

# EFFECTS OF SMART PHONES ON STUDENTS: UNDERSTANDING USES AND GRATIFICATION

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## **Abstract**

Number of smart phone users is growing rapidly. It is more likely that the user is handling a computer with Internet facility that has phone capability. Smart phones have helped the young and old generations of our times to contribute in different activities like social networking on web, playing games, writing blogs, texting, listening and downloading music and other stuff, and above all they share their views and thoughts with others in different ways. Communication scholars who have explored different perspectives of smart phone usage and its users have produced an enormous amount of literature. Smartphones play an essential role in our daily activities: in the workplace, we use it to write emails, and make phone calls; during our leisure time we surf Web, listen to music, watch movies, play video games. This study is focused on assessing the effects of smartphones on the students in Lahore, Pakistan. Uses and Gratification theory of Mass Communication effects paradigm has been used as a theoretical framework in this study. Statistical test has been used to analyze the data.

**Key Words:** Gender, effects, smartphone, uses, gratification

## **Introduction**

When MIT media technology professor Nicholas Negroponte told us in 1995 that “being digital” is not simply a way of communicating but a new way of living, only the propeller-heads, IT gurus, and technology buffs were enthusiastic. But more than a decade later, just about everyone realized that he was right. FedEx unlike Internet ships molecules (parcels & packages) is time consuming whereas Internet helps you transfer atoms and electron in shape of email, which is faster and easier. Some things still must move around physically, but so much more can move electronically (O’Rourke 2010). If we compare the 90’s in response to technology, they were really living a hard life, having a big and heavy phone hardly any internet availability which made their work tiresome and inefficient as compared to the smartphones of today (Agar, 2004). With the exercise of technology and innovation like the smartphones, we can acquire information in any form very easily and from a vast pool of information on our fingertips. It has answered many problems and techniques for many ways of handling a work (Friedman, 2005).

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In 2007, about half of the world population was using cell phones and the number was increasing day by day (Sydney Morning Herald, 2008). Latest figures of May 2014 revealed that around 7.1 billion subscriptions have been made in different nations across the world that, of course, included multiple subscriptions by individual users. Developed nations' subscriptions accumulated 1.6 billion (Key Global Telecom Indicators for the World Telecommunication Service Sector, 2014). Education is related to ICT's and it is very important to understand the broader aspect of education and its targeted audience is teen and mostly college students. This has helped broaden the boundary of education (Nathan & Robinson, 2011). A step taken towards the improvement of life is considered development and falls in the category of learning (Bjorklund, 2000). College students are considered the main ICT use demographers (Jasper & Lan, 1992; Lee, 2006; Morgan & Cotten, 2003; Perry, Perry, & Hosack-Curlin, 1998; Thomee et al., 2007). This research is conducted to assess the effects of smartphones on the students in Lahore, Pakistan. Uses and Gratification approach has been used as theoretical framework for the study. Usage categories (depending on the needs) like cognitive, social Interaction, affective and escapist were examined thorough statistical tests.

### **Literature Review**

Uses and gratification is a theory of media effects, which was presented during the mid-last century and assesses the satisfaction level of TV viewers. Its revival was made in 1970 and 1980. Media use and fulfillment of individual psychological needs is the thrust of the theory (Katz 1974). The uses and gratifications approach depends on the perceived satisfactions, needs, wishes or motives and treats audiences as consumers and takes the media consumer rather than the producer as the starting point (McQuail 2012, p. 423). Uses and gratification approach has also been used to investigate the functional alternatives of Internet for another medium. It is obvious that media and studies are used in the direction of our needs, and now it has become a theory when one uses media in accordance with their satisfaction and need (Ruggiero 2000; Katz et al. 1974). It is the idea that media use depends on the perceived gratification and needs. Typical of such 'needs' are of those for companionship, diversion, information, knowledge, relaxation or 'escape' (McQuail, 2012, p. 423). In line with these assumptions, the way to

achieve a taste was described by Katz et al. (1974: 20) as being concerned with: “(a) *the origin of psychological and social needs* (b) *generation of different needs* (c) *opportunity of* (d) *the part played by media and other options* (e) *different experience (or engaging in other activities)*, (f) *acquiring satisfaction*, and (g) *other cost*.”

Similarly access to the social media sites, such as Facebook and Twitter through Smartphone is free, quick, and easy to set up (White 2012, p.31). Pass time with Smartphone were considered a usual and common activity which was exhibited by a survey of 208 smartphones users, and their main activities on smartphones were playing games (Tao, 2011). Similarly, the findings of the study "Effects of displacement—reinforcement between traditional media, PC internet and mobile internet" by Okazaki et al. exhibit that mobile internet and traditional media has a go over on the PC internet, it is because it is easily accessible and above all it comes with no strings attached. PC internet is an alternate source of information access nowadays because mobile internet is the easiest and possible way to access the World Wide Web. But the attitude of every person is supposedly to be measured before commencing this practical on his views.

According to Sarwar and Soomro (2013), smartphones have existed for last eight years when one of the largest communication and technology company, Apple introduced the smartphone to the free market, yet in fact smartphones have already been produced on the market since 1993. The difference between the current smartphone and the previous one is that the earlier version was more prominently used as equipment in a company, and the price was considered too expensive for the public users. Because of slow technological developments in the past, and the unaffordable price, the users of mobile phone were limited to some people and certain groups only.

Previously, Woodcock (2012) claimed that with the increasing number of students who have smartphones, various aspects of their lives change, they begin to operate this gadget for expanding their learning experience. The use of smartphones in learning can lead students to become more aware of the advantages and benefits, such as the ease of learning anywhere and anytime, as well as can motivate students in learning activities. This explains how potential of a technology in

opening and expanding students' horizon, especially on the students themselves academically.

Rambitan and Vandalita recommended that the use of smartphones is expected to be viewed from the positive side, that is, it can help students increase their knowledge and perspective so that it can be adopted in the learning of other materials or even other subjects by keeping to maintain students in the positive tract (Rambitan, 2015). Jacob Barkley observed that the negative GPA correlation could be explained by the tendency for excessive cell phone use to occur in conjunction with academic activities (Dwyer and Ray, 2014).

A blogger nicknamed billbill argued that students spent less time on sleeping due to the distractions from the smart phone. They might need to complete work overnight which they should be able to finish with the time spending on the smart phone previously. The stacking of workload reduces their sleeping time. Also, the entertainment functions of the smart phone might make students fail to sleep early. Chatting with friends with the convenient texting functions makes their sleeptime even late. Less focus on class and homework is also a major effect brought by the smart phone. Sometimes students switched their focus on the smart phone during lesson to reply friends' text message. They may also pause their work when notification appears. This disturbance of continue focusing, lowers the quality of learning and the quality of homework. They might not be able to pay enough attention in class. When doing homework, smart phone is always a great temptation that gets us away from our work. The quality and the efficiency of my work and learning maybe reduced due to the insufficient attention caused by the smart phone (Bill, 2013).

### **Objectives of the Study**

- i- To find out the extent of uses, accessibility and availability among college students in using the smart phones.
- ii- To study the time spent and difference of gender wise usage of the smart phones.
- iii- To ascertain the users' expectation and gratification sought through the use of smart phones.

### **Research Question**

- i- What are the habits of student community in terms of using smart phones?

- ii- How much time do students spend on mobile phones and what is attention level of the target group?
- iii- What are the emerging patterns of uses and gratification from the use of smartphones between male and female respondents in the area under study?

### **Hypothesis**

H<sub>0</sub>: (Null Hypothesis) Effects of smart phones usage on gender are uniform among students.

### **Operational Definitions**

**Smartphone:** The electronic device which can enable you to make phone calls, access internet, write emails, and other related work that we usually do on computer with internet facility or a personal digital assistant is referred to as Smartphone.

**Uses:** Everyone depends on it for its different uses and link to technology depending upon his physical, mental and financial resources.

The five very basic needs to use smartphones according to Haas, Katz, and Gruevitch are as follows:

**Cognitive Needs** are concerned with information to survive and understand our environment.

**Affective Needs** are for our emotional, pleasurable and aesthetic experience.

**Social Interactive Needs** keep us in touch with our friends and family circle and also the world.

**Escapist Needs** bring you out of tension for relaxation, and also help you escape the circle of depression.

**Gratification** comprises reception of messages and responses to one's input.

### **Research Methodology**

#### **Data Gathering and Instrumentation**

Survey is best suitable method for the study as it attempts to assess gratification level of the students with the usage of mobile phone. A survey questionnaire was distributed with questions on smartphone usage, questions on demographics and statements, which were to be ticked and rated on a 5-point scale (Likert) to measure the level of gratification. Respondents were asked how many hours in a typical week they spent on using the smartphone and socializing with close friends. They were asked to indicate what the gratification sought was and what

changes the usage of smartphone made for their social, educational and psychological needs. The data was analyzed and subjected to the SPSS.

### **Research Tool**

For the research to determine the effects and patterns of smart phone usage, survey is the best suitable option and tool developed for the research is formal questionnaire along with informal interviews of the respondent at the time of the survey. Key questions of the survey asked the interviewees about their time spent using smart phones, their evaluation, and the extent to which they engaged in social activities.

For the purposes of this paper, researchers are interested in questions about access and the extent to which they engaged in social activities, education levels of respondents and their parents, the availability of technology and the levels of gratification they sought. Questionnaire also included certain other demographic questions in order to ascertain respondents' socioeconomic statuses.

### **Population and sample**

One thousand and two hundred (1200) questionnaires were administered in the city of Lahore, Punjab province of Pakistan. Data was gathered within colleges and just outside college campuses and cyber cafés of Lahore. This data gathering process was for three-month period from September to November 2014. Convenient sampling technique was used due to financial, time, security, and access restraints. Out of the total 1200 questionnaires, one thousand and eleven (1011) questionnaires were returned, and upon verification nine hundred and ten (910) were found useful thus  $N=910$ . This research is based on Smartphone use, and excludes social suppression and control. Generally, students are less restricted than other social groups. The data was analyzed and subjected to the SPSS.

### **Data Collection**

The tool used for data collection is a formal survey questionnaire along with a few informal questions asked to the respondents at the place of the survey. Respondents were asked how many hours in a typical week they spent on using Smartphones, where they got access to and usage besides questions on what the respondents do with the available technology in terms of their activities, Usage and Gratification sought. They were asked to indicate, what was the gratification sought and what changes the

Smartphones made in their social, educational and psychological perspectives.

**Data Presentation, Analysis and Findings**

**Table 5: Demographic Characteristics of Sample under Study**

Demographic Profile	Frequency	Percent
<b>Gender</b>		
1. Male	530	57.60
2. Female	343	37.69
3. No Response (99)	37	4.06
<b>Total</b>	<b>910</b>	<b>100</b>
<b>Residence</b>		
1.Urban	501	55.05
2.Rural	360	39.56
3. No Response (99)	49	5.38
<b>Total</b>	<b>910</b>	<b>100</b>
<b>Level of Study</b>		
1. Undergraduate	658	72.3
2. Post Graduates	244	26.8
3. Other	8	.9
Total	<b>910</b>	<b>100</b>
<b>Parents (father or mother) Monthly Income</b>		
1. Up to Rs. 10,000/-	357	39.3
2. Rs.10,001/- to Rs. 25,000/-	215	23.6
3. Rs. 25,001/-to Rs. 50,000/-	125	13.7
4. Rs. 50,001/- and above	213	23.4
<b>Total</b>	<b>910</b>	<b>100.0</b>

Males constituted close to 60 percent.

**Data Based on Gender**

**Table 6: Access to Smartphones**

Access to Smartphones	Female		Male	
	N	Percent	N	Percent
1.Own	296	83.8	442	79.3
2.Office Cell	1	0.2	2	0.4
3. Friends	22	6.2	35	6.2
4. Parents Cell	1	0.2	9	1.6
5.No Access	31	8.7	67	12.0

6. Did Not Respond	2	0.5	2	0.4
<b>Total</b>	<b>353</b>	<b>100</b>	<b>557</b>	<b>100</b>

Almost 82 percent of the respondents owned smartphones.

**Table 7: Frequency of the Use of Smartphone among Male and Female respondents**

Frequency of Use	Female		Male	
	N	Percent	N	Percent
Daily	310	87.8	476	85.5
Weekly	3	0.8	7	1.3
Rarely	2	0.6	4	0.7
Didn't Respond	38	10.8	70	12.6
<b>Total</b>	<b>353</b>	<b>100</b>	<b>557</b>	<b>100</b>

An overwhelming percentage of respondents used smartphone daily.

**Table 8: Time Spent on Smartphones**

Time spent on Smartphones	Female		Male	
5 Minutes - 30 Minutes	34	9.6	96	17.2
½ hour – 1 Hour	109	30.9	110	19.7
1 Hour – 2 Hours	80	22.7	133	23.9
Above 2 Hours	74	21.0	131	23.5
Did Not Respond	56	15.9	87	15.6
<b>Total</b>	<b>353</b>	<b>100</b>	<b>557</b>	<b>100</b>

### Smartphones Usage

Usage can be divided into several categories depending on the needs. These needs are cognitive, social interaction, personal interaction, affective and escapist. The tables below show frequency of usage, percentage and the t-values of new media technologies in male and female respondents.

**Table 9: Frequency Usage Patterns of Smartphones based on Gender**

Usage Pattern	Female		Male		Mean Scores			
	N	%	N	%	Female	Male	t-value	Sig.
<b>Social Interactive Usage</b>								
For SMS	251	71.1	402	72.2	3.7477	4.0356	- 2.926	0.004
GPRS(news browsing)	93	26.3	98	17.6	1.9847	1.7748	2.273	0.023
Checking e-	89	25.2	113	20.3	2.0152	1.8367	1.852	0.064



mails								
For phone calls only	219	62.1	364	65.4	3.5410	3.7871	- 2.114	0.035
<b>Affective Usage</b>								
Listening to MP3	133	37.6	239	42.9	2.4390	2.6720	- 1.978	0.048
Listening to Radio	145	41.1	270	48.5	2.4697	2.8730	- 3.463	0.001
Video Recording	121	34.3	203	36.4	2.1860	2.3591	- 1.684	0.093
Camera	157	44.5	259	46.5	2.4695	2.7714	- 2.626	0.009
<b>Escapist Usage</b>								
Ring-tones	202	57.3	297	53.3	3.0823	3.0803	.019	0.985
Playing games	218	61.8	302	54.2	3.2402	3.0615	1.744	0.081
Downloading wallpapers	95	26.9	143	25.7	2.0697	1.9742	.992	0.321

The table above shows that there is not much difference in use of Smartphone among male and female respondents. Interestingly, majority of the respondents from both the gender use their smartphones phones more for SMS than using it for phone calls. Male respondents score more over their counterparts in using the smartphone for camera, video recording, listening to MP3 or radio.

### **T-Value**

#### **Social Interactive Usage**

There exists a significant difference between the males and females in using the smartphone for SMS. The value is 0.004, which is less than 0.05. Therefore, we reject the null hypothesis and conclude that there is a significant difference between the males and females in using the phone for SMS and thus effects vary among gender.

The significant value for using the Smartphone for GPRS is 0.023, which is less than 0.05. Therefore, we reject the null hypothesis and conclude that there is a significance difference between the males and females in using the Smartphone for GPRS.

The significant value in using the Smartphone only as a phone is 0.035 which is less than 0.05. So, we reject the  $H_0$  and conclude that there is there is a significance difference between the males and females in using the phone only as a phone.

### Escapist Usage

There is a significant difference in using the Smartphone for MP3 player and the value is 0.048, which is also lesser than 0.05. So we reject the null hypothesis and conclude that there exist a significance difference between the males and females for the same.

The significance value for using the phone for listening FM Radio is 0.001, which is less than 0.05. So we reject the null hypothesis and conclude that there exists a significance difference between the males and females in using the phone for FM Radio. There is a significant difference between the male and female respondents' use of the phone for camera purpose and the value shows as 0.009, which is less than 0.05. So we reject the null hypothesis and conclude that there is a significant difference.

### Expectations from Smartphones

**Table 7: Expectation from Smartphones**

Expectations from Smartphones	Female		Male		Mean Scores			
	N	%	N	%	Female	Male	t-value	Sig.
Provide all information whenever needed	286	81	447	80.2	2.1725	2.2078	-.412	0.681
Store information which otherwise not easily available	275	77.9	460	82.6	2.2698	2.0299	2.809	0.005
<b>Social Interactive</b>								
Connect me to my family & friends constantly	304	86.1	509	91.3	1.7214	1.4488	3.847	0.000
Help me in social interaction	305	86.4	465	83.5	2.0647	1.9981	.845	0.398
<b>Affective</b>								
Advise me on issues I have problems with	279	79.1	377	67.7	2.2330	2.6011	- 3.898	0.000
<b>Escapist</b>								
Meet all my gaming needs	223	63.2	332	59.6	2.8676	3.0113	- 1.539	0.124

The data in the table above shows that both male and female respondents have the same expectations from Smartphones. Percentages in all the categories except escapist expectations were close to 80 percent.

**T-Value**

**Cognitive**

The significance value in the above table is 0.005 which is less than 0.05. So we reject the null hypothesis and conclude that there is a significance difference between the males and females in using smartphone to store info which is otherwise not easily available.

**Social Interactive**

In using the Smartphone to constantly connect with their near and dear ones, the significance value is 0.00, which is lesser than 0.05 meaning that there is a difference among the male and female respondents. So we reject the null hypothesis.

**Affective**

There exists a significant difference between the males and females in using smartphone as it gives an advice on any issue which they may have a problem in and the value is 0.00 which means there is a highly significant difference. Therefore, we reject the null hypothesis and conclude that there is a significance difference.

**Gratification Sought from Smartphone among Males and Females**

The data on gratification from smartphone shows that by and large number of respondents felt that Smartphone satisfied their cognitive, social interactive, affective and escapist gratifications.

**Table 8: Gratification Sought from Smartphones**

Gratifications sought from Smartphones	Female		Male		Mean Scores			
	N	%	N	%	Female	Male	t- value	Sig.
Cognitive								
Easy to post a message if I am busy	255	72.2	433	77.7	3.9671	4.1793	- 3.024	0.003
Social Interactive								
To keep in touch with friends	321	90.9	494	88.7	4.6059	4.5969	.174	0.862

I feel connected to so many things	253	71.7	391	70.2	3.9292	3.9865	-.794	0.428
Because I need to talk to someone	261	73.9	350	62.8	3.9971	3.7413	3.297	0.001
I can talk to different people	227	64.3	302	54.2	3.8047	3.5145	3.479	0.001
Be accessible to the family when I am out	292	82.7	464	83.3	4.3274	4.4682	- 2.070	0.039
<b>Affective</b>								
I can browse the internet	176	49.9	208	37.3	3.4012	3.1362	3.055	0.002
Because it has many extra features I can use (MP3 player etc.)	172	48.7	298	53.5	3.3234	3.4951	- 1.844	0.066
<b>Escapist</b>								
It's entertaining	196	55.5	308	55.3	3.5710	3.5885	-.225	0.822

From the inferences above, it was proved that majority of respondents from both the genders felt that the Smartphone gratified their social interaction levels the most.

### **T-Value**

#### **Cognitive**

There is significant difference between males and females in posting a message or appointment easily if they are busy and the value stands at 0.003, which is less than 0.05, therefore we reject the null hypothesis and conclude there is significant difference.

#### **Social Interactive**

The significant value  $P=0.001 < 0.05$  for the need to talk to someone rejects the null hypothesis and conclude that there is significant difference between males and females when the above gratification is considered. Here also the significant value stands at  $P=0.001 < 0.05$  for the gratification felt by both the gender when they talk to different people. So, we reject the null hypothesis and conclude that there is a significant difference. There is a significant difference between male and female respondents in accessing to the family when they are out and the

value stands at  $P=0.039$  which is lesser than 0.05 resulting in rejection of the null hypothesis concluding that there is a significant difference between both the genders.

### **Affective**

There is a significant difference between males and females in using Smartphone for browsing internet significant value stands at  $P=0.002$  which is less than 0.05 and therefore we reject the null hypothesis and conclude that there is a significant difference.

### **Findings**

The null hypothesis "Effects of Smartphones usage on gender are uniform in the area under study" has been rejected in the following cases.

- Effects are not uniform for using the Smartphone for SMS because there is a significant difference between genders (value is 0.004).
- Effects are also not uniform in the case of using GPRS, as the significant value of using smartphone for GPRS is 0.023, which are lesser than 0.05 standard value.
- There is a significant difference in using smartphone for MP3 player and the value is 0.048, which is less than 0.05. So we reject the null hypothesis and conclude that there exists a significance difference between the males and females for the same.
- The significance value for using phone as FM Radio is 0.001, which is less 0.05. So we reject the null hypothesis and conclude that there exists a significance difference between the males and females in using the phone for FM Radio.
- There exists a significant difference between the male and female respondents in using the phone for camera purpose and the value shows as 0.009, which is less than 0.05. So we reject the null hypothesis and conclude that there is a significance difference.
- In the above table significance value is 0.005, which is less than 0.05. So we reject the null hypothesis and conclude that there is a significance difference between the males and females in using smartphone to store info which is otherwise not easily available.
- Use of smartphone to constantly connect with the near and dear ones, the significance value is 0.00, which is less than 0.05. It

means there is a difference between the male and female respondents. So we reject the null hypothesis.

- There exists a significant difference between the males and females in using smartphone as it gives an advice on any issue which they may have a problem in and the value shows here as 0.00, which means there is a highly significant difference. Therefore, we reject the null hypothesis and conclude that there is a significance difference for the same.
- There is significant difference between males and females in posting a message or appointment easily if they are busy and the value stands at 0.003, which is less than 0.05, therefore we reject the null hypothesis and conclude that there is significance difference.
- The significant value  $P=0.001 < 0.05$  for the need use phone for calls only guides towards the rejection of null hypothesis and conclude that there is significant difference between males and females when the above gratification is considered.
- Here again the significance value stands at  $P=0.001 < 0.05$  for the gratification felt by both the genders when they talk to different people. So, we reject the null hypothesis and conclude that there is significance difference.
- There is a significant difference between male and female respondents in accessing to the family when they are out and the value stands at  $P=0.039$  which is less than 0.05. Therefore, we reject the null hypothesis concluding that there is a significant difference between both the genders.
- There exists a significant difference between males and females in using Smartphone for browsing internet. Significance value stands at  $P=0.002$  which is less than 0.05. Therefore, we reject the null hypothesis and conclude that there is a significant difference.

### **Conclusion**

Significance differences exist between genders regarding smartphone usage patterns, expectation and gratification. The null hypothesis has been rejected in many areas from social interactive to affective to escapist. Majority of the respondents owned smartphone. Almost 82 percent respondents used mobile daily. Time spent on smartphone is also

quite significant among both the genders of the students. The data on time-spent shows that time spent on smartphone is higher amongst male students (1-2 hours) than female students under one hour.

Usage of smartphone amongst the target group can be divided into following categories depending on the needs—cognitive, social interaction, affective and escapist (details of male / female students percentage, mean score, t-value and significance is given in details in tables with details explanation of hypothesis wise findings. The data shows that there is no much difference in the use between genders. However, Smartphones usage is more for SMS than using it only as a phone. Male respondents score more over their counterparts in using the Smartphones for camera, video recording, listening to MP3 or radio, while the female respondents use for downloading ringtones and wallpapers and for playing games than their male counterparts.

Regarding the expectations, it is concluded that by and large students of both genders have similar expectations. Percentage in all the categories except affective and escapist expectations was more than 75 percent. It is also evident that cognitive, personal integrative and escapist gratification levels sought by both male and female respondents were approximately similar compared to other gratification levels. The study further revealed that both the genders felt that the Smartphones gratified their social interaction levels the most.

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