

## **ROLE FACEBOON USE AND ADDICTION ON ACADEMIC ACHIEVEMENT: A PILOT STUDY ON UNDERGRADUATE STUDENTS**

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**Abstract.** For the past few years Facebook becomes one of the most popular social networking website around the world. It is widely used website among the students for fulfilling their needs of interaction. Excessive usage of Facebook that leads to addiction on Facebook gets huge concern among scientific community. There were very studies that assess the impact of the Facebook usage and addiction on academic achievement. The present study was aimed to assess the impact of these factors on the academic results of undergrad students. A booklet, included questions regarding academic achievement, Facebook usage, and the Bergen Facebook Addiction Scale, was administered on a non-representative sample of 161 undergrad students. Results suggested the Facebook use and addiction as significant negative predictors of academic achievement. This study also explored significant mean differences in Facebook addiction score and academic achievement by gender. From the present study findings, it is time to rethink about controlling the students' usage of social media like Facebook.

*Keywords:* Facebook usage, Facebook addiction, academic achievement, undergrad students

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## **Introduction**

The beginning of Social Networking Sites (SNS) fascinated millions of users globally. SNSs are gradually becoming the integral part of the lives of its users. For the past few years Facebook becomes one of the most popular social networking website around the world (Foregger, 2008). Nielsen<sup>1)</sup> pointed out that among all the social networking sites Facebook is the most popular and heavily-used site among the students. Facebook is an online social platform where users can create own profile, share information and communicate with known and unknown contacts (Boyd & Ellison, 2007). This online platform was first developed by Mark Zuckerberg in 2004. After few days, its use spread among other university students and become one of the most popular public fields for social communication and connection tool (Boyd & Ellison, 2007). Statistics suggested that the Facebook is the highest visited SNS.<sup>2)</sup> According to 3<sup>rd</sup> quarter report of Facebook, daily active users were 1.49 billion in September, 2018 and this rate is increasing year by year.<sup>3)</sup>

From the last few years Bangladesh has experienced an internet boom especially in mobile internet connectivity. According to Bangladesh Telecommunication Regularity Commission<sup>4)</sup> at the end of December 2017, there were 80.483 million internet users in Bangladesh where 75.050 were mobile internet users. On the other hand, at the end of December 2018, there were 91.348 million internet subscribers in Bangladesh where 85.552 million were using mobile internet.<sup>4)</sup> Young generation, mostly the university students, is the main subscribers of these users. Most of them use internet only for using Facebook (Rahman & Ahmed, 2018). According to social media statistics of Bangladesh, 89.28% social media users have a profile in Facebook and around 20 million people are active Facebook users, which is 0.9 the overall monthly active users of the social networking web site in the world.<sup>5)</sup> Kemp<sup>5)</sup> also reported that, Bangladesh is the hierarchically second which have the most active Facebook user worldwide (Kemp, 2018). Sultana et al. (2018) conducted a survey on 500 Bangladeshi university students who were SNS users and found that 98% were

using Facebook. As this SNSs has become popular day by day among the people with different ages and genders, recently researchers have begun to examine different aspects of using Facebook (Wilson et al., 2012). However, some researchers focus on the problems of using Facebook by university and college students.

There are frequent negative aspects of Facebook addiction. Study suggested that extreme Facebook usage has negative effects on users.<sup>6)</sup> Lin et al (2012) identified Facebook addiction as the worldwide problem among youth. Excessive use of Facebook enhances the risk of Facebook addiction (Mekinc et al., 2013). The concept of addiction can be defined as excessive dependency on a substance or activity. According to American Psychiatric Association (APA, 1994), dependency is generally having the following characteristics: overindulgence, tolerance, withdrawal, craving, and loss of control. Although the term addiction is originally linked only with substance use, but several studies identified different kinds of behavioral addictions such as gambling addiction (Morbilia, 1993), overeating (Lesieur & Blume, 1993), exercise addiction (Yates, 1991), etc. Internet addiction is now considered as a behavioral addiction. Facebook addiction is one type of internet addiction. It can be defined as the excessive engagement in Facebook that disrupts daily activities and social life (Rana et al., 2016). According to Walker,<sup>7)</sup> ‘spending an excessive amount of time on Facebook to such an extent that it interferes one’s life and also create obstacles to complete important daily activities is called Facebook addiction’. Karaiskos et al. (2010) suggested that those who spent 5 hours or more on Facebook were addicted.

Because of this growing popularity of Facebook, a number of universities around the world are using them as marketing program as well as to make communication with current and prospective students. University professors also started to use it as a means of effective discussions and dealing with their students to improve learning benefits through better communication within and

outside the classes. Thompson & Lougheed (2012) found that 80.24% of university students perceived using Facebook is an essential and important element in the university social culture. Studies suggested that students use Facebook to build social relations, spend their time, and for entertainment (Foregger, 2008; Hew & Cheung, 2012). Rosen et al. (2013) explored that students are using Facebook for gaining and spreading information. Raacke & Bonds-Raacke (2008) found that by using SNSs this kind of individuals try to satisfy their needs of building relationships. Nyland & Near<sup>8)</sup> identified five motives of using Facebook, which include meeting with new people, entertainment, maintaining social relationships, knowing about social events and; media creation. Studies suggested that SNSs played an important role on students in higher education (Wheeler et al., 2008; Rifkin et al., 2009). These studies identified four major advantages students' SNSs usage in higher education level. These are - enhancing relationship, improving learning motivation, offering personalized course material, and developing collaborative abilities. Jones et al. (2010) explored that the students of higher education face higher demands and standards for academic proficiency that are meet through social sites.

However, some recent studies focus on the link between Facebook addiction and academic performance of students. Academic achievement is the degree to which a student has achieved their short or long-term educational goals. In other words, how well one does in his or her studies is called academic achievement. In generally, cumulative GPA and completion of educational benchmarks represent a person's academic achievement. Therefore, poorer grade of a student is considered as bad academic achievements of that particular student. Celestine & Nonyelum (2018) investigated the impact of SNS use on student academic performance. This study revealed that the time spent on SNSs can negatively affect student academic activities. Kirschner & Karpinski (2010) reported that over-participation or addiction of students to Facebook had a negative impact on their academic performance. Vashishtha et al.

(2017) reported same results. They found that Facebook addiction has significant negative relationship with academic achievement of adolescents. Paul et al. (2012) suggested that the frequent usage of Facebook students' academic performance have deteriorated tremendously. Junco & Cotton (2012) found that Facebook-multitasking and texting-multitasking were negatively related to college GPA. Alloway et al. (2013) compared the non-Facebook users and Facebook users and found that Facebook users spent less time for studying. It is believed that university graduates who have good academic records will be able to contribute in the development of a country.

However, there are very few studies on the impact of Facebook use and addiction on the academic performance of the undergrad level students in Bangladesh. Most of the studies tried to identify possible predictors of the Facebook addiction and its impact on mental health of users (Ahmed, 2018; Rahman & Ahmed, 2018). In this condition, the present study was conducted to investigate the association among Facebook use, addiction and its impact on the academic performance of Bangladeshi undergraduate students. The main objective of the present study was to assess the impact of the Facebook use and Facebook addiction on the academic results of undergrad students. The specific objectives were: (i) to assess the mean differences in Facebook use, addiction, and academic results by respondents' demographic status (i.e., gender; family type, and academic year); (ii) to assess the predictability of the Facebook use and addiction on academic results.

## **Method**

### *Participants*

The study population of the present study was the undergrad students. Among universities, 2 public universities – the University of Chittagong, and the Bangabandhu Sheikh Mujibur Rahman Science & Technology University, were selected on the basis of convenience. Among selected universities, students from 3<sup>rd</sup> year and 4<sup>th</sup> year selected purposively as they had the results of

last undergrad level academic results. Students from 1st and 2<sup>nd</sup> year were not selected because of unavailability of published last year results. Among students from these 2 years, we asked ‘who are using Facebook daily?’ and ‘are you using Facebook more than one year?’ Those who responded ‘yes’, we included them in the study. From regular users, 161 students were selected as sample through the convenient sampling technique. Their age mean was 21.98 years old and standard deviation was .91. Among respondents, 62.1% were male and 37.9% were female, 82% were from nuclear family and 28% form extended family, and 72.7% were 3<sup>rd</sup> year and 27.3% were 4<sup>th</sup> year students.

### *Measures*

All respondents completed a questionnaire booklet that included questions regarding demographic information, academic results, Facebook usage, and the Bergen Facebook Addiction Scale (Andreassen et al., 2012; Ahmed & Hossain, 2018). There were two open-ended questions regarding Facebook usage. These were: (i) how much time spends daily on chatting on Facebook messenger with other Facebook users; and (ii) how much time spends daily on Facebook newsfeed browsing? Yearly final examination results of previous academic year were considered as academic results.

### *Bergen Facebook Addiction Scale (BFAS)*

The BFAS is a 6 items self-report measure. Each item reflects six core elements of addiction. These are - salience, tolerance, relapse, mood modification, conflict, withdrawal. Respondents were asked to think about their previous one-year usage of Facebook and then express their opinion using a 5-point Likert type scale (1 = very rarely to 5 = very often). The BFAS is a psychometrically sound measure that could be used in clinical settings also. The *Cronbach's Alpha* of this measure in the original study was .83. This has high correlation with others scale like the Addictive Tendencies Scale (Willson et al., 2010) and the Facebook Attitude Scale (Ellison et al., 2007). The Bangla version of the BFAS

is a psychometrically sound scale to assess Facebook addiction. The score above 19 in the Bangla BFAS indicates that this user is in risk of developing Facebook addiction. The *Cronbach's Alpha* of the BFAS in the present study was .70.

### *Statistical analysis*

To explore the relationship between study variables, normality tests, descriptive statistics (*mean, SD, skewness, kurtosis, etc.*), *independent sample t-test, Pearson product moment correlation* test were carried out. The IBM SPSS 25.0 was used to carry out all statistical analysis. Predictability was assessed by structural equation modeling through the IBM AMOS 24.0.

## **Results**

### *Data characteristics*

Normality of the data tested through *residual in regression analysis*. The *skewness* [-.04(.20)] and *kurtosis* statistics [-.71 (.38)], *Kolmogorov-Smirnov* ( $H=.06, p>.200$ ), and *Shapiro-Wilk* test ( $w=.99, p>.10$ ) suggested that the data were nearly normal.

### *Final analysis*

Table 1 shows that mean time spending in chatting ( $M=1.88$  hours), newsfeed browsing ( $M=2.01$  hours) on Facebook. Analysis regarding mean differences in chatting on Facebook, newsfeed browsing, Facebook addiction, and academic achievement by gender and family type (Table 2) shows that significant mean differences in Facebook addiction and academic achievement by respondents' gender. Male ( $M=15.42, SD=4.35$ ) were significantly higher at Facebook addiction score than female ( $M=13.87, SD=4.62$ ),  $t(159)=2.14, p<.05$ , 95%  $CI$  [.12, 2.98]. Females' ( $M=3.49, SD=.32$ ) academic results were higher than males ( $M=3.38, SD=.21$ ),  $t(159)=-2.50, p<.05$ , 95%  $CI$  [-.18, -.02].

**Table 1.** Descriptive statistics of chatting on Facebook, Facebook newsfeed browsing, Facebook addiction score, and academic results

Variable	Mean	Standard Deviation	95% Confidence Interval for Mean	
			Lower Bound	Upper Bound
Chatting on Facebook	1.88 hours	2.87 hours	1.43 hours	2.33 hours
Newsfeed browsing	2.01 hours	2.81 hours	1.57 hours	2.45 hours
Facebook Addiction	14.83	4.51	14.13	15.77
Academic Results	3.42	.26	3.38	3.46

**Table 2.** Mean differences in chatting on Facebook, Facebook newsfeed browsing, Facebook addiction score, and academic results by gender, and family type

Variable	Category	n	M	SD	df	T	95% confidence interval		d
							Lower	Upper	
Gender									
Chat	Male	100	1.85	1.69	159	-.15	-.99	.85	-
	Female	61	1.92	4.16					.02
NFB	Male	100	1.76	1.32	159	-1.40	-1.54	.26	-
	Female	61	2.41	4.23					.23
FA	Male	100	15.42	4.35	159	2.14*	.12	2.98	.34
	Female	61	13.87	4.62					
AA	Male	100	3.38	.21	159	-	-.18	-.02	-
	Female	61	3.49	.32		2.50*			.43
Family									
Chat	Nuclear	132	1.99	3.07	159	.48	-.89	1.45	.11
	Extended	29	1.65	1.74					
NFB	Nuclear	132	2.12	3.06	159	1.12	-.49	1.79	.23
	Extended	29	1.48	1.03					
FA	Nuclear	132	14.80	4.58	159	-.22	-2.04	1.62	-
	Extended	29	15.00	4.23					.04
AA	Nuclear	132	3.42	.28	159	.19	-.09	.11	-
	Extended	29	3.41	.16					.04

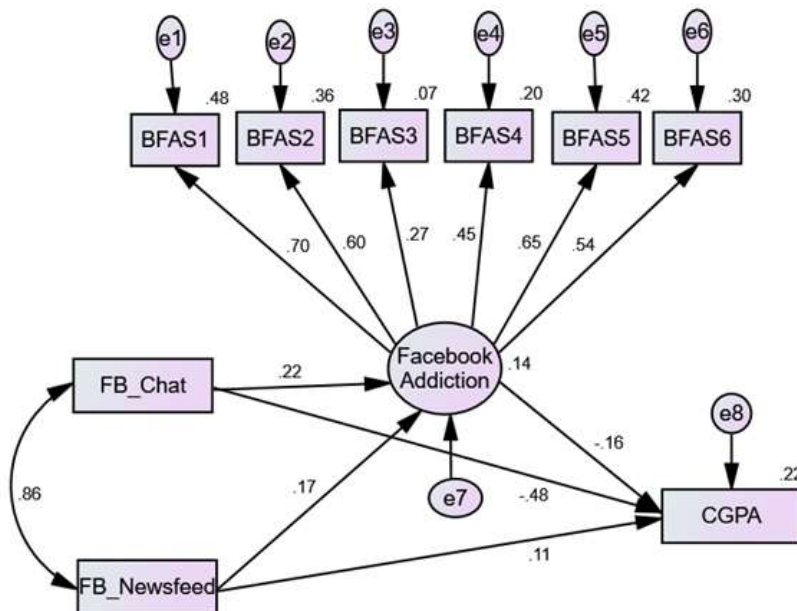
\* $p < .05$ , Chat = Chatting on Facebook, NFB = Newsfeed browsing, FA = Facebook addiction, AA = Academic achievement,  $d$ =effect size



**Table 3.** Correlation coefficient among chatting, newsfeed browsing, Facebook addiction score, and academic results

Variable	Chatting	Newsfeed	FA
Newsfeed	.86** [.81, .90]		
FA	.29** [.14, .42]	.30** [.15, .43]	
AA	-.44** [-.56, -.31]	-.36** [-.48, -.21]	-.27** [-.41, -.12]

\*\* $p < .01$ ; FA = Facebook addiction score, AA = Academic Results, values in the parentheses are 95% confidence interval



**Figure 1.** FB Chat denotes chatting on Facebook, FB Newsfeed denotes Facebook newsfeed browsing, BFAS 1-6 denotes items of the Bangla BFAS, and CGPA denotes academic results. This figure shows that chatting ( $\beta = -.48$ ,  $p < .05$ ), and Facebook addiction ( $\beta = -.16$ ,  $p < .05$ ) were significant predictors of the academic achievements. All factors explained the 22% variance of the academic achievement. Model fit statistics were  $\chi^2/df = 2.68$ ,  $CFI = .91$ ,  $GFI = .92$ ,  $sRMR = .06$ . All fit statistics were at acceptable level.

Table 3 shows that academic achievement had significant negative correlation with chatting with Facebook friends ( $r = -.44$ ,  $p < .01$ , 95% CI [-.56, -.31], newsfeed browsing ( $r = -.36$ ,  $p < .01$ , 95% CI [-.48, -.21], and Facebook addiction

( $r=-.27$ ,  $p<.01$ , 95%  $CI[-.41, -.12]$ ). Table 3 also shows that chatting ( $r=.29$ ,  $p<.01$ , 95%  $CI[.14, .42]$ ) and newsfeed browsing ( $r=.30$ ,  $p<.01$ , 95%  $CI[.15, .43]$ ) had a positive relationship with Facebook addiction.

To estimate the impact of chatting, newsfeed browsing, and Facebook addiction to academic results, the collected data were subjected to the path analysis. Path analysis (Fig. 1) shows that chatting ( $\beta=-.48$ ,  $p<.05$ ), and Facebook addiction ( $\beta=-.16$ ,  $p<.05$ ) were significant predictors of the academic achievements. Indirect effects of chatting and newsfeed browsing were  $-.035$  and  $-.027$  respectively. All factors explained the 22% variance of the academic achievement. The model fit statistics were  $-\chi^2/df = 2.68$ ,  $CFI = .91$ ,  $GFI = .92$ ,  $sRMR = .06$ . All fit statistics were at acceptable level.

## Discussion

The present study was conducted to assess the impact of the Facebook use and Facebook addiction on the academic results of undergrad students. Before assessing the impact of these variables, mean differences in study variables by demographic characteristics (i.e., gender, family type, and academic year, etc.) were assessed. Results from Table 2 suggested gender difference in Facebook addiction and academic achievement. Male are at more risk of developing Facebook addiction than female. However, studies suggested non-significant gender differences on Facebook addiction (Rana, et al., 2016; Rahman & Ahmed, 2018; Rashid et al., 2019). Koc & Gulyagci (2013) conducted a study on Facebook addiction among Turkish college students and found no gender differences in Facebook addiction. Rahman & Ahmed (2018) conducted a study on a sample of 209 university students. They suggested non-significant gender difference in Facebook addiction but male had higher addiction score than female respondents. Rana et al. (2016) also found non-significant gender differences in chatting on Facebook. One possible reason for this gender difference in Facebook addiction might be number of Facebook friend. Studies suggested that male had higher number of Facebook friends than female (Rana et al., 2019;

Rashid et al., 2019). As male have more Facebook friends, they need to engage more time on Facebook for maintaining these relationships. Rashid et al. (2019) suggested number of Facebook friends as a significant predictor of the Facebook addiction. The study suggested number of friends on Facebook also as a significant predictor of the users' life satisfaction (Rana et al., 2016). Male are using Facebook for making new virtual relationship where female use it for maintaining existing relationship (Mazman & Usluel, 2011).

Findings from Table 3 and Fig. 1 show that chatting on Facebook and Facebook addiction had significant negative relationship to the academic achievement. Junco & Cotton (2012) found a negative correlation between of Facebook addiction and academic performance of students. They concluded that excessive use of Facebook negatively affects their academic performance. Wilson et al. (2010) also found the similar results from their study. Number of studies conducted related to Facebook addiction asserted that there are many risk factors connected with disproportionate social sites use among students of higher education. Paul et al. (2012) suggested that excessive Facebook use deteriorate attention of students toward study. Saleem et al. (2015) confirmed that Facebook addiction/internet addiction plays a role to develop the Attention Deficit Hyperactivity Disorder symptoms among students at higher education. Moreover, Rouis et al. (2011) conducted a study to analysis the effects of Facebook usage on 239 undergraduate students. Their findings suggested that extensive use of Facebook by students with extraverted personalities leads to poor academic performance. As excessive usage leads to Facebook addiction, students get less time to study than usual. Among usage patterns, chatting is used to communicate with others, maintaining relationship. The present study findings suggested that chatting also leads to addiction. Chatting with friends on Facebook for hours is not fruitful for studying, and other regular activities. So, students are getting less time to study than usual.

However, some studies suggested non-significant relationship of academic achievement to Facebook use and addiction (Negussie & Ketema, 2014;

Zafar et al., 2015). Kalra & Manani (2013) stated that excessive Facebook use does not affect the academic performance of the students because of their time management of study and Facebook use.

### **Limitations and recommendations**

The present study has some limitations also. In this study, we collected from data from two universities of Bangladesh only. These data were self-report in nature that collected from the non-representative sample. This self-report data would be subjected to bias like social desirability bias. So, generalizability of this study finding may be limited. This study could not fully explore the probable factors those liable to reduce academic performance. The learning approach, strategies those used by Facebook users were not examined. Even, Facebook users' study habit was not examined in the present study. So, studies should be undertaken to explore the impact of the Facebook usage and addiction on academic performance including variables like learning strategies, approach, study habits, intelligence, academic self-concept, etc.

Due to great development in technology in recent years all around the world the use of social media like Facebook has become very popular among the young adults specially students. But Facebook is becoming addictive than a fun activity for the large number of university students. Therefore, it is high time for us to rethink about the usage of the Facebook.

### NOTES

1. <https://www.nielsen.com/us/en/insights/report/2011/social-media-report-q3/>
2. <https://www.alexa.com/topsites>
3. <https://investor.fb.com/investor-news/press-release-details/2018/Facebook-Reports-Third-Quarter-2018-Results/default.aspx>
4. <http://www.btrc.gov.bd/telco/internet>

5. <https://wearesocial.com/blog/2018/01/global-digital-report-2018>
6. <http://www.fenichel.com/facebook/>
7. <https://www.lifewire.com/excessive-time-on-facebook-2654369>
8. <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.168.4424&rep=rep1&type=pdf>

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