

A COMPARATIVE STUDY ON MOBILE DEVICES FOR LEARNING

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Abstract – This research presents the survey of opinions about the usage of mobile devices every day usage and students' attitudes. Teaching, evaluating, and managing processes are fostered by the Mobile devices such as laptops, tablets, etc. Due to the free laptop scheme by the government the mobile learning device usage goes up in a healthy way. Different mobile user groups have different expertise knowledge in soft wares. Smart phone usage has a positive side in the learning environment. Smart phone user groups are expert in android, mobile codec, mobile to laptop data transfer knowledge, etc., M-Learning converts the face to face teaching into more interactive teaching and learning particularly in a web learning system. This research aims to study the concepts like mobile learning and mobile technology applications such as smart phones and tablets in the learning strategy. Due to the advancement in ICT tools, mobile devices have been widely developed in the field of education by the educators. Mobile device simplifies processes such as searching, retrieving and storing data. It helps the learners in a smart way and helps the learners to recheck their learning concepts and statistics to up to date. Mobile device gives a new platform in education which comes in various forms such as tablets, smart phones, laptops and personal computers. The main aim of this research is to investigate the role of mobile device usage among the computer science undergraduate students. Mobile technology improves exam marks and fosters students' learning mindset. The mobile device has the portability advantage which leads to effective educational communication. It is a good motivator to learn new software and applications for the computer science students. It attracts the computer science students to study new branches such as cloud computing, artificial intelligence, data science, green computing, grid computing, etc. Those who are having more accessibility to mobile devices have more technical knowledge than those who don't have.

Key Words: Mobile device usage, students' attitude, ICT tools, portable advantages, learning mind set,

educational communication, green computing, artificial intelligence

1. INTRODUCTION

With the rapid development of mobile devices such as smart phones, tablets, multimedia laptops and high speed personal computers M-Learning has become the new advancement in educational technology [1]. Mobile devices advancement has not only helps in educational communication but also helps in effective learning [2]. . In recent years, M-learning has become the new strategy in learning and teaching process [3]. Mobile device gives more opportunity to new learners [4]. It fosters the learning the learning skills by the way of introducing new applications such as androids [5]. . Anyone can learn anything with their own needs and learning phase and learning time without space boundary is the main advantage of M-Learning devices [6]. Mobile devices has becomes the main part of many Universities in India. With the fast phase of development in Wi-Fi connections many universities are switching to new avenue for e learning courses [7]. . There is a developing trend in learning material production for mobile compatibility to faster the learning [8]. . According to crower the usability of design must be efficient, effective and flexible [9]. . Study about the M-learning devices and its applications are the main aspects of this research. According to Koobang flexibility, usability is the main aspects in design [1]. . In order to cater the needs of learners in this fast changing technological society, a series study about the mobile devices and its impact among the learners are the need of the hour [10]. . In this research paper, we present the comparative study of various mobile devices and its usage, students' opinions, exam performance, educators' opinions, etc. Mobile device supports the learners' interaction with peer groups and educators [12]. . It also helps the lecturers for their efficient teaching [13].

TEACHING MACHINES

A teaching machine is electronic or mechanical device which has a problem to a learner [14]. . It presents the problem or

situations to the learners and ask him to solve or perform a task. It also evaluates the learners' weakness strength and performance [15]. It gives exercises to learners to perform the duty of teaching [16]. The main advantages of teaching machines are as follows,

- (i) It has programmed instructions which can be used any time and retrieved any time.
- (ii) Teaching machines treats all the learners in same way without any personal bias.
- (iii) Teaching machines never makes mistakes in statistics and concepts.
- (iv) Immediate response and feedback as well as results are the main advantages of teaching machines.
- (v) They have programmed instructions which can be rewritten at any time.
- (vi) Individual phase of learning and personal attention are possible through machine learning.

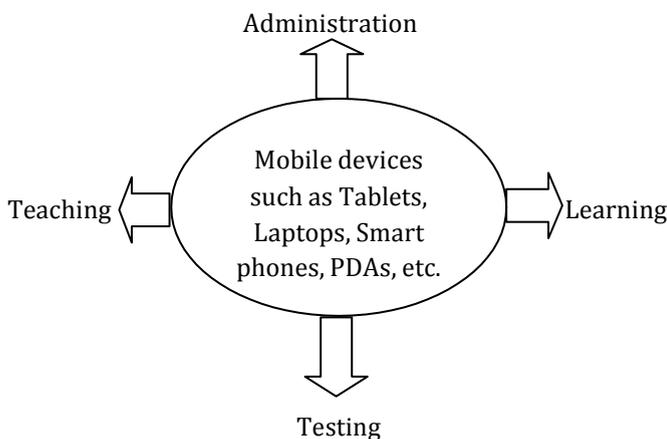


Figure 1: Mobile applications

Figure 1 shows the mobile applications in the teaching and learning environment.

2. RESEARCH DESIGN

An opinion survey was conducted among the computer science students. A detailed study was conducted among the undergraduate students to study the links between mobile devices usage and exam performances. The computer science students' semester marks and the mobile device usage pattern were studied. The students opinion and interest level were also studied by a well-constructed questionnaire. A questionnaire was designed with the careful consideration of its validity. The questionnaire was set with the advice of eminent researchers in the field of computer science. The educators' opinion and attitude towards this new technology was also gathered through a questionnaire. A pilot study was also conducted among the selected group of students.

Aim of this study

The research aims to study the mobile devices usage and the exam performance among the computer science students. It also aims to study the opinion among the computer science students and lecturers. The main aim of this research paper is to suggest a suitable teaching and learning strategy to simplify the computer science learning.

OBJECTIVES OF M-LEARNING

The objectives of this research is to find out

- To create awareness about the use of mobile technologies education.
- To familiarize the concept of M-Learning among the students and educators.
- To study the mobile devices and its effectiveness in education.
- To study the impact of mobile devices to enhance exam performance and learning experience.
- To suggest effective teaching strategy among the educators.
- To develop the interest among the computer science students to study further.
- To study the opinion of learners in new mobile technologies and its usage.
- To study the effects of mobile devices and entertaining websites.
- To study the opinion of lecturers regarding the usage of smart phones, laptops, tablets, web learning system, etc.

3. HYPOTHESIS

- Mobile devices such as smart phones, tablets, laptops and multimedia personal computers have significant impacts and improve the exam performance.
- The computer science students have positive opinion about the new mobile devices.
- The educators are also have a positive opinion about the usage.
- Those who are using this new mobile technologies are very good in technical knowledge in latest android and its applications
- Introducing mobile technology in the teaching and learning process is helpful for teachers and students.
- It develops the learners' interest and motivation to study further.
- Mobile devices enhances the learning experience and helps to study about new fields like green computing, cloud computing, artificial intelligence and machine learning.

5. SAMPLING

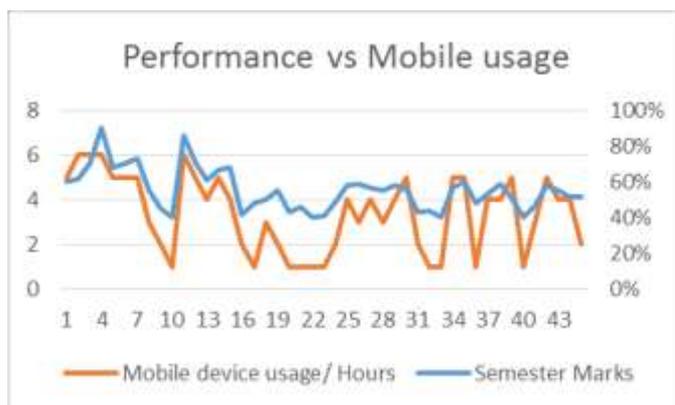
This experimental survey investigates the mobile technologies usage and exam performance among the computer science students. 45 students' were selected among the 190 students by using simple random selection. 15 members were selected as highly users of mobile technologies (6 hours and not less than 4 hours) in their day to day learning activities. 15 members were selected

as moderate users of mobile device (3 hours and not less than 2 hours) in their day to day learning activities. Another 15 students were selected (1 hours) in their daily mobile device for learning. Both the learners and lecturers were carefully selected by sing simple random sampling method to study opinion analyses. Motivation and interest among the mobile users and non-mobile users were also studied to check the links between interest and mobile devices usage. More internet user groups (More than 8 hours in a day) and very low internet user groups (less than 15 minimum in a day) were removed from the list to clean the data set.

Table -1: Students Group

Highly user groups (6 - 4 hours)	Moderate user groups (3 -2 hour)	Low level user groups (1 hour or less than 1 hour)
15	15	15

Table 1: This table shows the mobile devices user groups in a three difference usage level.



Graph-1: Exam Performance vs. Mobile Usage

Graph shows links between exam performance and mobile devices usage. It clearly shows that those who are using 6 hours and more than 3 hours per day for learning activities has more percentage of marks in the semester exam.

Table -2: Opinion about the mobile usage among the learners

S.NO.	OPINION	NO. OF RSPONDENTS	%
1.	Strongly agree	42	84
2.	Agree	3	6
3.	No opinion	0	0
4.	Disagree	3	6
5.	Strongly disagree	2	4
	Total	50	100

Table 3: This table shows that 84% of the respondents are fully agree and 4% of the respondents have disagree.

3. CONCLUSIONS

The research concludes that the opinion about the Mobile devices is positive in the view of educators. Students have also positive view about the new M-Learning technology. 90 % smart phone holders in the learning environment had very high android and application knowledge that the laptop holders. They had very good knowledge in phone to system connection and data transfer knowledge .They also had video and audio codec knowledge. Even though many students have positive opinion about smart phones and tablets the availability of smart phones and tablets among the students are in a developing stage. Very few students have all the latest mobile devices, electronic portable document files and materials. Because of the free laptop scheme by the government many students have their own learning e materials. This research concludes that smart phone users have very good knowledge in android application, codec and data knowledge. Laptop holders have very good knowledge in windows installation, antivirus software knowledge, etc. Smart mobile devices enhance the latest software knowledge in a simple way. This research is also gives awareness about the over usage of entertaining games and entertaining website usage. Those who are using more mobile devices have more advances in their technical knowledge. This research supports the usage of mobile devices in the educational environment. It recommends the positive usage of smart phones, e learning readers, tablets, laptops, etc. This research clearly showed that the there is a difference among the various mobile device users in software knowledge. Introduction of mobile devices will be very helpful. Achieving learning objectives are fosters by using latest technologies such as tablets, smart phones, and multimedia computers. Mobile devices are changing everyday with many applications. New social media and blogs are even develops further. But the negative side should be eliminated in order to achieve all the learning objectives.

REFERENCES

- [1] Shinpin et al, "The Adaptive Learning System based on Learning Style and Cognitive State", CSI publications, ISSN 978-0-7695-3488-6/08, 2008.
- [2] Norlol et al, "The Role of Cognitive Styles in Investigating E-Learning Usability", CSI publications, ISSN 978-0-7695-3948-5/10, 2010.
- [3] Teresa et al, "Evaluating Web-Based Learning Systems", Journal of Instructional Pedagogies, 2007
- [4] Wan-I Lee IEEE transaction, "The application of kano's model for improving web-based learning performance 2007. IEEE International Conference on, ISSN 0-7803-7444410, 2002.
- [5] Liu et al, "Human Communication and Interaction in Web Based Learning: a Case Study of the Digital Media Web Course CSI publications, Proceedings of ICCE, 0-7695-1509-6/02, 2002.
- [6] Lisa fan et al, "A Cognitive Approach of Web-based Learning Support Systems", ISSN: 978-3-642-25190-0, 2009
- [7] Fan, L., Yao, Y. Y., "Web-based Learning Support System", WI/IAT 2003 Workshop on Applications, Products and Services of Web-based Support Systems, October 2003, Halifax, Canada
- [8] Hsiu et al, "Investigating learners' attitudes toward virtual reality learning environments: Based on a constructivist approach, ACM. 2011.
- [9] Timothy et al, "An Adaptive monitoring Machine Based on Web Learning Assessment", IEEE transactions, 0-7803-6536-4/00, 2000
- [10] Klaus, "A Conceptual View of Web-Based E-Learning Systems", Kluwer Academic Publishers, Volume 10, Issue-1, 2, 2005.
- [11] LSaid Ghoniemy et al, "A dedicated web based learning system; Universal Journal of Computer Science & Engineering Technology; 2010.
- [12] Liang, "Design of Model for Activity-Centred Web Learning and User experience", School of Information Technology and Engineering, Tianjin University of Technology and Education, 2007
- [13] Nikos, Research on teaching and Learning, Faculty of Communication and Media Studies, National & Kapodistrian University Hellas Computer Science Department, University of Cyprus, CY-1678 Nicosia, Cyprus, , Vol. 1, issue 2, 900-905, 2010.
- [14] Norol, The Role of Cognitive Styles in Investigating E-Learning Usability, International conference on eEducation, e-Business, e-Management and e-Learning, , Vol. 2, issue 1, 1020-1028, 2010.
- [15] Senthil et al., International Journal of Advanced Research in Computer Science and Software Engineering 5(4), April- 2015, pp. 927-931
- [16] Huan, "Research on Strategies for Relieving the Cognitive Load in Web based Learning, International Conference on Educational and Information Technology, Vol. 4, issue 3, 435-439, 2010.