AN ANALYSIS ON THE USAGE BEHAVIOR OF MOBILE INTERNET AND ATTITUDE TOWARDS M-LEARNING AMONG COLLEGE STUDENTS IN TAMIL NADU

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ABSTRACT

Mobile device today, allow its users to perform a variety of tasks with the ease of a few clicks and touches, anytime, anywhere. Mobile devices are pervasive in most parts of the world. It is this pervasiveness that has prompted researchers to investigate how these devices can be applied in education.

The main focus of the study is to incorporate mobile learning strategies in higher education. It also studies the scope to understand the perception toward mobile internet for educational purposes. The survey was conducted with a close-ended questionnaire among college students in Tamil Nadu. Majority of the students preferred Mobile internet for browsing, followed by personal computer. They use Gmail and share it for file sharing. Most of them use their mobile devices as a study tool. They write notes and read articles related to their academic in their mobile device. Students disagree that mobile learning will reduce the academic performance of the students. They also feel that Mobile learning is easier than traditional classroom or book learning.

Key words: Mobile device, M-Learning, Mobile Applications, Social Networking.

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1. INTRODUCTION

Students move busy in the college campuses, some quickly hurrying to classes, preparing for exams and also, involved in a group of socialization. At a closer watch, it was obvious that every student was carrying a magical device. It was their mobile phone, a convergent new medium of all forms of education, information and entertainment.

The Indian Telecom Industry is among the largest telecom industries in the world on the basis of total number of users. Companies providing mobile networks in India are increasing day by day due to the availability of immense opportunities. A recent rapid advancement in the capabilities of mobile devices along with a decrease in price has enabled the mobile phone to become ubiquitous. In fact, there are now 5.3 billion mobile subscriptions globally, which is about 77 percent of the world's population. Although estimates are lower for rural areas, it is predicted that 80 percent of people living in rural communities have access to a mobile network. In fact, in places where infrastructure barriers have prevented developing countries from accessing the Internet, the majority of people access the Internet from their mobile devices (International Telecommunication Union, 2010).

Growth of mobile internet in India:

The number of internet users in India has reached 354 million by the end of June 2015. The latest figure indicates that India has more internet users than the population of the US and become the second largest country by the number of internet users after China. According to the report published by the Internet And Mobile Association of India (IAMAI), the internet users in India has grown 17% in the initial 6 months of this year, adding 52 million new users.

 Nearly 128 million mobile internet users belonged to the urban population of India, the rest 45 million reside in rural areas of the country. The number clearly articulates the exploded mobile internet scenario in India. About 60% of internet users in India access the internet via their mobile phones now**.** The number is expected to reach 315 million by 2017, estimates IAMAI-KPMG report (2015).

Mobile Phone, "a magical device"

Undoubtedly, mobile devices are changing the way we live, work, and socialize. We can instantly access email from mobile devices, read articles, pay bills, send checks,

purchase gifts, play games and interact with others through social networking sites. Although the use of mobile devices is essential for survival in mainstream society, mobile phones are still banned in many institutes of higher education. The challenge for education is continuing to grow as students born in the digital and mobile age are approaching learning from a very different perspective than their predecessors.

Need and Significance of the Study

In order to take a mobile learning initiative at the higher education level, students and faculty must see a need for educational use. It is important to establish an effective teaching and learning environment through mobile phones. The purpose of this study is to understand how undergraduate students are currently using mobile devices informally for educational purposes. It will also investigate the perceptions of students with regard to mobile learning. The study will also investigate any potential barriers that may prevent the effective use of mobile devices in classrooms as educational tools.

Statement of the Research Problem

It is the need of the hour research requirement to explore the use of personal mobile devices as educational tool by all means. With the enormous increase of students each year, universities need to rethink how, in what time and space, they provide learning opportunities.

Mobile phones cannot be ignored as they are increasingly affecting all the areas of society. Whether they are banned or not, they are being brought inside classrooms. Thus, educators can enhance the potential of mobile devices for teaching and learning, helping to prepare their students for their future careers. Hence, the statement of research problem is stated as, "A study on the usage behavior of mobile internet and attitude towards M-Learning among college students in Tamil Nadu".

AIM AND OBJECTIVES

The primary aim of this research is to study the usage behavior of mobile internet and attitude towards M-Learning among college students in Tamil Nadu.
The specific objectives are:
1. To study the awareness level of students towards their personal mobile devices.
2. To observe different purpose of using mobile internet among students.
3. To perceive the use of mobile applications for educational purposes.
4. To analyze the attitude towards incorporating mobile learning in classroom.

LIMITATIONS OF THE STUDY

➢ Being a quantitative analysis, it is difficult to understand the effects of using mobile internet.
➢ Due to time constraints, the study could not be extended at a larger extent.

DEFINITION OF TERMS

The definitions of terms related to this study are as follows:

- ➢ **Applications:** "Apps;" A downloadable web-based or device-based program that provides access to information, content, gaming and/or allows users to perform tasks easier.
- ➢ **Mobile device:** Any mobile technology with multiple functions and capabilities, especially the ability to access the Internet.
- ➢ **Mobile Learning (M-Learning):** the process of using a mobile device to access and study learning materials and to communicate with fellow students, instructors or institutions (Ally, 2009).
- ➢ **Personal Mobile Devices:** Mobile devices that are owned by the student.

2. REVIEW OF RELATED LITERATURE

Mobile devices have evolved from a luxury item to a necessity. Mobile devices are being used both informally, by users who seek out their own learning experiences, and formally, by users who are prompted to do so as part of a class. Numerous research provides encouraging results for the use of mobile devices to support teaching and learning (Yordanova, 2007), revealing that students would like to use mobile devices to learn, that students are motivated and engaged while using mobile devices (Rogers et al., 2010).

According to Sharples (2006), Mobile learning: 1) enables knowledge building to take place in different contexts; 2) provides the ability to gather data unique to the current location, environment, and time 3) enables learners construct their own understanding ; 4) changes the pattern of learning or the work activity ; 5) supports the use of mobile learning applications which are mediating tools and can be used in conjunction with other learning tools; and 6) goes beyond time and space in which learning becomes part of a greater whole.

Song (2007) defines six categories by which course content may be delivered using mobile devices:
1. Pushing: delivering assessments without constraints of time and place.
2. Messaging: a one-way communication using SMS
3. Response and feedback: instant two-way communication
4. File exchange: students and teachers sharing information anytime, anywhere
5. Posting: information presentation, dissemination and annotation systems
6. Classroom communication: students and teachers share information in the form of asynchronous messages

A major challenge in the research is the inability to keep up with technology. "There are still significant challenges of scale, sustainability, inclusion and equity in all their different forms in the future, and of context and personalization in all their possibilities, of blending with other established and emerging educational technologies and of tracking the changes in technology" (Traxler, 2009).

According to Pearson (2011), well-designed and instructionally sound applications may supplement classroom learnings as well as provide additional support and learning opportunities outside the classroom. Textbook companies like Pearson have recently begun to expand into the application market, giving users the opportunity to access materials from their mobile devices.

Prior reviews of m-learning studies have provided encouraging results for using mobile devices to support teaching and learning (Yordanova, 2007). In order to incorporate the use of mobile devices in mainstream education, it is necessary to analyse if students can, will, and want to use them for education. Mobile devices are too personalized and that student may feel adverse to using them if use is mandatory in the classroom or that students will use them negatively for cheating or non-educational use. Most research studies proved that mobile devices may increase communication and expand the potential for learning, fostering lifelong learning skills.

Research suggested that M-learning created more interest in the learning process among the students Student interest is one of the most questioned facets of student perception of m-learning in recent studies. In fact, several studies found that M-learning generated strong interest among the students (Rogers et. al, 2010).

Student attitude is a critical piece of m-learning study, because positive experiences will encourage participation and acceptance of m-learning by those students. Students are using mobile devices every day for entertainment as well as access to information, so the opportunity to use them for education as well seems to be an exciting next step in the use of these devices for students.

3. RESEARCH METHODOLOGY

This study investigated current student use and student perceptions of mobile devices for educational purposes and perceptions of mobile internet. This study employed a Quantitative analysis. Survey method was adopted through a Close-ended questionnaire to collect data from the respondents.

Objectives of the study:

The primary aim of this research is to study the usage behavior of mobile internet and attitude towards M-Learning among college students in Tamil Nadu. The specific objectives are:
1. To study the awareness level of students towards their personal mobile devices.
2. To observe different purpose of using mobile internet among students.
3. To perceive the use of mobile applications for educational purposes.
4. To analyze the attitude towards incorporating mobile learning in classroom.

Data Collection

The survey was conducted among 100 students from ten leading colleges around the state. The period of study is January-April 2016. The close ended questionnaire comprised of demographic details such as age, gender, educational qualification, Course of study and monthly family income of the respondent. It is followed by a set of questions to analyze the mobile internet usage behavior of the students. Part three comprised of an attitudinal scale to observe the perception of students towards M-Learning. A pilot study was conducted to determine internal consistency and avoid ambiguity in the questionnaire.
Survey was made among 125 samples representing various demographic profiles. About 100 completed questionnaires were received and hence, the sample size is 100.

The researcher analyzed the collected data using Statistical Package for social science (SPSS). In this study, frequency distribution and rank analysis were performed to understand the importance of M-Learning among college students.

4. DATA ANALYSIS AND INTERPRETATION

Data interpretation provided a detailed insight on the impact of commercials among television viewers. Statistical Package for Social Sciences (SPSS) analytical tool is used for data analysis.

4.1 Frequency Distribution of Respondent's Age

N=100

S.No.	Age	Frequency	Percentage
1.	18-20 years	15	15.0%
2.	21-23 years	57	57.0%
3.	24-26 years	28	28.0%
Total			100%

The above table refers to the frequency distribution and percentage of the age group of the total respondents. Respondents representing the age group of 21-23 years were the majority (57%).

4.2 Frequency Distribution of Respondent's Gender

N=100

S.No.	Gender	Frequency	Percentage
1.	Male	55	55.0%
2.	Female	45	45.0%
	Total	100%	

According to the results, male constitutes about 55% and female constitutes 45% of the total sample.

4.3 Frequency Distribution of Respondent's Monthly Family income

N=100

S.No.	Monthly Family income	Frequency	Percentage
1.	Less than Rs. 20,000/-	31	31.0%
2.	Rs.20,000/- to Rs. 35.000/-	37	37.0%
3.	Rs. 35,000/- to Rs. 50.000/-	23	23.0%
4.	More than Rs. 50,000/-	9	9.0%
	Total	100%	

According to the findings, about 37% of the respondents monthly family income is Rs.20,000/- to Rs. 35.000. About 9% of them earn more than Rs.50,000 per month

4.4   Frequency Distribution of Respondent's Educational Qualification

N=100

S.No.	Educational Qualification	Frequency	Percentage
1.	UG	41	41.0%
2.	PG	53	53.0%
3.	Diploma	2	2.0%
4.	Others	4	4.0%
		Total	100%

According to the above table results, Under Graduates students comprises of 41%, Post Graduate students comprises 53% and other categories are of 4 %

4.5 Frequency Distribution of Respondent's Course of Study

N=100

S.No.	Course of Study	Frequency	Percentage
1.	Arts	26	26.0%
2.	Science	26	26.0%
3.	Commerce	20	20.0%
4.	Diploma	7	7.0%
5.	Professional	15	15.0%
6.	Others	6	6.0%
		Total	100%

The above table refers to the frequency distribution of the Course of Study:
 Arts Students 26%, Science students 26%, Commerce students 20% , Diploma students 7% and Professional students 15.0% .

4.6   Frequency Distribution of Respondent's mode of internet access

S.No.	Mode of internet access	Frequency	Percentage
1.	Personal Computer	26	26.0%
2.	Mobile internet	68	68.0%
3.	Public Wi-Fi Connection	2	2.0%

4.	Cyber Café	4	4.0%
Total			**100%**

Graphical Representation of internet access
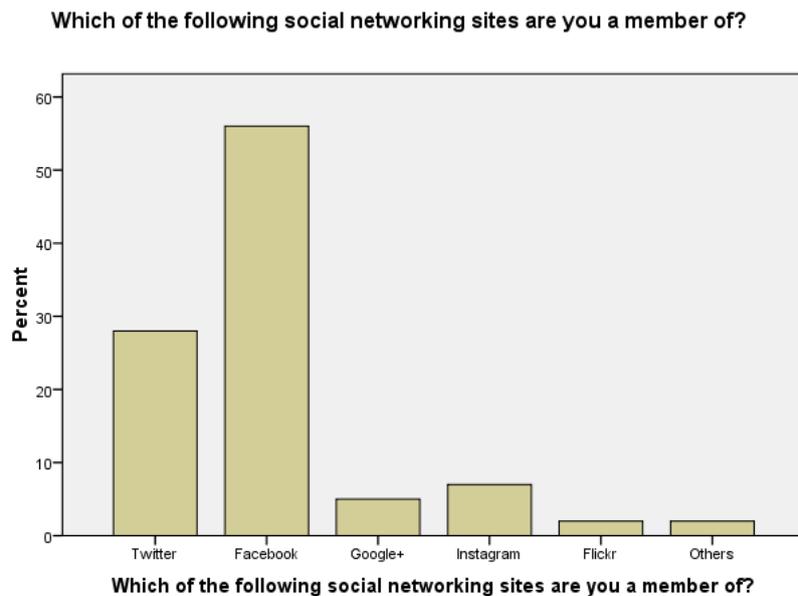
You access internet through
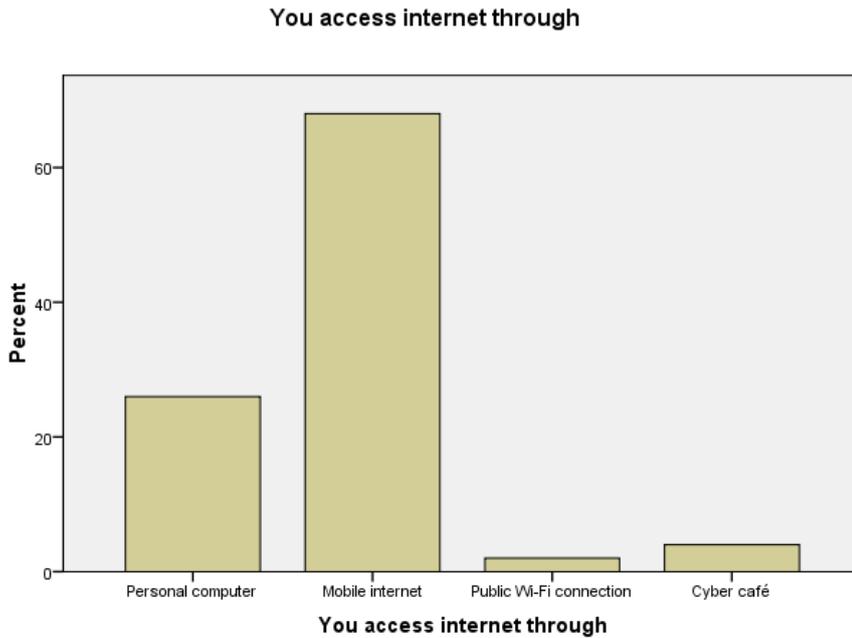
According to the findings, a majority 68 % of them use Mobile internet for browsing, 26 % use personal computer and a least 4% of them use cyber cafe.

4.7   Preferred SNS by the Respondents

S.No.	Preferred SNS	Frequency	Percentage
1.	Twitter	28	28.0%
2.	Facebook	56	56.0%
3.	Google+	5	5.0%
4.	Instagram	7	7.0%
5.	Flickr	2	2.0%
6.	Others	2	2.0%
		Total	**100%**

Graphical Representation of Preferred SNS by the Respondents

Which of the following social networking sites are you a member of?

Which of the following social networking sites are you a member of?

The above table and bar chart refers to the frequency distribution and percentage of the preferred SNS of the total respondents, a majority of 56 % of them use Face book as a social network.

4.8 Preferred mobile applications by the respondents for Academics/Education

| S.No.	Academics/Education	Frequency	Percentage
1.	Dictionary	39	39.0%
2.	Wikipedia	39	39.0%
3.	Calculator	15	15.0%
4.	Adobe Reader	7	7.0%
		Total	100%

An equal percentage 39% of the respondents prefers using dictionary and Wikipedia. About 15% of them use calculator and 6 % of them use Adobe Reader.

4.9 Preferred mobile applications for Communication/Social Networking

S.No.	Communication/Social Networking	Frequency	Percentage
1.	Facebook	70	70.0%
2.	Twitter	13	13.0%

3.	WhatsApp	12	12.0%
4.	Telegram	4	4.0%
5.	Others	1	1.0%
		Total	**100%**

Graphical Representation of Communication/Social Networking
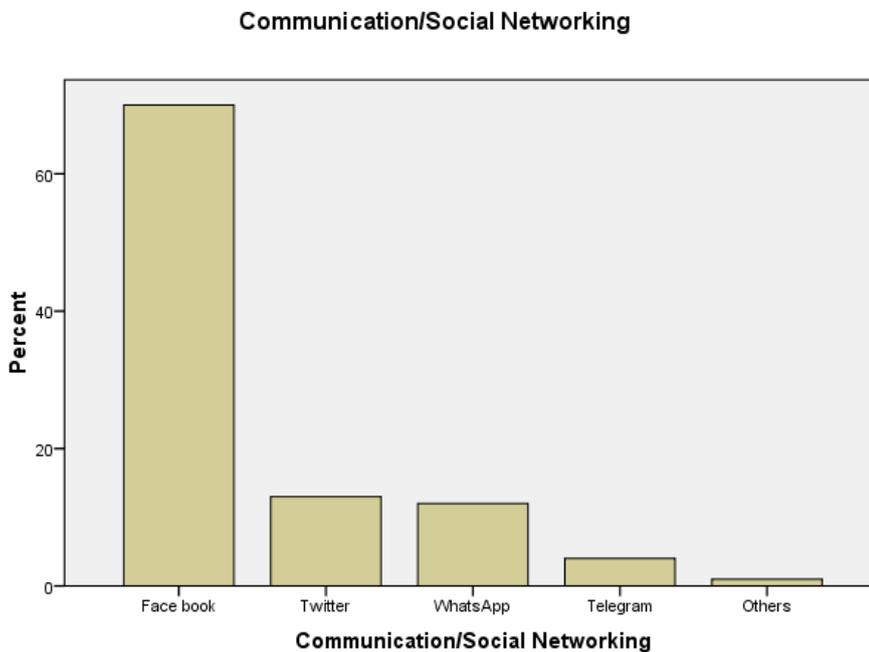
Communication/Social Networking

The above table and bar chart refers to the frequency distribution and percentage of the preferred mobile applications. A majority 70.0% of them using Face book, followed by twitter and whatsapp respectively for social networking.

4.10 Preferred mobile applications by the Respondent's File Sharing

S.No.	File Sharing	Frequency	Percentage
1.	Share it	37	37.0%
2.	Xender	16	16.0%
3.	Gmail	41	41.0%
4.	Drop box	5	5.0%
5.	Others	1	1.0%

	Total	100%

The above table refers to the frequency distribution of the preferred mobile applications by the Respondents. Most of them use Gmail and share it for file sharing.

4.12 Results of Mobile device usage behavior of the Respondents

S.No	Usage Pattern of the Respondents	Frequency	Percentage
1.	Downloading applications help to learn something new.	37	8.5%
2.	I use mobile internet to know something that i didnot understand during class.	25	5.7%
3.	I love to be in social networking on my mobile devices	42	9.7%
4.	I write notes on my mobile device to remind me of an assignment	46	10.6%
5.	I set alarms or reminders on my mobile device to remember dates for assignment or upcoming test.	35	8.0%
6.	Texting a classmate during class	36	8.3%
7.	Texting a classmate about the teacher's ability	23	5.3%
8.	Texting a classmate about the level of engagement in the class (i.e. I'm bored, this is cool, etc.)	22	5.1%
9.	Taking pictures or video with my mobile device that I use for an assignment	35	8.0%
10.	Reading an article or assignment on my mobile device	41	9.4%
11.	Using my mobile devices as study tool	50	11.5%
12.	Playing an educational game(e.g. words with friends) on my mobile device	43	9.9%

According to the multiple response scale with regard to the mobile device usage behavior of the respondents, most of them use their mobile devices as a study tool. They write notes and read articles related to their academic in their mobile device.

4.13 Results of attitudinal Scale of the Respondent's towards M-learning

S.No.	Statements	SA %	A %	D %	SD %
1.	M-Learning should be incorporated into classes.	50.0%	38.0%	9.0%	3.0%
2.	I like to easily view course materials (syllabus, notes, assignments) on my mobile device.	16.0%	53.0%	24.0%	7.0%
3.	I like to download applications that could help me study.	22.0%	53.0%	20.0%	5.0%
4.	I like to participate in discussion forums from my mobile device.	25.0%	43.0%	25.0%	7.0%
5.	Mobile learning opportunities would allow students to learn and study in places they couldn't access easily.	24.0%	55.0%	16.0%	5.0%
6.	It would be easier for students to complete class work and assignments, if they could use their mobile device.	25.0%	51.0%	14.0%	10.0%
7.	I would be more motivated to learn if I could use mobile devices.	18.0%	51.0%	26.0%	5.0%
8.	It's fun to use an interactive mobile device in my classroom.	19.0%	54.0%	24.0%	3.0%
9.	Mobile learning will reduce the academic performance of the students.	16.0%	6.0%	28.0%	50.0%
10.	Mobile learning is easier than traditional classroom / book learning.	40.0%	47.0%	13.0%	0.0%

According to the inferences, a majority of 50% respondents strongly agree that Mobile learning should be incorporated into classes; where as 12% of them are not comfortable. Most of 53 % respondents agree that they like to easily view course materials (syllabus, notes, assignments) on their mobile device; where as 31.0% of them are not comfortable with content sharing.

Findings proved that a majority of 53 % respondents prefer to download applications that could help their study. About 43 % of respondents agree that they like to participate in discussion forums from their mobile device; where as 32.0% of them are not comfortable.

According to the findings, a majority of 55% respondents agree that Mobile learning opportunities would allow students to learn and study in places they couldn't access easily. Inferences proved that most of 54% respondents feel that it's fun to use an interactive mobile device in the classroom. Most of the respondents disagree that mobile learning will reduce the academic performance of the students. They also agree that Mobile learning is easier than traditional classroom / book learning.

5. FINDINGS AND DISCUSSION

The study on the usage behavior of mobile internet among college students resulted in the following findings:

- Respondents in the age group of 21-23 years were the majority. Male were about 55% and female constituted 45% of the total sample. Most of the respondents monthly family income is Rs.20,000 to Rs. 35,000. About 9% of them earn more than Rs.50,000 per month. Under Graduates students comprise of 41% and Post Graduate students comprise 53% .

- According to the findings, a majority of the students preferred Mobile internet for browsing, followed by personal computer. The most preferred social application is Face book, twitter and whatsapp. The students prefer using dictionary, Wikipedia, calculator and Adobe Reader for their academic purposes. Most of them use Gmail and share it for file sharing.

- Results of multiple response scale proved that most of them use their mobile devices as a study tool. They write notes and read articles related to their academic in their mobile device. A majority of the respondents strongly agree that Mobile learning should be incorporated into classes; Students prefer to download applications that could help their study. Many of them like to participate in discussion forums from their mobile device; whereas very few are not comfortable with mobile device. Most of the respondents disagree that mobile learning will reduce the academic performance of the students. They also feel that Mobile learning is easier than traditional classroom or book learning.

6. CONCLUSION AND SUGGESTIONS

Thus, educators must rethink current pedagogical strategies, their view on technology and methods of Mobile learning. Incorporating mobile learning is just one potential way to meet the needs of both students and universities in the digital age.

A shifting paradigm should be adopted to benefit students by increasing achievement and learning outcomes. Simultaneously, the technology should help universities by helping them remain competitive with alternative educational outlets.

Research shows that mobile internet has a strong effect on academics; hence research on the following topics can give a wide exposure on the field of mobile technologies:

- Research on mobile learning in various educational sectors.

- Role of government and mobile service providers in implementing M - learning.
- Effects of Mobile learning on traditional learning.
- Ethics in Mobile learning adoption in classrooms.

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