and a 24.6% figure referred to those being neutral. Only 7.7% of learners disagreed and like the previous question no one held a 'strongly disagree' attitude. Figure.4 is an illustration of the data discussed.

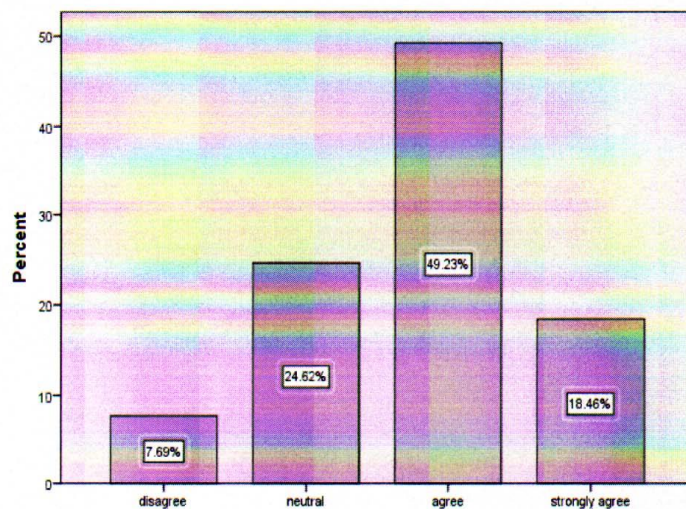


Fig. 4. Mobile learning is the greater flexibility in where and when learning needs

The last question to be discussed is question 14 which maneuvers on more creativity offered by mobile learning. Figure.5 shows that only 56.9% of learners showed agreement whereas 33.8% felt neutral. It seems that learners need more time and guidance by mentors and teachers to take better advantage of mobile learning and how creative it can be in terms of the variety that it offers.

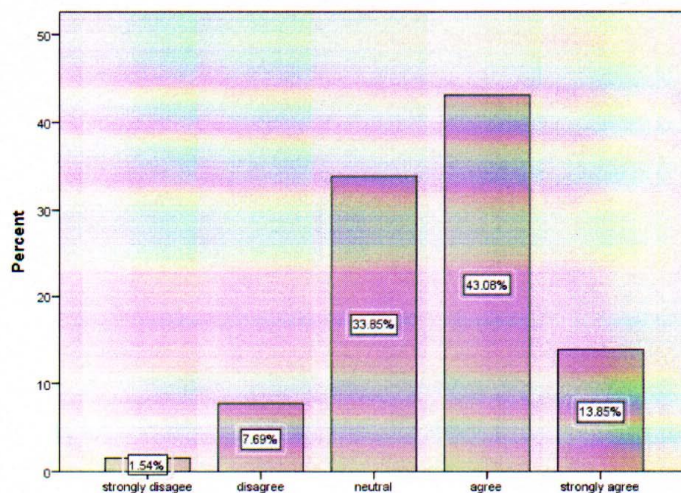


Fig. 5. Creativity will be achieved in mobile learning

Questions 7 and 13 focus on the negative impacts of mobile learning in that mobile learning harms traditional value systems of learning and makes problems for academic environments. To both questions, less than 35% agreement was recorded. 32.3% and 44.6% were neutral and 33.5% and 23.1% of learners disagreed for the questions respectively.

Questions 9, 10 and 15 discuss the usability and availability of mobile devices and accessibility to learning through them. The accumulation of 'agree' and 'strongly agree' replies to the questions were 58.5%, 63.1% and 61.5% respectively. An average of 29.23% answered neutral and a negligible number disagreed.

Table II below, shows the information regarding students' perceptions about the differences between mobile learning and traditional learning approach. There were a total of 8 questions which highlighted the differences between mobile approach of learning and the traditional ways to assess the learners' understanding of the differences.

Table 2. The Questions about Mobile Learning Vs. Traditional learning

Questions	M	SD
1. Mobile learning is more practical and dynamic	3.6000	.78661
2. Mobile devices are portable devices that provide flexible learning	4.0154	.73935
3. Mobile learning motivates daily learning	3.8923	.66434
4. Mobile learning makes better use of pieces of time	3.7538	.68536
5. Mobile learning is helpful in expanding knowledge	3.8000	.75416



6. Mobile learning is an engaging and attractive alternative way of learning	3.7538	.70779
7. Mobile learning promotes effective studying	3.4923	.79300
8. Mobile learning is a popular alternative for studying	3.9692	.86547

Among the questions, question 1 holds a key difference by indicating that mobile learning is way more practical, intuitive and dynamic, to which 49.2% of students agreed whereas 35.4% kept a neutral stand. Only a minority of 6.1% disagreed with the idea. Figure.6 illustrated the data.

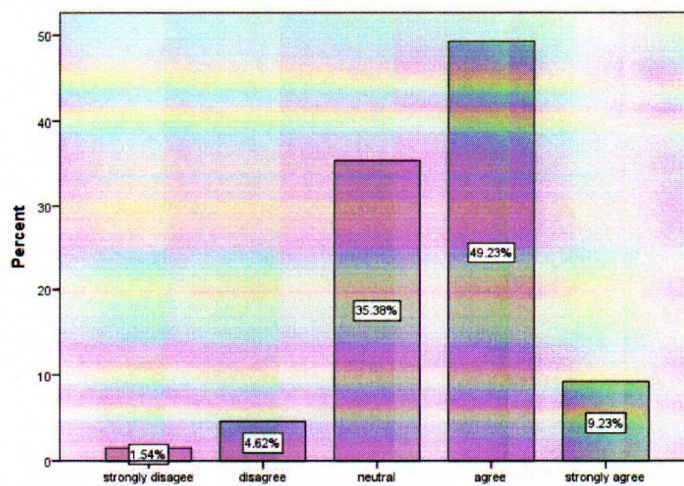


Fig. 6. Compared with traditional learning, I believe that mobile learning is more initiative and dynamic

Question 2 concerns the flexibility of learning through portable devices, i.e how mobile learning makes it possible to expand learning to more remote areas without learners needing to commute long distances to attend a traditional learning venue. A stunning 83.6% of learners showed agreement and only 4.6% disagreed and 12.3% were neutral (Figure.7).

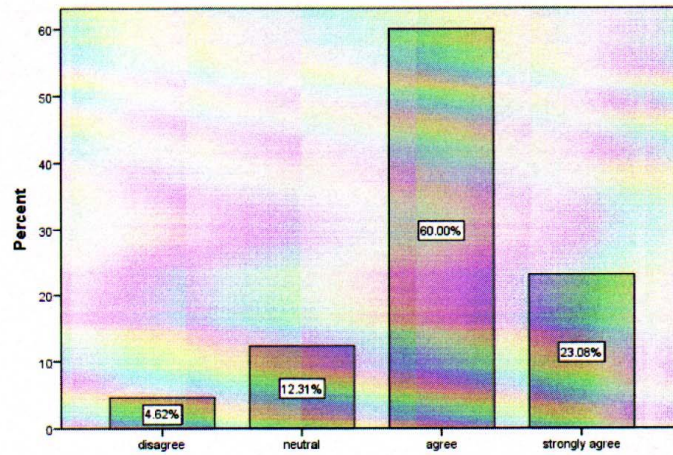


Fig. 7. Compared with traditional learning, mobile learning is more portable device, more flexible learning

Question 3 asks for learners' attitude towards whether mobile learning motivates daily learning, to which 75.38% agreed and 23.08% reacted neutral. 1.54% disagreed (Figure.8).

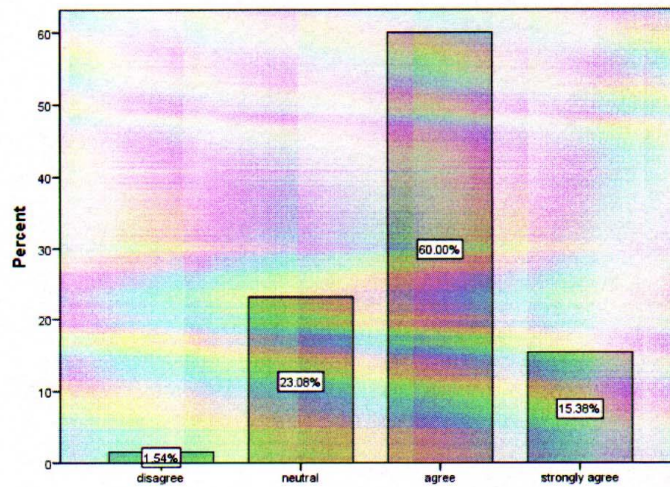


Fig. 7. Compared with traditional learning, mobile learning is enhances daily learning



Finally, Table III provides the data related to the three questions 6, 7 and 8 which focus on attraction, effectiveness and popularity of mobile learning compared to traditional learning systems.

Table. 3. Result f questions 6,7,8

Q	(Strongly) agree	Neutral	(Strongly) disagree
6	66.1%	30.8%	3.1%
7	52.3%	36.9%	10.8%
8	75.4%	20.0%	4.6%

## **5. Conclusion**

This research presented a survey on the awareness and perceptions of mobile learning approach performed on 65 undergraduate students in IT department of EMU university. The results indicate that students are interested in new technology devices due to convenience and flexible usage and hold positive attitudes about learning anywhere, any time, by any device, any network and a wide range of data and knowledge available to them. It provides students with an adaptive and interactive instructional environment which gives them the opportunity to take best use of their time and find their own learning style. Hence, it caters the theory that mobile learning could be a good alternative for learning and easy to use. Mobile learning is the best approach to use for individualized instruction or self-study.

For the future study, the aim is to provide pre and post-test for a wider range of the population and make a comparison for the analysis of m-learning and traditional learning from the point of view of teachers, those who belong to the younger generation and those who are older and not easy to adapt.



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