

Exploratory Study of the Pattern and Motives of Facebook Usage among University Students

Ahsan ul Haq¹ and Sohail Chand²

Abstract

This paper looks at the pattern of Facebook usage among university students. Results show that Post-graduate students spend more time on internet surfing while Under-graduate students have more friends on Facebook. Gender differences are found in the Facebook usage pattern. Females, as compared to males, mainly use Facebook for chatting, updating their profiles and viewing their friends' walls and photos. Moreover, males in comparison to females, show higher tendency of adding strangers as friends and mainly go for looks of the individual before sending an invitation for friendship.

Keywords

Social networking, Facebook, Factor analysis, University students

1. Introduction

Today in the time of technology, the internet has turn into the greatest system to share information with numerous people at a time. People use internet to maintain relationship with old and new friends, family and colleagues (Boogart, 2006). Social networking sites such as Cyworld, Myspace, Twitter and Facebook have become the most powerful tools for making new and maintain existing connections. The first social networking site was launched with the name of Sixdegree.com in 1997 (Boyd and Ellison, 2007). Social networking has become the device that connect people in a click of the mouse. Facebook is the most popular and most significantly visited social networking site.

¹ College of Statistical and Actuarial Sciences, University of the Punjab, Lahore, Pakistan.

² College of Statistical and Actuarial Sciences, University of the Punjab, Lahore, Pakistan.

Facebook was established by Mark Zuckerberg just for Harvard students but in 2006 Facebook was opened as online social networking site for general public (Sheldon, 2008). Facebook achieve an incredible success; after the creation of first year, it has one million users (Tuunainen et al., 2009) in December 2006 it has more than 12 million users, and in December 2009 Facebook cross 350 million active users (Hew, 2011) and in 2010 Facebook have more than 500 million users worldwide (Aghazamani, 2010). According to Facebook statistics as of april 2012, Facebook has more than 900 million monthly active users and more than 500 million daily active users including us. Facebook users upload 250 million photos daily and 425 million users who use mobile to logging in their account.

Today Facebook has become a standard part of student's life (Govani and Pashley, 2005). Most of the Facebook users are young persons majority of them are students. Uneversity students use Facebook for a variety of reason among which mainly it is being used to make new relations and keep in touch with old class mates. Students create groups, post messeges on their friends wall, play games, puzzles, quizzes and share links. According to Facebook statistics in 2012, females (57%) use Facebook more than male (43%) users.

In this study, we have used F-Test using Analysis of Variance (ANOVA) to compare the various aspects of internet and Facebook usage. We have also investigated the underlying structure of Facebook usage using Factor Analysis. For details, see e.g. Walpole (1982) for ANOVA and Stevens (1996) for Factor Analysis.

The rest of this paper is organized as follows: Section 2 gives an account of review of the literature. Section 3 gives the methodology used in this paper for statistical analysis. Results are given and discussed in Section 4. Finally, major findings are concluded in Section 5.

2. Literature Review

Aghazamani (2010) used ANOVA and t-Test to assess the validity of attitudes of different education levels and male and female students towards Facebook use. They found that Facebook has become the most important part of university life. Under-graduate students login to their Facebook accounts more frequently as compared to Graduate students. Furthermore, friendship was the most desired activity among Under-graduate students than Graduates.

Haq and Chand (2012) studied the popularity of the Facebook among the university students. Their results based on Chi-square Test and t-Test showed that there was no gender difference in having a Facebook account. Moreover, their results suggest that male and female spend equal time on internet. Though male have more Facebook friends but females spent more time on Facebook. The social interaction with the existing friends is found the most common use of the Facebook among students.

In the study of Nicole and Rosanna (2012), using Logistic Regression Analyses, studied the influence of gender and personality on individual's use of Facebook. Men use Facebook for forming new connections while women use Facebook for maintain existing relationships. Moreover, the men's were more likely to play games on Facebook often than women. On the other hand, women post more messages, photographs, send friend requests compared to men.

Using Factor Analysis and Student's t-Test, Mazman and Usluel (2011) found significant gender differences in major purpose of Facebook usage. They reported that Facebook usage can be categorized under four categories, namely make new relationships, maintaining existing relations, using for academic purposes and following specific agenda. Results also showed that females use Facebook to maintain existing relations, academic usage, and following agenda more than males. Male users were in favor of making new relationships.

Pempek et al. (2009), using descriptive statistics, Chi-square and Mann-whitney Test, found that young adults use Facebook for social interaction and to communicate with their friends with whom they have already developed offline friendship. Female users have more Facebook friends; females as compared to males more frequently post photographs and tag photos.

According to Lenhart and Madden (2007), the descriptive statistics in their study showed that among teenagers friendship is the main purpose of use social networking sites and 91% were using to stay in touch and communicate with their existing friends. An interesting finding they reported that teenagers belonging to middle and lower social class were using these social networking sites for making new friends as compared to the teenagers from high social class.

Ellison et al. (2007) examined the relationship between Facebook usage and social relations using descriptive statistics and Factor Analysis. Their results

showed that major use of Facebook was to know about offline friends and to establish new relations. The results reported in Stutzman (2006) showed that Facebook is used for time pass, to learn more about other people, maintaining social relationships, learn about throughout school, college and university updates.

3. Methodology

The present study was conducted to explore the constructs of Facebook usage among university students. The questionnaire based on two sections; in first section, we obtained information about demographic characteristics while second section consisting of 22 items related to use of Facebook. These items were measured on a Seven-Point Likert-Scale ranging from strongly disagree to strongly agree scored as 1 to 7 respectively. First, the ANOVA Test was applied to test the hypotheses related to general use of internet and Facebook. Secondly, the Exploratory Factor Analysis (EFA) with Varimax rotation was run on 22 items with the Principal Component Analysis (PCA) Method.

A sample of 336 students of Punjab University was selected by using Stratified Random Sampling considering gender as Strata. The method of Proportional Allocation was used to distribute the total sample size between two strata. We have classified the sample in three levels according to study program which is shown in Table 1: Under-graduates: 13-14 years education; Masters: 15-16 years education; Post-graduates: Research students after 16 years education. The average age of respondents is 21.52 years (Min. = 18, Max. = 30).

4. Results

Results show that major motivation for the use of Facebook is to communicate with existing friends and to make new friends. In our sample of 336 students, 261 students reported they were using Facebook mainly to communicate with existing friends while 42 students reported the major purpose is to use Facebook as a medium of making new friends.

We also found that, on the average, students spend three and half hours per day on internet and approximately two hours on Facebook. We define in our study, the Under-graduates as the students who have completed 12 years of education, Masters students who have completed 14 years of education and Post-graduate students who have completed 16 years of education. To look into if there is any

statistically significant difference in internet and Facebook usage among the three education level (Under-graduates, Masters, Post-graduates), we formulated the following three hypotheses:

H₀₁: Means of internet use in hours per day are not significantly different for three education level.

H₀₂: Means of Facebook use in hours per day are not significantly different for three education level.

H₀₃: Means of number of Facebook friends are not significantly different for three education level.

H₀₄: Means of number of Facebook friends from Punjab University are not significantly different for three education level.

We performed one way ANOVA to test the above hypotheses and the results are reported in Table 2.

It is found that Post-graduates students spend more time on internet as compared to Under-graduates and Masters level students. The discussion with students reveals that Post-graduate students use internet in major for searching literature related to their research work. All these results show that the Master level students were the least users of internet and Facebook. In Punjab University, majority of the students especially at Master level, unlike Under-graduates, belong to rural area so they were not much oriented towards computer use.

Though, Means plot show there are some differences among different education levels for the amount of time spent on Facebook usage but F-Test (p-value >0.05) shows that this difference is insignificant. In addition, a significant difference is found that Under-graduate students have more friends on Facebook, more Facebook friends in Punjab University as compared to Masters and Post-graduate students.

4.1 Factor Analysis: The EFA is applied on twenty-two variables by using the method of Principal Component Analysis. We applied Factor Analysis to see whether the variables summarize in the meaningful Factors/dimensions or not. The value of Kaiser-Meyer-Olkin (KMO) statistic is 0.848, showing sampling adequacy appropriate for the data. The Bartlett's Test of Sphericity yielded a Chi-square statistic ($\chi^2_{(231)} = 2848.095$, p-value=0.000). The null hypothesis was

rejected at 1% level of significance with p-value. Thus we can proceed for the Factor Analysis that the correlation matrix is not an identity matrix. The value of Cronbach's Alpha of overall 22 items calculates 0.880. Generally, Alpha reliabilities above 0.70 are considered good. In this case, the Cronbach's Alpha is 0.880 which is exceptionally good and the data consider reliable for the context of the study. Scree Plot (Figure 2) shows that a 5 Factors Model is appropriate for the study.

Using the Latent Root criterion, following five Factors were extracted.

- Level of involvement.
- Social activity on Facebook.
- General use of Facebook.
- Preferences for adding friends.
- Games on Facebook.

These Factors have Eigen Values 6.501, 2.341, 1.620, 1.435, and 1.197 respectively. These Factors explain 59.518%, 29.548%, 10.642%, 7.365% and 6.523% of the total variation, respectively. Table 3 gives the description of items in each Factor along with their Loadings.

To examine gender differences in using pattern of using Facebook. An independent samples t-Test was used on the total scores of five Factors. Significant gender differences were found in the Factors *General use of Facebook* and *Preferences for adding friends*. Interestingly, it can be also seen that females score is higher of the Factor *General use of Facebook* while males score is higher for the Factor *Preferences for adding friends*.

5. Conclusion

Facebook is found popular social networking source among the students. In general, students level of involvement shows that they consider it an important part of their daily social activities. Interestingly, gender differences are found in the Facebook usage pattern. Females, as compared to males, mainly use Facebook for chatting, updating their profiles and viewing their friends' walls and photos. Moreover, males show tendency of adding strangers as friends and mainly go for looks of the individual before sending an invitation of friendship.

Acknowledgement

We thank the Editor and the referees for their helpful comments and suggestions that greatly improved the previous versions of this paper.

Table 1: Frequency Distribution of education level by genders

Study Program	Gender		Total
	Male	Female	
UnderGraduates	74	78	133
Masters	78	85	163
PostGraduates	16	24	40
Total	168	168	336

Table 2: Facebook usage difference with education level

Variables	F-value	p-value
Internet use (hours per day)	7.564	0.001**
Facebook use (hours per day)	0.330	0.719
Number of Facebook friends	4.066	0.018*
Facebook friends at Punjab University.	7.126	0.001**

* p-value < 0.05, ** p-value < 0.01

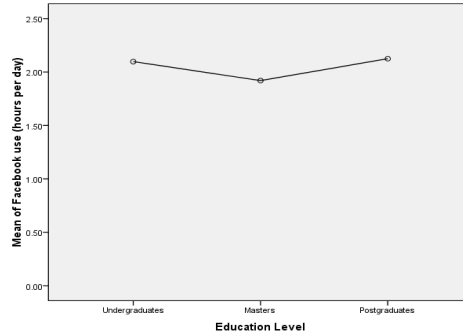
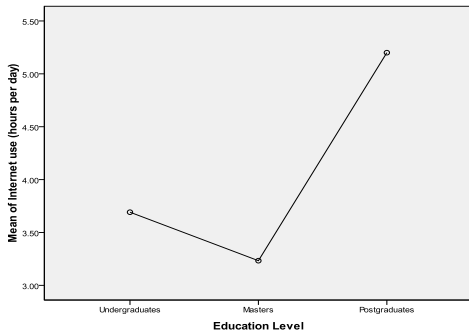
Table 3: Factor Analysis results for Facebook usage

Factor	Items	Loadings
Level of involvement	Facebook is part of my social life	0.668
	Proud to tell others that I am on Facebook	0.526
	Facebook has become daily routine activity	0.795
	Feel down when not logged in Facebook	0.716
	Feel to be a part of Facebook community	0.675
	Feel sad if Facebook is shut down	0.685
Social activity on Facebook	Use Facebook to find someone I already met socially	0.540
	Use Facebook to learn more about my mates	0.786
	Use Facebook to learn more about people around me	0.731
	Use Facebook to stay in touch with my old friends	0.554
	Use Facebook to get useful information	0.574
	I use Facebook to find new friends	0.586
General use of Facebook	Chat (including comments and wall)	0.746
	Checking my friends status, photos etc.	0.724
	Update my Profile	0.713
	To pass my time	0.555
Preferences for adding friends	Add strangers as a friend	0.695
	Common hobbies and interests	0.686
	Looks (e.g. an attractive display picture)	0.734

Gaming on Facebook	I play games on Facebook	0.801
	I play interactive games on Facebook	0.609
	I use Facebook applications	0.612

Table 4: Gender difference with Facebook usage behaviors

Factor	Gender	N	Mean	S.D	t	p-value
Level of involvement	Male	168	25.2083	7.79594	1.407	0.384
	Female	168	24.0238	7.64007		
Social activity on Facebook	Male	168	28.1310	6.87490	3.781	0.360
	Female	168	25.2381	7.14708		
General use of Facebook	Male	168	19.7500	3.90263	-0.534	0.001**
	Female	168	20.0119	5.02448		
Preferences for adding friends	Male	168	10.5060	4.19295	2.918	0.008**
	Female	168	9.2500	3.67993		
Games on Facebook	Male	168	9.5119	3.96389	-0.649	0.465
	Female	168	9.7857	3.77217		



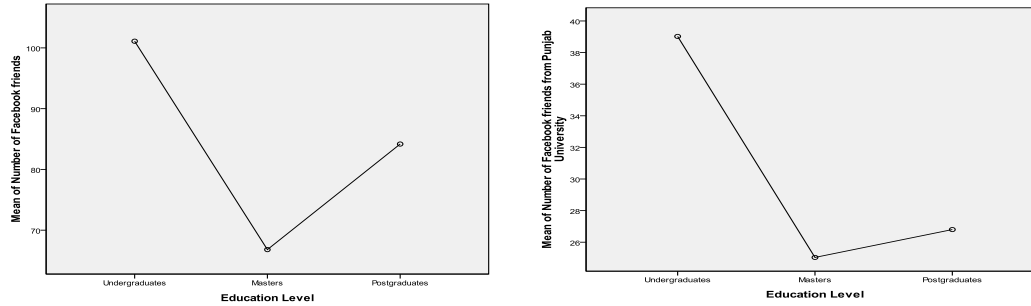


Figure 1: Mean plots for education levels

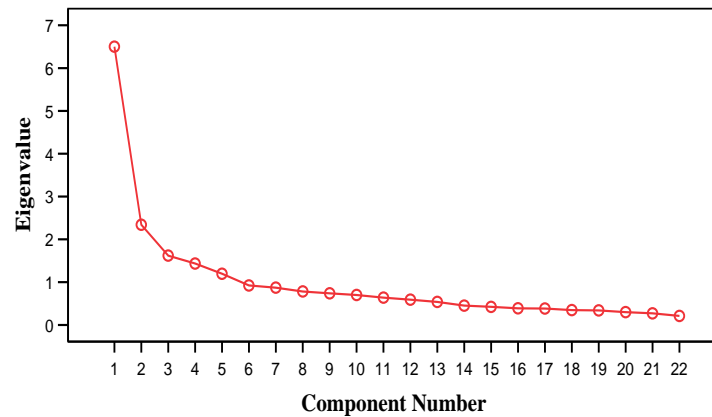


Figure 2: Scree plot

References

1. Aghazamani, A. (2010). How do university students spend their time on Facebook? An exploratory study. *Journal of American Science*, **6**, 730-735.
2. Boyd, D. M. and Ellison, N. B. (2007). Social network sites: Definition, history, and scholarship. *Journal of Computer Mediated Communication*, **13(1)**, 210-230.
3. Ellison, N. B., Steinfield, C., and Lampe, C. (2007). The Benefits of facebook “friends” social capital and college student’s use of online social network sites. *Journal of Computer Mediated Communication*, **12**, 1143–1168.

4. Facebook Statistics in (2012). <http://blog.kissmetrics.com/facebook-statistics/>
5. Govani, T. and Pashley, H. (2005). Student Awareness of the privacy implications when using Facebook. <http://lorrie.cranor.org/courses/fa05/tubzhlp.pdf>
6. Haq, A. and Chand, S. (2012). Pattern and impact of Facebook usage on the academic performance of students in higher education: A gender based comparison. *Bulletin of Education and Research*, **34(2)**, 19-28.
7. Hew, K. F. (2011). Student's and teacher's use of Facebook. *Computers in Human Behavior*, **27**, 662–676.
8. Lenhart, A. and Madden, M. (2007). Teens, privacy and online social networks. *Pew internet and american life project report*. http://www.pewinternet.org/files/old-media/Files/Reports/2007/PIP_Teens_Privacy_SNS_Report_Final.pdf
9. Mazman, S. G. and Usluel, Y. K. (2011). Gender differences in using social networks. *The Turkish Online Journal of Educational Technology*, **10(2)**, 133-139.
10. Nicole, L. M. and Rosanna, E. G. (2012). Make new friends or keep the old: Gender and personality differences in social networking use. *Computers in Human Behavior*, **28**, 107-112.
11. Pempek, T. A., Yermolayeva, Y. A. and Calvert, S. L. (2009). College student's social networking experiences on Facebook. *Journal of Applied Developmental Psychology*, **30**, 227-238.
12. Sheldon, P. (2008). Student favorite: Facebook and motives for its use. *Southwestern Mass Communication Journal*, **23(2)**, 39–53.
13. Stevens, J. (1996). *Applied Multivariate Statistics for the Social Sciences*, 3rd edition. Lawrence Erlbaum Associates, Inc, New Jersey, Unite States.
14. Stutzman, F. (2006). An evaluation of identity-sharing behavior in social network communities. Paper presented at *the iDMAa and IMS code conference*, Oxford, Ohio.
15. Tuunainen, V. K., Pitkanen, O. and Hovi, M. (2009). User's awareness of privacy on online social networking-case Facebook. *Bled eConference*. Bled.
16. Vandan Boogart, M. R. (2006). Uncovering the social impacts of Facebook on a college campus, Masters Thesis, Kansas State University, US.
17. Walpole, R. E. (1982). *Introduction to Statistics*, 3rd edition. MacMilan Inc.