

Smartphone as an e-Learning Resource

¹Lalit Engle, ²Narayan Patidar, ³Dr. A.K. Singh

¹Lecturer, EMRC, Devi Ahilya Vishwavidyalaya, Indore, india

²Lecturer, EMRC, Devi Ahilya Vishwavidyalaya, Indore, india

³Director I/c, EMRC, Devi Ahilya Vishwavidyalaya, Indore, india

Abstract: After mobile revolution hit India and took it by storm, every other person started possessing mobile phone. Earlier to this revolution, only elite people used it. That was the time when one had to pay charges even for picking up an incoming call. Telecommunication and mobile technology has been subject to rapid technological development. Attributed to this, soon after basic mobile phones were available to the masses, multimedia phones arrived in the market and then, it was time for Smartphone. The interface of Smartphone is extremely interactive and unlike multimedia phones, offers a wide range of features that not just revolve around entertainment but also extends to facilitate learning and education. There is an app for just about everything, from e-learning facilities to entertainment, information, safely, gaming, dictionary, social networking and so on. But the issue here is to know that whether users are utilizing all the varied features of their Smartphones or are they just sticking to entertainment and social networking rather than playing on the complete package that the Smartphone has to offer. What users actually utilize their Smartphone for? How much are they using it? : Duration, frequency? & for what all purposes? This curiosity led the investigators through the development and completion of this study. There is a need to re-conceptualize learning for the mobile age, to recognize the essential role of mobility and communication in the process of learning, and also to indicate the importance of context in establishing meaning, and the transformative effect of digital networks in supporting virtual communities that transcend barriers of age and culture. e-Learning is the use of electronic media and information and communication technologies (ICT) in education. Present study was entitled as – Smartphone as an e-learning Resource. The objective of this study was to understand access of e-learning utilities on Smartphone and the utilization of e-learning utilities on Smartphone. The study was survey in Nature. The sample size of this research is 95 individuals. The data was collected from various Smartphone users. The researcher used random sampling technique for selection of sample. The age group of respondents was between 17 - 45 years. Respondents were 58 males and 37 females. To analyze demographic profile and media profile, frequency percentage were calculated. For analyzing responses gathered through scale statements, frequency percentage and chi-square were used. Findings were analyzed on the factors like Learning Apps, Availability, Experience, Usage, Updation, Learning Value and Barriers. This study can be used as a reference for further research. It gives an insight upon the usage, preferences, experiences of Smartphone users, thus have varied implications in this particular regard. Implications range from Application Development to marketing of applications.

Keywords: e-Learning, Smartphones, multimedia phones, Resource.

I. BACKGROUND OF THE STUDY

After mobile revolution hit India and took it by storm, every other person started possessing mobile phone. Earlier to this revolution, only elite people used it. That was the time when one had to pay charges even for picking up an incoming call. Telecommunication and mobile technology has been subject to rapid technological development. Attributed to this, soon after basic mobile phones were available to the masses, multimedia phones arrived in the market and then, it was time for Smartphone. The interface of Smartphone is extremely interactive and unlike multimedia phones, offers a wide range of features that not just revolve around entertainment but also extends to facilitate learning and education. There is an app for just about everything, from e-learning facilities to entertainment, information, safely, gaming, dictionary, social networking and so on.

But the issue here is to know that whether users are utilizing all the varied features of their Smartphones or are they just sticking to entertainment and social networking rather than playing on the complete package that the Smartphone has to offer. What users actually utilize their Smartphone for? How much are they using it in terms of duration and frequency? This curiosity led the investigators through the development and completion of this study. There is a need to re-conceptualize learning for the mobile age, to recognize the essential role of mobility and communication in the process of learning, and also to indicate the importance of context in establishing meaning, and the transformative effect of digital networks in supporting virtual communities that transcend barriers of age and culture. E-Learning is the use of electronic media and information and communication technologies (ICT) in education.

II. LITERATURE REVIEW

Aamri, and Suleiman (2005) investigated the current use and practices of cell phones in the process of learning English Language by Sultan Qaboos University freshmen and described the actual practice of mobile phone by students, their behavior and attitudes and the problems they faced in using their mobile in an educational and instructional setting in Sultan Qaboos University. The results indicated that the use of mobile phones in the classroom is still limited. Students like to use them but teachers do not encourage them to do so fearing that this digital device will be a big distraction for both teachers and students alike. They further suggested that mobile phones are boons blessed if students only handle them wisely.

Woodcock, Middleton and Nortcliffe (2012) found that students who own smartphones are largely unaware of their potential to support learning and, in general, do not install smartphone applications for that purpose. They are, however, interested in and open to the potential as they become familiar with the possibilities for a range of purposes. They proposed that more consideration needs to be given to Smartphone as platforms to support formal, informal and autonomous learner engagement.

Rahamat, Shah, Din and Aziz (2011) showed that the participants displayed readiness and positive perceptions toward using mobile technologies for learning.

Safdari, Jebraeily, Rahimi and Doulani (2014) founded that the Smartphone medical apps can be used from monitoring patients and diagnosis to effective medical training and related clinical communications. The results this study shows that using medical applications of Smartphone is at a relatively low level.

Subramaniam, Harun (2013) the result showed the positive potentialities and capabilities of the smart phones used in the English Language learning classroom.

Alfawareh, Jusoh (2014) indicated nearly every student owned a Smartphone and used for normal usage. However, the findings also suggest that university students in Saudi Arabia did not fully utilized Smartphone for learning purposes.

Above researches suggested smartphones are accessed and utilized by the responded but not fully utilized for learning purpose. But smartphone can become a good learning resource in near future if it is effectively utilized for learning purpose.

III. STATEMENT OF PROBLEM

The present study was entailed as - "Smartphone as an e-Learning Resource".

Objective:

1. To map the Smartphone user profile of respondents.
2. To know the Access of e-Learning Utilities on Smartphone.
3. To study the utilization of Smartphone Utilities in terms of learning app, learning material, and knowledge updation.
4. To understand the barriers Access & Utilization of Smartphone towards learning.

Sample:

The sample size of this research is 95 individuals. The age group of respondents was between 17 - 45 years. Respondents were 58 males and 37 females. Residential background of 73 respondents was urban and other 22 were from semi-urban

background. Out of the total respondents, 60 were single and 35 were married. Respondents who belonged to Joint family were 35 in number and 60 respondents belonged to Nuclear family. Maximum respondents i.e. 78 were from Indore City and rest 17 were from different cities of the country. Out of 95 respondents, 39 were between 17-25 age group, 45 were between 26-35 age group and 11 were between 36-45 age group. Respondents were from different educational background, 9 were Higher –secondary level, 23 were Graduation level and 63 were Post graduation level.

Tools:

Questionnaire: A questionnaire is developed by the investigator to know the access of e-learning utilities on Smartphone users.

Reaction Scale: A reaction scale was developed to study the utilization of Smartphone apps amongst user by investigator. Each statement was rated on a five point scale from Strongly Agree (SA), Agree (A), Undecided (UD), Disagree (D) and Strongly Disagree (SD).

Procedure of Data Collection:

The present study was survey in nature. The data were collected by using a scale developed by the investigator. The data was collected from various Smartphone users. The researcher used random sampling technique for selection of sample. This scale was given to 95 randomly selected respondents.

Analysis:

The data were analyzed with the help of frequency, percentage and chi-square techniques.

IV. RESULTS

Following are results and their interpretations according to the research objective:

Smartphone User Profile:

All the 95 respondents were Smartphone users. Most of the respondents owned a Smartphone and others borrowed from friends, siblings, family members etc. Respondents who owned a Smartphone were 88 in number; rest of the 7 respondents didn't own a Smartphone but borrowed from others like friends, parents, siblings etc and used it anyway. Respondents accessing Internet on Smartphone were 90 and others didn't access internet on phone. Respondents who accessed internet on their Smartphone through internet pack or got it free with their plan were 78 in number. Respondents accessing internet on *WiFi* through Smartphone were 34 in number.

Access of e-Learning Utilities on Smartphone:

Purpose for using Smartphone

- Social Networking 85.3% (max)
- Information 84.2%
- Entertainment 82.1%
- Calling & Texting 81.1%
- Learning & Education 67.4% (min)
- Usage of Smartphone other than calling & texting: 78.9% daily and 21.1% weekly basis.

More than 80% respondents used their Smartphone for the purpose of social networking, getting information, entertainment, calling & texting while 67% used it for learning & education while almost 79% used their phone for purpose other than calling & texting.

Above findings suggested that users used their Smartphone for various purposes other than calling & texting.

Apps most preferred on Smartphone

- Whatsapp 76.8% (max)
- Social Media 54.7%

- Information 52.6%
- Entertainment 47.4%
- Dictionary 40.0%
- Education/ Learning 28.4% (min)
- Free Apps 94.7% out of these 15.8% also used paid apps.

More than 76% respondents used Whatsapp App on their Smartphone while on an average 50% used apps related to social media, information and entertainment while 40% used dictionary app and only 28% used apps related to education and learning.

94% users used free apps while only 15.8% used paid apps.

Above findings suggested that users used apps on their Smartphone for various purposes specifically social media other than education and learning.

Utilization of Smartphone in terms of learning apps:

Sr. No.	Items		SD	D	UD	A	SA	CHI SQUARE VALUE
1.	I use dictionary app on my Smartphone.	F	1	13	3	43	35	76.211**
		%	1.1	13.7	3.2	45.3	36.8	
2.	I have news related media apps.	F	4	14	6	47	24	64.632**
		%	4.2	14.7	6.3	49.5	25.3	
3.	I use my phone for getting job related updates through various apps/ sites.	F	9	24	18	37	7	31.263**
		%	9.5	25.3	18.9	38.9	7.4	
4.	I use mobile phone/ apps to learn new languages.	F	8	42	15	21	9	40.526**
		%	8.4	44.2	15.8	22.1	9.5	
5.	I would use translation apps if it were available on my phone (like Shabdkosh).	F	5	12	13	45	20	50.421**
		%	5.3	12.6	13.7	47.4	21.1	

** Significant at 0.01 level

From the above table it can be observed that all the chi square values are significant at 0.01 level with degree of freedom equals to 4. Further, 82.1% respondents used dictionary app and 74.8% have news related media apps while only 46.3% used my phone for getting job related updates through various apps/ sites. Although 52.6% disagreed to that they use their phone/apps to learn new language. 68.5% respondents agreed to that will use translation apps if it were available on my phone (like Shabdkosh).

Above findings suggested that users used apps to acquire knowledge and to get updated.

Utilization of Smartphone in terms of learning Resource:

Sr. No.	Items		SD	D	UD	A	SA	CHI SQUARE VALUE
1.	I have my course material/business documents at hand in my phone.	F	6	21	11	46	11	54.211**
		%	6.3	22.1	11.6	48.4	11.6	
2.	I have nursery rhyme videos/animated stories/ other content on my phone for kids.	F	16	33	8	27	11	23.895**
		%	16.8	34.7	8.4	28.4	11.6	
3.	I use my phone to save, share and read or scan notes.	F	1	16	11	48	19	65.158**
		%	1.1	16.8	11.6	50.5	20	
4.	I read subject related e-books on my phone.	F	7	28	20	29	11	20.526**
		%	7.4	29.5	21.1	30.5	11.6	
5.	I watch various tutorials to learn various things.	F	8	24	19	33	11	21.368**
		%	8.4	25.3	20	34.7	11.6	
6.	I watch subject related videos on my phone.	F	5	23	16	37	14	30.000**
		%	5.3	24.2	16.8	38.9	14.7	

** Significant at 0.01 level

From the above table it can be observed that all the chi square values are significant at 0.01 level with degree of freedom equals to 4. Further, 60% have their course material/business documents at hand in their phone. 40% agreed to that they have nursery rhymes videos/animated stories/ other content on their phone for kids. 70% agreed to that they use their phone to save, share and read or scan notes while only 42.1% used to read subject related e-books on their phone and 46.3% watched various tutorials to learn various things while 53.6% watched subject related videos on their phone.

Above findings suggested that users accessed and shared learning recourse materials on their phones.

Utilization of Smartphone in terms of knowledge updation:

Sr. No.	Items		SD	D	UD	A	SA	CHI SQUARE VALUE
1.	I use GPS/maps on my phone for navigation.	F	3	13	11	50	18	69.368**
		%	3.2	13.7	11.6	52.6	18.9	
2.	I use my phone to organize/ schedule my activities	F	0	16	13	51	15	41.884**
		%	0	16.8	13.7	53.7	15.8	
3.	Mobile is an instant handy source to gather information.	F	0	4	8	56	27	71.105**
		%	0	4.2	8.4	58.9	28.4	
4.	I use my phone to improve my GK/ keep myself updated.	F	2	5	9	51	28	88.947**
		%	2.1	5.3	9.5	51.3	29.5	
6.	I prefer to use my phone to check study/work related emails anytime.	F	4	8	9	39	35	58.00**
		%	4.2	8.4	9.5	41.1	36.8	
7.	I use Google for finding word meaning on my phone.	F	3	12	5	42	33	64.526**
		%	3.2	12.6	5.3	44.2	34.7	
8.	I am addicted to my phone.	F	7	22	16	30	20	14.947**
		%	7.4	23.2	16.8	31.6	21.1	
9.	Various quizzes that I solve on my phone improve my knowledge.	F	5	16	22	33	19	21.368**
		%	5.3	16.8	23.2	34.7	20	
10.	I use my phone to learn about law, human rights, traffic rules etc.	F	9	30	25	22	9	19.263**
		%	9.5	31.6	26.3	23.2	9.5	
11.	I have/use my phone to find recipes.	F	17	25	11	32	10	18.632**
		%	17.9	26.3	11.6	33.7	10.5	
12.	I use my phone to improve my accent.	F	11	27	22	25	10	13.368**
		%	11.6	28.4	23.2	26.3	10.5	
13.	I use my phone only for internet surfing.	F	13	36	19	17	10	21.579**
		%	13.7	37.9	20	17.9	10.5	
14.	I use my phone only for professional networking through LinkedIn etc.	F	13	39	15	19	9	29.053**
		%	13.7	41.1	15.8	20	9.5	

** Significant at 0.01 level

From the above table it can be observed that all the chi square values are significant at 0.01 level with degree of freedom equals to 4. Further, almost 80% respondents stated that they used their Smartphone for GPS navigation, organizing and scheduling activities, updating knowledge, check work/study related emails, use Google for finding words' meaning and stated that mobile is an instant handy source to gather information. Almost 50% said that they used their Smartphone to solve quizzes and are addicted to their phone. More than 50% said they use their phone to find recipes. More than 32% used their phone to learn law, human rights, traffic rules etc. and to improving accent. Almost 28% only agreed to that they are their phones for only internet or only for professional networking through LinkedIn while more than 50% disagreed.

Above findings suggested that users their phones to update themselves by finding words' meaning, recipes, law and rules, etc.

Barriers in Access & Utilization of Smartphone towards learning:

1.	Watching videos on phone cause headache because of small screen.	F	7	28	26	24	10	20.00**
		%	7.4	29.5	27.4	25.3	10.5	
2.	I have to surf a lot just to find a small piece of information which is very tedious on phone.	F	4	32	24	26	9	29.895**
		%	4.2	33.7	25.3	27.4	9.5	

3.	I mainly use my phone for calling/SMS & use other features of the phone only rarely.	F	6	39	15	25	10	36.947**
		%	6.3	41.1	15.8	26.3	10.5	
4.	I cannot manage too many tabs on the mobile phone browser.	F	4	23	22	31	15	21.579**
		%	4.2	24.2	23.2	32.6	15.8	
5.	It is time consuming to read/study on mobile phone.	F	3	23	15	36	18	30.421**
		%	3.2	24.2	15.8	37.9	18.9	
6.	I don't use my phone to read from websites/e-books because of its small size.	F	7	39	20	16	13	31.053**
		%	7.4	41.1	21.1	16.8	13.7	

** Significant at 0.01 level

From the above table it can be observed that all the chi square values are significant at 0.01 level with degree of freedom equals to 4. Further, 35% respondents agreed that watching videos on phone cause headache because of small screen while 37% disagreed to this. 37% respondents stated that surfing a lot just to find a small piece of information which is very tedious on phone while 38% disagreed to this. 36% respondents agreed to that mainly use their phone for calling/SMS & use other features of the phone only rarely while 47% disagreed to that. 48% stated that they cannot manage too many tabs on the mobile phone browser while 56% said reading/studying on mobile phone is time consuming. Although 30% agreed that they don't use mobile phone to read from websites/e-books because of its small size while 48% disagreed to that.

Above findings suggested that some users found learning on mobile phone is difficult while some did not. Also majority of them found reading/studying on mobile phone is time consuming.

V. DISCUSSION

Above findings suggest that majority of users are young and used their Smartphone for various purposes like accessing social media, getting information, entertainment, education and learning as well as calling & texting. Also users access various applications on their phone for above said purposes. Users access too many things on mobile phone other calling and texting. Also they access various applications to update themselves, although today specific educational apps are not available but they access dictionary apps, news apps, etc. as well as surf on web through mobile phones. Mobile phones are boons blessed if students only handle them wisely (Aamri, Suliman, 2011).

REFERENCES

- [1] Aamri, A., & Suleiman, K. (2011). The Use of Mobile Phones in Learning English Language by Sultan Qaboos University Students: Practices, Attitudes and challenges. *Canadian Journal on Scientific & Industrial Research*, 2(3), 143-152.
- [2] Woodcock, B., Middleton, A., & Nortcliffe, A. (2012). Considering the Smartphone Learner: an investigation into student interest in the use of personal technology to enhance their learning. *Student Engagement and Experience Journal*, 1(1), 1-15. Available at: <http://research.shu.ac.uk/SEEJ/index.php/seej/article/view/38/Woodcock>
- [3] Rahamat, R., Shah, P., Din, R., & Aziz, J. A. (2011). Students' readiness and perceptions towards using mobile technologies for learning the English language literature components. Retrieved August, 31, 2012.
- [4] Safdari, R., Jebraeily, M. D., Rahimi, B., & Doulani, A. (2014). Smartphone medical applications use in the clinical training of medical students of UMSU and its influencing factors. *European Journal of Experimental Biology*, 4(1), 633-637.
- [5] Kurtz, L. M. (2012). Learning from twenty-first century second language learners: A case study in smartphone use of language learners.
- [6] Alfawareh, H. M., & Jusoh, S. (2014). Smartphones Usage among University Students: Najran University Case. *International Journal of Academic Research*, 6(2).