

Mobile Usage among Youngsters - Prediction of Factors That Might Influence Addiction

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Abstract. The growth of mobile phone market in India is high, and it is surpassing the growth of tablets and Personal computers. With the advent of technology and increased usage of mobile, many youngsters use this device as a communication and entertainment tool. In the present day addiction to Information Technology, with specific reference to mobile phone, is of high concern. This study attempts to find the factors that lead to extensive use of mobile phone among youngsters, pursuing their higher education, which may influence addiction. Principal component analysis is used to determine the prime factors, which influence the usage of mobile phone, and multiple regression analysis has been used to further identify the specific factors that lead to extensive use of mobile phone, which may influence addiction.

Keywords: principal component analysis, multiple regression, psychological, boredom, broadband, extensive involvement. Influence mobile addiction

1. INTRODUCTION

Gartner reports indicate that mobile phones are expected to be sold more than all other mobile devices sold in the market across the globe; It also indicates that ultra mobiles, which include tablets; hybrids and clamshells, will take over as the main driver of growth in the devices market. Mobile phone is not considered as luxury any more. It has become a necessary device and has become a part of life style for many Indian youth. Many youngsters are depending on mobile devices, and the usage has been increasing rapidly ever since the penetration of mobile phones in Indian market in this millennium [Macro, 2004]. If youngsters are unable to manage mobile usage in the right fashion, then it is certainly is a cause of concern and a problem area. The problematic usage of mobile phone is characterized by the inability to manage the use, which leads to adverse consequences in the day-to-day life [Billieux 2012]. Hence, it is vital to find the

pattern for usage of mobile phone, which can influence addiction. Having a scientific and statistical approach to identify these factors is certainly necessary which can be of great value to understand the problem in a better fashion. This can enable us to ponder over solutions needed to mitigate the problem. Hence, this study is an attempt towards identifying those specific factors, that lead to extensive use of mobile phone, which can influence addiction.

2. LITERATURE REVIEW

Technology addiction has been a major concern since early 1990's and there have been discussions in the literature with specific reference to Internet addiction, Computer game addiction, television addiction and mobile phone addiction. In general, these concerns can be termed as Information Communication Technology addiction [Xavier et.al, 2012]. With the growing popularity of smartphones, mobile addiction has become a phenomenon that has to be addressed with high priority. Human behavior is based on intensions. There are motivational factors behind every behavior. The behavior can be classified into six categories according to the literature like habitual, addictive, compulsory, mandatory, voluntary and dependent[Val Hooper et.al, 2007]. According to Hooper, the fast pace growth of mobile phone and its extent of usage among youngsters may be due to these behaviors or combination of these behaviors. Although they have stated that dependent, voluntary or mandatory behaviors main reasons of mobile use, their study did not conclude with clear evidence for addictive behavior of mobile usage.

In a study conducted by Kenichi Ishiii (2011) it was identified that emotionality and instrumentality are the factors of motivation behind mobile use. The emotionality factor was found correlated with addiction to mobile, but instrumentality factor was not found to be significantly correlated. Their study also reveals that the frequency of mobile usage has an impact on the level of mobile addiction and emotionality factor correlates with delinquent tendencies. According to Griffiths, the extensive use of phones amongst youngsters, lead to over enthusiasm which results in need for counseling. Griffiths also observed that text messaging and phone calls were the most prominent reasons for using mobile phone. However, his study states that, the addiction was attributed to using phone for text messaging and gaming [Griffiths, 2013]. Capturing and transferring a video or photo was also one of the most used features in the list of mobile usage [Aaron et.al]. According to Xavier, the primary use of a mobile phone is to communicate and there were no risks of high severity while communicating with known people. However, his study concludes that, with the proliferation of new applications and utilities, perception of mobile addiction and problematic phone usage seems to be a concern of high risk [Xavier et.al, 2012]. Some studies claim that although mobile phones are used extensively among youngsters, they are not getting addicted rather they are effectively using in a genuine manner [Ishfaq, 2011]. Research also revealed that it is very difficult to distinguish between excessive use and addictive use of phones.

Walsh identifies that self-identity and validation from others are two major factors that lead to extensive usage of mobile phones. The desire to have self-identity boosts the frequency of mobile phone usage and involvement. His study also claims that mobile phone involvement was found to be different qualitatively from the frequency of use and has similarity with the

behavioral addictions. The youngster's exhibit varying behavioral setbacks if they were unable to use mobile phones. However, there was no clear evidence that extensive usage of mobile phone leads to pathological or problematic condition [Walsh, 2010].

There is lack of rich literature in the area related to mobile phone usage addiction, which has considered the aspects related to psychology and pathology. Extroversion and low self-esteem were quoted as the main reasons of problematic mobile phone use [Adriana et.al]. Billieux pathway model [2012] provides a theoretical base for problematic usage of phones. There are four pathways, which can lead to problematic situation namely impulsive, relationship maintenance, and extraversion & cyber addiction. The inability to control the impulse has been identified as a psychological problem and generally caused by rapid reaction to intense emotions(urgency), tendency to consider consequence of an act before committing(premeditation), eagerness to get engrossed in new activities(sensation seeking) and ability to focus on a task or boring activity(perseverance) [Whiteside 2001].

The latest smart mobile phones are equipped with plethora of apps and entertainment. The desire of people to get out of boredom and stay occupied is fulfilled. Though many users agree that they use mobile phones to engage themselves during their free time, there are individuals who fear that it is an obstacle for creativity [D.Gross, 2012]. In a study conducted by Pew Research Center it was revealed that majority of youngsters use cell phone for entertainment when they are bored. Also quick retrieval of information and avoiding face to face interaction were the prime advantages for using mobile phone and around 42% agreed that they could not do some work due to non-availability of mobile phone [Aaron et.al].

Mobile knowledge management and m-learning are emerging at fast pace and have capabilities to transform the society [Bruno et.al, 2006]. Availability of broadband internet connection provides easy access to the information and knowledge resources, which is used by majority of youth. In addition to the primary functions of mobile phones, the peripheral features play a great role in increasing the youngster's dependency on mobile. Avoiding boredom, staying connected, background engagement while doing a foreground activity and creating a space of once own, have become a common mobile agenda for youngsters [Abu, 2009]

Mobile phones have become a device for social connection and it provokes reflective thinking on social life. Many youngsters consider it as a tool for creating an identity for themselves. They feel that they can portray themselves as smart individuals to their peers and to others while they explore the capabilities and its use. It is needless to say it boosts the self-esteem of youngsters and they regard it as a cultural need than a technology need [Caronia et.al, 2004].Peer pressure is certainly a motivational factor for youngsters to possess a mobile device and engage in mobile communication [Wong et.al, 2005].Mobile phones are primarily used for communication, but it has got several other instrumental (practical) and expressive (related to content) uses. Youngsters consider it a de facto tool for identity building as it provides the feeling of belonging and virtual presence. It also enables social learning and acts as diary to capture and store their personal details and life memories through text messages, documents, contacts, videos and photos [Stald et.al].

3. RESEARCH METHODOLOGY

The study aimed at identifying the factors that lead to extensive use of mobile phone, among youngsters pursuing their higher education, which can influence addiction. A thorough literature review was instrumental to derive set of variables / questions from previous studies. A questionnaire created, was refined based on the pilot study, conducted among some students pursuing higher education in a reputed institute. An online survey instrument (questionnaire) helped to collect data from youngsters using convenience-sampling method. The questionnaire allowed the respondents to state their opinion on a 5-point Likert scale. The online survey instrument helped us to collect data from 360 participants (randomly chosen from 3200 participants, pursuing their master's program from a University located in Pune. We received 242 fully filled responses. Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy takes values between 0 and 1. Small values mean that overall the variables have too little in common to warrant a sample adequacy. The value that we got for the KMO test for sample adequacy was 0.875 and according to Kaiser [1974] a value between 0.80 to 0.89 is considered to be meritorious and hence this value was suffice to go with principal component analysis

4. DATA ANALYSIS AND RESULTS

Data was analyzed in two stages. In first stage, principal component analysis (PCA) with varimax rotation using 50 variables helped to find 14 factors that influence youngster's dependency on mobile phone usage. The 14 factors extracted had an Eigen value greater than 1. A reliability analysis using Cronbach's Alpha was applied on these 14 extracted factors. On inspection, it was found that the reliability was moderately low for 5 factors influencing usage of mobile namely Mobile Apps, Peer pressure, High level of Inquisitiveness, Data storage & Transfer and Flexible Lifestyle. Therefore, these five factors were not considered for further analysis.

In the second stage, we rejected 12 variables loading heavily on these unreliable factors and repeated PCA with the remaining 38 variables. Table 1 shows the descriptive statistics of these 38 variables. This resulted in extracting 9 factors with reliability greater than 0.6 and they were accountable for 59 percent of variance.

Multiple regression analysis was applied on these 9 factors and Table 2 shows the rotated factor matrix, factor loadings along with the internal factor reliability. The findings reveal that these 9 major factors can be considered as the prime factors which influence the usage of mobile phone and also can help in understanding the nature and pattern of mobile use among youngsters. These factors were termed as Boredom, Crave for knowledge, Psychological, Gaming, Easy access to broadband, Capture and Share Memories, Extensive Involvement, Social Status and Social Media. The factor loadings indicated that boredom, gaming and crave for knowledge were the highest loaded factors which influence the usage of mobile phone. Multiple regression analysis using the regression model $Y_1 = a + b_1 * x_1 + b_2 * x_2 + \dots + b_9 * x_9$ was used for further predicting on how these factors influence mobile addiction. We used the variable "Difficult to Live without Mobile Phone" as the dependent variable and the factor scores of the 9 factors extracted as the independent variables. SPSS 20 was the statistical tool used for analysis and Table 3 shows the

regression results. Boredom, Psychological, Easy access to broadband and Extensive involvement were found to be the factors that significantly contribute to the dependent variable. All other factors turned out to be insignificant.

Table 1: Descriptive statistics of variables

Descriptive Statistics N=242			
		Mean	Std. Deviation
1	check updates on phone regularly	3.58	1.095
2	feel nervous if could not take call	2.62	1.139
3	feel restless without phone while travelling	3.49	1.270
4	use words tweet,sms,whatsapp often	3.45	1.166
5	changed service provider for better internet	2.54	1.475
6	rescue phone when room on fire	2.62	1.144
7	have close online-only friends	2.37	1.127
8	go mad if phone not available from tomorrow	3.27	1.215
9	have regular internet access and budget	3.81	1.038
10	spend time on social media often	2.87	1.108
11	extensive use of twitter,facebook,whatsapp	3.81	1.061
12	expert gaming	2.79	1.218
13	changed phone to maintain social status	2.37	1.189
14	use youtube to acquire knowledge	3.36	1.089
15	seek best data plans	4.01	.909
16	brand image depends on mobile brand	2.37	1.153
17	urgency in checking phone for updates	3.10	1.213
18	tempt to use more than friends	2.17	.950
19	use phone when waiting /travelling	4.22	.773
20	access online study materials	3.88	.874
21	skipped meals due to phone use	1.44	.739
22	use to capture memories	4.02	.947
23	check emails regularly	4.43	.886
24	chat with friends often to clear doubts	3.76	1.052
25	use to search ppts and pdfs for study	3.63	1.036
26	access news	4.11	.911
27	use for gaming	2.92	1.176
28	use when bored	4.05	.865
29	use for blog and discussion forums	2.57	1.061
30	use when nothing to do	3.82	.923

31	can type faster than writing	3.19	1.263
32	capture happenings in a function	3.65	1.080
33	use as a time pass device	3.57	.940
34	feel nervous if not charged the phone	2.91	1.236
35	use when alone and none to talk	3.70	.966
36	look for a place where power outlet available	3.09	1.238
37	used to send email very often	3.64	.989
38	play games when bored or during waiting	2.89	1.295

Table 2. Details of extracted factors

Rotated Factor Matrix

Factors	variables	factor loadings	reliability
boredom	use when alone and none to talk	.759	0.814
	use when bored	.747	
	use when nothing to do	.732	
	use as a time pass device	.664	
	feel nervous if not charged the phone	.484	
	look for a place where power outlet available	.430	
	use phone when waiting /travelling	.384	
crave for knowledge	use to search ppts and pdfs for study	.757	0.796
	access online study materials	.731	
	access news	.716	
	used to send email very often	.634	
	chat with friends often to clear doubts	.472	
	check emails regularly	.466	
	use for blog and discussion forums	.439	
psychological	urgency in checking phone for updates	.664	0.742
	rescue phone when room on fire	.605	
	feel nervous if could not take call	.548	
	go mad if phone not available from tomorrow	.467	
	feel restless without phone while travelling	.459	
gaming	use for gaming	.839	0.817
	play games when bored or during waiting	.778	
	expert gaming	.774	
Easy access to broadband	seek best data plans	.677	0.606
	have regular internet access and budget	.658	
	changed service provider for better internet	.592	
	use youtube to acquire knowledge	.475	
capture and share memories	capture happenings in a function	.754	0.757
	use to capture memories	.734	
extensive	tempt to use more than friends	.675	0.609

involvement	can type faster than writing	.624	
	skipped meals due to phone use	.514	
	use words tweet, sms, whatsapp often	.481	
social status	changed phone to maintain social status	.777	0.674
	brand image depends on mobile brand	.748	
	have close online-only friends	.465	
	check updates on phone regularly	.648	0.652
	spend time on social media often	.496	
	extensive use of twitter, facebook, whats up	.427	

Table 3. Details of regression

Regression Results					
Independent variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.769	.024		32.256	.000
Boredom	.123	.024	.290	5.136	.000
Crave for knowledge	.007	.024	.017	.300	.764
Psychological	.139	.024	.329	5.828	.000
Gaming	-.019	.024	-.045	-.798	.426
Easy access to broadband	.059	.024	.139	2.461	.015
Capture and share memories	.025	.024	.059	1.049	.295
Extensive involvement	.074	.024	.175	3.104	.002
Social status	-.015	.024	-.036	-.644	.520
Social media	.041	.024	.098	1.729	.085
Note:R-Square=.259; F=9.029 ; Sig F=0.000					

5. CONCLUSION

The aim of this study was to determine the prime factors, which cause extensive use of mobile phone, which may influence addiction. This study revealed that the prime factors that cause extensive usage of mobile were Boredom, Psychological, Easy access to broadband and Extensive Involvement and they can possibly influence addiction. This study is based on user perception and not on pathological or psychological evidence. Hence, this study can further be extended to find if these factors lead to addiction along with pathological or psychological evidence.

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