

Facebook Usage and its Impact on Academic Performance of University Students in Bangladesh



A Thesis Submitted to the Faculty of Business Administration, University of Dhaka in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy.

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May, 2025

DECLARATION

I hereby affirm that this thesis entitled **“Facebook Usage and its Impact on Academic Performance of University Students in Bangladesh”** represents my own effort which has been done after registration for the degree of Doctor of Philosophy in the Faculty of Business Administration, University of Dhaka under the guidance of Professor Dr. Haripada Bhattacharjee, Department of Marketing, Faculty of Business Studies, University of Dhaka. This research work is authentic and original based on my personal knowledge and research. This work has neither been submitted nor presented for any reason, neither by me nor by any other student, in this university or in other institute. I am fully responsible for the contents of the thesis.



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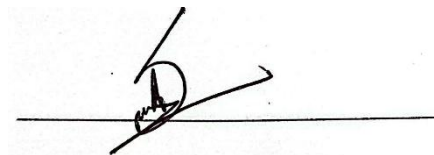
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Finally, my sincere thanks to the technical staff whose proficiency in managing laboratory tools was vital for my experiments. Their perseverance and willingness to support at all times have left a reflective impact on the accomplishment of my project.

Sincerely,

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CERTIFICATE OF THE SUPERVISOR

This is to certify that the thesis titled "**Facebook Usage and its Impact on Academic Performance of University Students in Bangladesh**", submitted by Suma Akther, a student of the Department of Marketing at University of Dhaka has been carried out under my supervision.

So far as I am aware, the research work presented in this thesis is an original piece of work prepared by the student, and it has been finished in conformity with the instructions and guidelines of the university.

I have carefully supervised the thesis and approve that the student has pleasingly addressed the research objectives. The findings and conclusions presented are constructed on the analysis of the collected data and offer valuable insights into the impact of Facebook usage on academic performance in Bangladesh. The thesis was not submitted to any other institutions or universities for any degree.

Thus, I recommend the approval of this thesis for the award of the degree of Doctor of Philosophy in the Department of Marketing at University of Dhaka. This is also certify that there is no plagiarized content in this thesis.



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DEDICATION

To my beloved parents, my husband and my children whose untiring love, support, and sacrifices have been the base of my education and success.

To my teachers and mentors, who guided me with wisdom and patience, and inspired me to pursue knowledge with purpose.

ABSTRACT

The prompt rise of digital technologies and social networking podiums has changed the way students interact, communicate, and access information. Facebook, amongst those podiums, has become exclusively prevalent in university students' day-to-day practices in Bangladesh. Facebook deals with several educational advantages, like group discussions, knowledge sharing, and staying informed etc. So, it is a growing concern over its impact on students' academic attention, time management, and largely academic performance. This study carried out with the intent to identify the Facebook usage and its impact on academic performance of university students in Bangladesh.

The primary objectives of this study are threefold: (1) To identify the usage patterns of Facebook among university students in Bangladesh, (2) To examine how Facebook usage influences academic performance, and (3) To analyze the specific effects of such usage on university students' academic achievement. The research also marks three research questions affiliated with the objectives and tests three null hypotheses relating collaboration, communication, and resource sharing over Facebook to academic performance.

This cross-sectional study involved a mixed-methods approach, incorporating both qualitative and quantitative. Total of 462 students from three public universities (University of Dhaka, Jahangirnagar University, and Comilla University) and three private universities (North South University, Daffodil International University, and Bangladesh University of Business and Technology) were surveyed using a structured questionnaire. Convenience sampling was applied. The data were analyzed using SPSS 26.0, SMART PLS 4.0, and VOSViewer, incorporating Descriptive statistics, Confirmatory Factor Analysis (CFA), and Structural Equation Modeling (PLS-SEM). The major findings of the study are summarizing as follows based on the analyzed data: Based on survey 57 percent respondents were male and 43 percent respondents were female. Eighty six percent respondents belong to age group 22 to 25 years, and 14 percent respondents belong to age group 18 to 21 years. Forty three percent respondents studying fourth year, 29 percent respondents studying second year, 14 percent respondents studying first year and 14 percent respondents studying fifth year. Eighty six percent respondents studying undergraduate level and 14 percent respondents studying master's level. Forty three percent respondents studying public universities, 57 percent respondents studying private universities. Fifty seven percent respondents visited Facebook, 29 percent respondents

visited Whatsapp, 14 percent respondents visited you tube. Forty three percent respondents use mobile for browsing internet, 43 percent respondents use laptop for browsing internet and 14 percent respondents use desktop for browsing internet. Seventy one percent respondents use internet at home and 29 percent respondents use internet at university premises. All respondents use internet daily basis. Seventy one percent respondents spent 0-5 hrs for academic purpose and 29 percent respondents spent 5-10hrs for academic purpose. Forty three percent respondents use internet to visit social sites, 43 percent respondents use internet for group study and 14 percent respondents use internet for sharing files. Fifty seven percent respondents usage internet sharing and downloading lecture notes, 29 percent respondents usage internet sharing and downloading journal articles and 14 percent respondents usage internet sharing and downloading e-books. Fifty seven percent respondents spent 1-3 hrs daily basis to visit social media sites, 29 percent respondents spent 3-6 hrs daily basis to visit social media sites and 14 percent respondents spent more than 6 hrs daily basis to visit social media sites. Eighty six percent respondents spent less than 5 hrs on Facebook for academic related activities weekly basis and 14 percent respondents spent 5-10 hrs on Facebook for academic related activities weekly basis. Average Facebook friends of the respondents around 953 and they spent time on Facebook average 3.43 hrs daily basis. The mean of the individual items' scores was used to calculate the four constructs or components. The means of all four constructs are near the central scale point (four on a five-point Likert scale) and have an SD of less than two. All four constructs have skewness and kurtosis coefficients that are less than two. Every factor loading is higher than 0.5. Academic performance's R^2 score is 0.229. Cohen (1988) states that an R^2 value of 2 percent indicates a modest influence, an R^2 value of 13 percent indicates a medium effect, and an R^2 value of 26 percent indicates a strong effect. Accordingly, the model had a medium impact on the endogenous characteristics and explained 22.9 percent of academic performance. Factor loading above 0.5, which is adequate for the construct and convergent validities, is demonstrated by the CFA approach. All independent variables have factor loadings greater than 0.5. Cronbach's alpha and composite reliability (CR) values for each construct were evaluated, and they were all above Cohen's recommended critical level of 0.7 (1988). All constructs had average variance extracted (AVE) values that were higher than the threshold value of 0.50 proposed by Hair et al. (2017). Heterait-monotrait, or simply HTMT, is a novel approach to obtaining the discriminant validity that was offered by Heseler et al. (2015) as an additional method for proving discriminant validity. According to Heseler et al. (2015), the strict HTMT threshold value of 0.85 must be less than 0.9, which is a loosen criterion. All of the values fall below 0.85, meeting the necessary threshold value and hence

establishing discriminant validity. According to the Fornell and Larcker technique, a variable must differ more from its own items or self than from other variables. According to Hair et al. (2011), the diagonal values in the table must be bigger than the column and row they represent because they are the square root of AVE. All of the diagonal values satisfy the required standards, guaranteeing discriminant validity. When two variables have a strong relationship or when one predictor variable in multiple regression can be linearly predicted from another, this is known as collinearity (Hair et al, 2014). Collinearity can be checked using the inner VIF. Since the VIF values for every component were less than five (Hair et al., 2017), the results show that collinearity was not an issue. The cross-loading method is another way to measure discriminant validity; although though it is not employed nowadays, it is still used to assess validity. Each item's loading in its own variable must be bigger than the item's value in cross loadings in other variables, and the cross-loading method ensures that every item is loaded (Hair et al 2011; Hair Jr et al 2014). According to Gefen and Straub (2005), there must be a difference of more than 0.1 between the cross loadings of the item on its own variable and other constructs. The researchers used PLS-SEM to examine the structural model after evaluating the measurement model (Hair et al. 2019). The PLS approach (Partial Least Square) was used to test the hypothesis, and boot strapping was used to run the results (Haenlein and Kaplan 2004). From the original data set, this method produced 5000 subsamples in total (Hair Jr et al 2014). The model predictive quality (R^2) was examined in order to assess the structural model. R^2 has three possible values: high, moderate, and low. A number greater than 0.6 is regarded as high, a value between 0.3 and 0.6 as moderate, and a value less than 0.3 as low (Sanchez 2014). It displays a low R^2 value of 0.229. The findings indicate that there is a positive significant relationship between collaboration and academic performance ($\beta=0.286$, $t=9.332$, $p<0.000$), communication and academic performance ($\beta=0.364$, $t=9.562$, $p<0.000$), and resource sharing and academic performance ($\beta=-0.319$, $t=9.572$, $p<0.000$).

Keywords: Facebook usage; Academic performance; University students, Social media, Confirmatory Factor Analysis (CFA).

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ACRONYMS AND ABBREVIATIONS

SNS	Social Networking Sites
PLS	Partial Least Square
AVE	Average Variance Extracted
FL	Fornell and Larcker criterion
HTMT	Heterotrait-Monotrait
CR	Composite Reliability
CFA	Confirmatory Factor Analysis

CHAPTER ONE

CHAPTER ONE: INTRODUCTION

1.1 BACKGROUND OF THE STUDY:

This is age of digitization and people all over the world are using Internet to be able to maintain their social tie through the several social networking platforms and apps. Social networking is the medium of spending time to meet friends, friends' friends, their friends' friends and so on across geographical, political or economic borders. Facebook is one of the most popular, biggest, contemporary and very smart tools for linking people throughout the world. The information stripped on Demandsage is that Facebook as the market leader of social networking sites has 3.07 billion monthly active users (last updated April 5, 2024).

Mark Zuckerberg, a Harvard student along with some college and fellow Harvard students were created Facebook on February 4, 2004. At first it was proposed for Harvard students, but later it was opened to other schools and at last in 2006, it was opened for public.

Facebook as a network-based service helps people to create a personal profile of their own, includes others as their friends and they can send and receive messages, can chat, share various snippets, videos, pictures, upload profile/ cover photo, comment, tag, like, dislike etc. Automatic notifications will be provided when added friends updated their profile. Facebook users also can join some common interest groups as organized by workplaces, schools, colleges, universities etc. It is heard that the name “Facebook” gets from the spoken name of a book of the students starting academic year by the university administrations in US. The motive of doing such thing is to help the students make healthier relationship with each other.

Today Facebook becomes integral part of students’ life. Initially it allowed college and university students to maintain their social ties with friends, but now Facebook is used by variety of users to a great extent and university students are motionlessly its leading followers. The students use Facebook via smart phone, personal computer and laptop etc. for numerous purposes like socialization and entertainment to academic collaboration and information sharing.

The university students are always the focal point in all over the world, because they are the innermost source of scholars. The university students of Bangladesh also have Facebook identity and students without Facebook identity are simply rare in Bangladesh.

The digital technology becomes more reachable and internet connectivity progresses. Now Facebook has become a vital part of students' everyday habits. Facebook deals with several educational advantages, like group discussions, knowledge sharing, and staying informed etc. So it is a growing concern over its impact on students' academic attention, time management, and largely academic performance. The stability between useful and unnecessary practice of Facebook is critical, as unfettered use may affect with academic responsibilities.

In the perspective of Bangladesh, the usage of internet and smartphone among young people has promptly stretched, it is essential to apprehend the influences of Facebook use on students' academic outcomes. This study carried out with the intend to identify the Facebook usage and its impact on academic performance of university students in Bangladesh.

1.2 Statement of the Problem

There has been significant increase in the usage of Facebook in general, and in academic learning in particular. Hardly any studies have been done to investigate the impact of Facebook usage on academic performance of students in higher education in the context of Bangladesh. In view of this, the study will examine the impact of Facebook usage on academic performance of university students in Bangladesh

1.3 Objectives of the study

The broad objective: The broad objective is to investigate Facebook usage and its impact on academic performance of university students in Bangladesh.

Specific Objectives: The specific objectives of this study are:

- i) To identify the usage pattern of Facebook among university students in Bangladesh.
- ii) To examine the impact of Facebook usage on university students academic performance.
- iii) To analyze the effects of Facebook usage on university students academic performance.

1.4 Research Questions

Based on the reviewed literature for this study, the theories identified and the hypotheses, some research questions are provided about Facebooking and academic performance as to how these interplay on a day to day basis among the university students in Bangladesh. The research questions of this study are:

RQ1: What are the specific usage patterns of Facebook among university students in Bangladesh?

RQ2: How does the usage of Facebook influence the academic performance of university students in Bangladesh?

RQ3: What are effects of Facebook usage on university student's academic performance?

1.5 Hypotheses of the Study

Based on the literature review the following null hypotheses are framed and tested with suitable statistical tools.

1. There is no significant relationship between collaboration and academic performance.
2. There is no significant relationship between communication and academic performance.
3. There is no significant relationship between resource sharing and academic performance.

1.6 Rationale of the study

The research results of the study helpful to know about the extent of university students Facebook usage, the effects of Facebook among them and the time the students spending on Facebook. Besides, the university authorities able to make policies for the students regarding the use of Facebook during study hours which can badly affect their academic performance. The results will also helpful for the university teachers to supervise the activities of students throughout lecture hours. University students, in particular, acquainted with the consequences of using Facebook along with their study activities. Furthermore, the information will be essential for the educational leaders, academicians, administrators, development practitioners, service providers, existing users, probable users, and policy makers who are liable for the academic performance of students at the university level. Generally, this study will contribute to existing knowledge about Facebook and its place in academic performance of students. It is believed that the potential findings of the research will set groundwork for further investigation.

1.7 Scope and Limitations

The study is restricted to investigating the impact of Facebook usage on the academic performance of students, registered in particular public and private universities in Bangladesh.

It solely emphasizes on Facebook and does not think through other social media platforms, like Twitter, WhatsApp, Instagram, or YouTube, which also may influence the academic behavior of students.

This study involves a quantitative approach using self-reported survey data, which may be issue to bias, containing above- or miscalculation of time use and academic performance. The sample is geographically restricted to a limited main cities (e.g., Dhaka, Comilla, Savar), which may not exclusively constitute the involvements of students in rural or less-attached areas.

Furthermore, the research does not represent other aspects that may affect academic performance; for instance, mental health, study environment or socioeconomic status. Hence, although the findings provide helpful observations, they should be explained within the perspective of these drawbacks.

1.8 Definition of Terms

- **Facebook Usage:** The amount of time and frequency with which students engage with Facebook for various activities.
- **Academic Performance:** Measured primarily through self-reported GPA and other indicators such as study habits and class attendance.
- **Frequency of Use:** How often a student accesses Facebook, typically measured in terms of times per day or week.
- **Duration of Use:** The amount of time (in hours or minutes) a student spends on Facebook during a given day.
- **Purpose of Use:** The intent behind using Facebook, such as communication with peers, content sharing, entertainment, staying updated on news, or using educational groups and pages.
- **Active Usage:** Engagements that involve content creation or interaction—such as posting, commenting, messaging, or participating in groups.
- **Passive Usage:** Non-interactive behavior such as scrolling through the news feed, reading posts, or viewing photos and videos without direct engagement.
- **Academic-Related Use:** Usage of Facebook for educational purposes, including participating in study groups, sharing academic materials, or collaborating on assignments.
- **Non-Academic Use:** Usage that is unrelated to academic work, such as chatting, gaming, browsing memes, or watching unrelated videos.

1.9 Organization of the study

Chapter 1 Discusses the rationale of the study, identify broad and specific objectives along with research questions and hypotheses.

Chapter 2 Reviews the literature and find out the research gap.

Chapter 3 Examines conceptual framework

Chapter 4 Delineates the research design.

Chapter 5 Evaluates the results.

Chapter 6 Summarizes the results and their implications.

Chapter Summary

The chapter introduced statement of the problem, objectives of the study, research questions, hypotheses, rationale of the study, scope and limitations and essential terms and terminology.

CHAPTER TWO

CHAPTER TWO: LITERATURE REVIEW

Facebook incursion on the students is the big challenge for the educators and experts to deal with. Many researchers are now trying to explore the phenomena with passion. In this section a brief review of literature has been presented on Facebook.

Ahsan-ul-Haq&Chand.S. (2012) in their study “Pattern of Facebook usage and its Impact on Academic Performance of University Students: A Gender Based Comparison” stated that although male-female students use internet equally but the male users have more Facebook friends than female users. The authors also claimed that Facebook badly affects the students’ academic performance and this bad effect is mainly observed in male students. The students mainly use Facebook for communication with friends.

Islam,M., and SK. Mamun,M., (2015) reported in their paper “Usage pattern of Facebook among the students of Dhaka University: a study” that most of the students create Facebook account while entering the University and the personality characteristics , demographic variables, geographical area of the students affect their perceptions about Facebook and patterns of Facebook use. They also found Facebook as a supplementary tool in university education.

Afroz, N.N., & Lima R.P. (2017) claimed in their paper “Facebook Usage Pattern of the Students of Mawlana Bhasani Science and Technology University” that 97% of the students including male and female students have a Facebook account and among them male students use Facebook more than female students. They reported in their paper that gender and usage of Facebook have no statistical association during the study period, but found some association between gender and negative impact on health of Facebooking. Again they claimed that gender, time spending on Facebook each day and number of log in on Facebook have significant association. The authors also found no difference of usage of Facebook during the study time among the students of different departments as well as the number of log in on Facebook.

Aghazamani (2010) examined in his study” How Do University students spend their time on Facebook? An Exploratory Study” the motivation of student for spending time on Facebook. In his study he found that male and undergraduate students use Facebook more than female and graduate students and male undergraduate students love to log in Facebook more than others. He revealed that male undergraduate students preferred Facebook to maintain friendship.

Junco (2011) claimed in his paper named the “The relationship between frequency of Facebook use, participation in Facebook activities, and student engagement” that there is negative correlation between Facebook and engagement scale score but positive correlation with time spent in co-curricular activities.

In the study “Facebook and academic performance” Kirschner and Karpinski (2010) found no relationship between Facebook use and academic performance. Their study showed that though the users of Facebook spend less time on study they have lower mean GPAs than nonusers of Facebook. Their study results are parallel to the studies of Vanden Boogart (2006), Canales et al., (2009) and Junco (2012).

Pempek, T. A., Yermolayeva, Y. A., & Calvert, S. L. (2009) reported in their research paper on “College students' social networking experiences on Facebook” that the students using Facebook devote approximately 30 minutes in a day. They found that students with a pre-established offline relationship maintain social communication with friends through Facebook. They proposed some implication of using social networking sites for the growth of identity and peer relationships.

Ainin, S., Naqshbandi, M. M., Moghavvemi, S., & Jaafar, N. I. (2015) examined in their study “Facebook usage, socialization and academic performance” the impact of the use of Facebook on academic performance of student and also investigated how socialization manipulate Facebook usage. They found in their study that students' academic performance and Facebook usage are positively related with each other.

Moghavvemi, S., Sulaiman, A., Aziz, A. A., & Wai, P. S. (2017) in their study “The impact of Facebook usage on academic performance” claimed students use Facebook as the medium of their entertainment, relaxing/escaping, and passing time. They do not use Facebook for socialising and social information. The authors found that academic performance is positively related with Facebook.

According to Ho et al (2024) prior research indicated a connection between Facebook addiction and university students' life contentment, however it is still unclear how Facebook addiction relates to academic satisfaction and their internal influencing factors. Academic procrastination served as a mediator in this study's investigation of a mediation model between Facebook addiction and academic happiness. A sample of 710 students from a Vietnamese university ($M = 18.80$, $SD = 0.8$; 61.5% female) answered questions about academic procrastination, academic satisfaction, and Facebook addiction. PROCESS (Model 4) was used to do basic

mediation analyses in order to determine the indirect impacts of Facebook addiction on academic satisfaction through academic procrastination. The findings showed that academic procrastination partially mediated the relationship between Facebook addiction and academic contentment among university students, and that Facebook addiction was positively related with academic satisfaction among university students. By shedding light on the connection between Facebook addiction, academic procrastination, and academic contentment, these findings could help direct focused interventions aimed at raising university students' levels of academic satisfaction.

According to Mosharrafa et al (2024) unquestionably, social media is now more widely available and valued. It is without a doubt among the most important tools for student communication. Students at higher educational levels might also be significantly impacted by their mental health. The purpose of this study is to assess university students' use of social media and how it affects their academic achievement and mental health. A number of scale measures were validated under confirmatory factor analysis (CFA) by demonstrating the reliability and validity of a number of required indices and a structural equation model. Using 2000 bootstrapping and 95% bias-corrected bootstrap confidence intervals, the mediation analysis was further calculated to assess the students' social media addiction using the Bergen Social Media Addiction Scale under maximum likelihood estimation. This study demonstrates that social media use considerably enhances academic performance on psychological well-being; the CFA model fits well, as evidenced by an RMSEA of 0.06 and a Comparative Fit Index of 0.921. Lastly, the study found a positive mediation function of mental health between social media addiction and academic achievement, which supports the premise that social media consumption has a strong statistically significant favorable impact on academic success. Online social media improves mental health and mediates the relationship between social media addiction and academic performance in Bangladeshi students, according to the novel findings of the current research studies. This study has important theoretical and practical implications and contributes to the empirical database on social media usage.

According to Maheswari and Mukherjee(2021) the argument over Facebook's beneficial and detrimental effects on young people, especially on their academic achievement, has taken center stage in scholarly discussions. The results of earlier research on Facebook's impact on academic achievement and other education-related factors are conflicting. Facebook's role in academia has been thoroughly studied, yet little is known about how academics affect Facebook usage. The current study looks at the opposite scenario, namely how Facebook usage

is impacted by academic achievement and study habits. Two offline surveys of college students in India were carried out. The first study, which involved 250 undergraduate students (mean age = 20.15; 101 female participants), found that prior academic achievement significantly improved Facebook friendships. Three hundred and seventeen college students (mean age = 19.95; 259 females) participated in study two, which included two more measures of Facebook usage: the amount of time spent on Facebook and the attitude toward Facebook use. The findings of study two also demonstrate that academic achievement has a favorable effect on Facebook friendships; however, no similar effect is observed for other Facebook use variables. Overall, research indicates that academic success has a beneficial impact on a person's virtual popularity, particularly for college students.

According to Tafesse (2022) given how common social networking sites are among college students, determining how social networking site use and academic achievement are related has grown to be a significant research project. Nevertheless, a large portion of the research in this field relies on student self-reports, and the results are noticeably contradictory. Furthermore, the existing research generally ignores the potential moderating effect of the intensity of social networking site usage and instead presents the relationship between college students' academic performance and their use of these sites in linear terms. In this study, they propose an inverted U-shaped relationship based on conflicting reasons in the literature that anticipate both positive and negative effects of social networking site use on college students' academic performance. They gathered academic performance data from internal institution records and social networking site usage data by asking college students to install a tracking software on their smart phones for a week. Their results show that there is, in fact, an inverse U-shaped link between college students' academic performance and their use of social networking sites. In particular, we discover that using social networking sites is negatively correlated with academic performance after 88.87 minutes per day, but it is positively correlated with academic performance up to that point. We talk about the ramifications of their results.

According to Iqbal et al (2021) the use of digital platforms for education has expanded during the COVID-19 epidemic, and pupils' academic performance has been impacted by their growing usage of smart phones and social media. Using academic social networking sites (ASNS) as a mediator, we investigated the direct and indirect effects of emotional intelligence on academic performance. Information on academic performance, ASNS, and emotional intelligence was gathered using a survey questionnaire with 42 components. The study

involved 305 undergraduate university students in total. The impact of ASNS and emotional intelligence was assessed using partial least squares structural equation modeling (SmartPLS-SEM 3.2.2). Academic performance was significantly improved by two aspects of emotional intelligence: self-regulation and self-awareness. Likewise, ASNS was positively impacted by emotional intelligence and the subscales of self-regulation, self-awareness, and social skills. Similarly, ASNS shown a noteworthy improvement in academic achievement. When considering indirect influence, academic performance was significantly positively impacted by three aspects of emotional intelligence: self-regulation, self-awareness, and social skills. According to the study's findings, academic achievement and emotional intelligence were mediated by ASNS.

Higher academic achievement is a direct and indirect result of emotional intelligence. During the COVID-19 pandemic, ASNS significantly and favorably influenced academic achievement in conjunction with emotional intelligence.

According to Boahene et al (2019) there is a straight relationship between academic achievement and the widespread increase in social media use among university students. Higher education students will inevitably use social media as its usage keeps increasing. The subject of how it affects academic achievement becomes more and more crucial to consider. Researchers have identified both good and bad effects on academic performance; some have shown that social media use has little to no influence. This study attempts to address these disparate findings and explore the impact of social media use on tertiary students' academic performance using a sample of 808 students from ten public postsecondary institutions. They investigated how often students use social media for learning and how well they perform academically as indicated by their cumulative grade point average (CGPA), using academic self-efficacy and innovative traits as moderators and mediators, respectively. The findings showed a positive correlation between academic achievement and the use of social media for learning. Additionally, it showed how social media use can have a detrimental impact on academic achievement. This study highlights the role that academic self-efficacy plays as a mediator in helping students' academic performance to improve even more. Furthermore, the study's empirical findings showed that there was a stronger moderating influence of innovative traits between academic success and social media usage. Helping governments, legislators, policymakers, students, educational institutions, and other stakeholders create particular policies, guidelines, and initiatives that support social media usage as an inventive and

successful tool for learning and long-term academic performance is the study's practical relevance.

According to Mou et al (2024) it has been demonstrated that social anxiety has an impact on college students' academic achievement. It's unclear, though, how social media addiction and academic involvement relate to one another. A self-report questionnaire comprising the Liebowitz Social Anxiety Scale, the Bergen Social Media Addiction Scale, the Utrecht Student Work Engagement Scale for Students, and the grade point average was filled out by 2661 college students in total. The serial mediation effect was tested using Hayes' PROCESS macro for SPSS. The findings showed a negative relationship between social anxiety and academic performance, with academic engagement serving as the only mediating factor. In contrast, social media addiction and academic engagement served as serial mediators between social anxiety and academic performance. The possible mechanisms underlying the relationship between social anxiety and academic performance can be explained by social media addiction and academic engagement. This has significance for the development of intervention programs aimed at improving college students' mental health and academic performance.

Hou et al (2024) examined the current state of social media use and the mechanisms influencing academic achievement among Chinese children and adolescents, using data from the 2022 Chinese Minors' Digital Life and Online Protection Survey. According to the statistical findings, Chinese students used social media at a typically low average level, and their academic performance varied depending on their socio-demographic and educational qualities. It was discovered that the frequency of social media use could significantly improve students' academic performance after adjusting for other factors. Furthermore, the mechanism analysis showed that prosocial and online learning behaviors acted as chain mediators, tying social media use to academic achievement. In particular, students might successfully use remote learning materials after transferring their social media behavioral patterns to the online learning environment. Social media use, on the other hand, would foster people's prosocial personalities, which would increase their intrinsic incentive to learn and, eventually, improve their academic achievement. Family socioeconomic position has a moderating effect in the association between social media usage and academic performance, as the heterogeneity analysis further demonstrated that the influence of social media use on students' academic performance was greater in lower-class families. According to the findings, if academic achievement is seen as a crucial component of personal growth, then making sensible use of

social media resources could be a key strategy to lessen the developmental inequality that students from low socioeconomic backgrounds face.

Badr et al (2024) assessed how social media use, amusement, and perceived utility affect social information (content) and students' academic achievement. Using the snowball sampling technique, primary data was gathered from 445 students at King Khalid University in Saudi Arabia. PLS SEM, or structural equation modeling, was utilized to analyze the data. The relationship between social information quality "content" (IQ) and social media use (SMU) is partially mediated by entertainment, while the relationship between IQ and academic performance (SAP) is mediated by SMU. The relationship between IQ and SAP is mediated by perceived usefulness. arguing that in order to motivate social media material and achieve the best results among graduate students, enjoyment and perceived utility are essential. Only one academic institution was included in the study. Consequently, the investigation's findings cannot be used to track respondents' social media behavior over time or be generalized as a whole. Longitudinal data may therefore be used in further research. The study's findings suggest that since social media, perceived utility, and engaging material have an impact on student performance, educators can modify their teaching strategies and activities accordingly. Students' social and academic performance is significantly impacted by social media (SM). Therefore, social media should be acknowledged as a tool for accomplishing educational goals by all parties involved in education, including parents and guardians, government officials, and university administrators. By investigating the relationship between the factors that impact technology adoption and the subsequent effects of that adoption on students' behavior and learning, the study improves the application of UTAUT2.

Malik et al (2020) explored the connections among students' usage of social media, academic achievement, and inventiveness in the digital age. Three hundred thirty four undergraduate students at Chinese universities who were selected using a non-probability convenience method provided the primary data needed for this study via a survey design. The study's conclusions show a positive correlation between students' use of social media and their creativity and academic achievement. Furthermore, the associations between students' use of social media and their academic achievement and creativity were found to be mediated by intrinsic drive. This study investigated the significant mediating effect of intrinsic motivation in the associations between students' positive outcomes and their use of social media. Researching how kids use social media to get better academic results is also realistically significant for students, educators, and other policymakers.

Chowdhury (2024) looks at the advantages and disadvantages of social media use while examining how it affects Bangladeshi university students' academic performance. To gather information, they sent out a carefully designed questionnaire to students enrolled in different programs at various Bangladeshi universities. To find out how social media affects academic achievement, they used regression models and component analysis to examine the data. The results of their study show that social media is essential for promoting communication, information exchange, and content creation among Bangladeshi university students. Since students often rely too heavily on easily accessible information, an overabundance of social media use can impede creativity and cause dependence. Their findings may not be as broadly applicable as they may be because we relied on self-reported data from a small sample size.

This study emphasizes how important it is to encourage social media usage in a responsible manner among Bangladeshi university students in order to improve their academic achievement. They advise putting in place efficient policy tools to manage and regulate undesirable usage patterns, cultivate a student body with a strong intellectual foundation, and help create a prosperous and informed Bangladesh. By investigating the impact of social media on academic achievement among Bangladeshi university students, this study significantly advances the field. It helps with decision-making and intervention techniques for encouraging responsible usage by putting up workable policy measures to mitigate the negative effects of an over-reliance on social media.

Mufassirin et al (2023) look at how social media addiction affected Sri Lankan government university students' academic performance during the COVID-19 pandemic. A quantitative cross-sectional survey was carried out using a convenience sample technique. 570 people from nine Sri Lankan state universities participated in the poll. For both descriptive and inferential statistical analysis, SPSS was used to code and process the raw data from the completed surveys. The results of this investigation showed that during COVID-19, the total amount of time spent on social networking rose sharply. Prior to COVID-19, there was no correlation between students' academic achievement and the amount of time they spent on social media, according to the study's findings. However, throughout the epidemic, a strong correlation was discovered between pupils' performance and the amount of time they spent on social media. According to the authors, excessive social media use that results in addiction has a major detrimental impact on academic achievement. This study contributes to our understanding of how social media use affects students' academic achievement throughout COVID-19. The

COVID-19 restrictions have altered the students' usual way of living. Therefore, during the COVID-19 pandemic, social media use needs to be reevaluated. The study's conclusions will include these fresh perspectives, and they might even demonstrate how to modify social media to make significant contributions to scholarly work.

Ghosh et al (2023) look into how students' academic performance during the pandemic was affected by social media-based instruction. This study uses structural equation modeling to examine the opinions of 302 Bangladeshi university students. The findings indicate that the usage of social media (USM) is positively and significantly correlated with Facebook features, perceived utility, and personal tutorial. Additionally, the academic achievement of Bangladeshi university students during the pandemic is positively and significantly correlated with the USM. This study took into account how university students used social media for academic purposes during the pandemic. Technical literacy, student device availability, and income group have not been taken into account in this study. As a result, the results might not apply to all social classes.

This study confirms that by involving students in teamwork and focus, USM can guarantee strong academic performance. The COVID-19 epidemic has caused a significant loss in interactive face-to-face learning processes and knowledge diffusion. The pupils' acceptance of a teaching method may be contingent upon its ease of use. This study aims to address the growing problem of social media's influence on academic achievement in the context of the pandemic, which has not yet been adequately explained.

Whelan et al (2022) find out whether and how using social networking sites harms students' academic performance and mental health. This work theoretically constructs and experimentally evaluates the pathways that explain how and when SNS stressors damage student success and psychological wellbeing by combining the theoretical views of technostress and the strength model of self-control. Through a two-wave survey of 220 SNS using college students, the authors test the study model. The work adds to previous research by demonstrating that SNS stresses impede success and wellbeing outcomes by reducing self-control over SNS use. The study also reveals that the impact of SNS stresses on inadequate SNS self-control is amplified when SNS is heavily used for academic objectives. By identifying and confirming new mechanisms (such as poor self-control) and circumstances (such as increased academic use) that underlie the detrimental effects of SNS stressors, this study further unlocks the mystery of the social media technostress phenomenon.

David et al (2024) assessed the relationship between social media addiction and anxiety, depression, and academic performance in Romanian undergraduate nursing students. To gather information from nursing undergraduate students enrolled at the University of Medicine and Pharmacy "Iuliu Hatieganu," Cluj-Napoca, Romania, they employed a cross-sectional online survey. The Beck Depression Inventory (BDI), the State-Trait Anxiety Inventory (STAI), and the Social Media Addiction Scale-Student Form (SMAS-SF) were utilized to measure anxiety, depression, and social media addiction, respectively. Of the 90 nursing students that took part in the study, 81 (90%) were of Romanian ethnicity and 82 (91.1%) were female. The participants' median age was 21 years old (18–40). In comparison to females, males displayed higher STAI scale A state anxiety, SMAS-SF total scores, and BDI total scores, while females displayed higher STAI scale a trait anxiety in contrast to men, albeit these findings lacked statistical significance. Furthermore, there was no discernible variation in these factors amongst research participants from various years. Multivariate regression analysis revealed that those with mild or no depression performed significantly better academically (p -value = 0.001), had lower SMAS-SF (p -value = 0.004), and had lower STAI scores (p -value < 0.001) than those with borderline, moderate, or severe depression. Their research showed that among Romanian undergraduate nursing students, depression was substantially linked to social media addiction, anxiety, and poorer academic achievement.

Lambic (2016) showed a beneficial relationship between students' academic achievement and how frequently they utilize Facebook for learning. Students' decisions to use Facebook as a learning tool were significantly influenced by the perceived utility factor. There has been no discernible variation in the frequency of general Facebook use between the student groups categorized by academic achievement.

Michikyan et al (2014) examined the relationship between academic success and online academic disclosure using a mixed-methods methodology. When asked open-ended questions concerning their usage of Facebook, a multiethnic sample of college students ($N = 261$; male = 66; female = 195; M age 22) answered. More than 14% of Facebook wall postings and status updates ($N = 714$) had academic themes, according to thematic analysis; students with lower GPAs expressed negative moods more frequently, and positive states were more common than neutral and negative states. According to a path analysis, college students' Facebook use may be influenced by their academic achievement rather than the other way around. There is discussion of the implications for student support programs.

Junco (2014) looked at how much time students from various class ranks spent on Facebook, how much time they spent using Facebook to multitask, and what they did there. According to the findings, seniors used Facebook considerably less frequently than students in other class levels, and they also spent a lot less time multitasking on the social media platform. For freshmen, but not for other students, Facebook usage was a strongly negative predictor of GPA. Facebook multitasking was not a significant predictor of senior GPA, but it was for freshmen, sophomores, and juniors. Future study ideas are presented along with a discussion of the findings in regard to transition tasks for freshmen.

Abusbiha and Mustaffa (2014) provided a conceptual foundation on the connection between academic achievement and social network use, particularly Facebook.

According to Din et al (2012) social networking websites like Facebook, Twitter, LinkedIn, Meetup, Tribe, and MySpace are all considered forms of online social networking. Since its beginning, the number of online social networks has grown quickly, and numerous advanced features have been added throughout time. Facebook has become very popular with the general public, primarily for information sharing and interaction. The purpose of this study is to better understand how information is retrieved on the Facebook platform and whether doing so improves academic achievement. In this study, fifty-nine adult learners took part.

Sanchez et al (2013) investigated why this is the case and whether it would be beneficial for instructors to devote the necessary time to incorporating Facebook into their lessons. In order to do this, they made the decision to conduct a study using 214 undergraduate students from the University of Huelva in Spain. To find the elements that might encourage these students to embrace and use social networking sites, particularly Facebook, for educational purposes, they used the structural equation model created especially by Mazman and Usluel (2010). Their findings indicate that social influence is the most significant predictor of Facebook adoption; students are persuaded to use the platform in order to connect or stay in touch with others who share their interests. Out of all the purposes gathered, social relations is thought to be the most significant one in relation to Facebook usage. Their research also showed that Facebook's adoption and usage goals both directly and indirectly explain its educational use.

Nguyen et al (2025) investigated how researchers' creative behavior and work performance are affected by their involvement in the academic community on Facebook (ACEF). Two hundred and thirteen researchers in Vietnam, an emerging nation, provided the data. Structural equation modeling results show that ACEF has an indirect impact on researchers' dualistic work

performance and creative behavior. Specifically, relationship quality acts as a positive mediator in the associations between ACEF and creative behavior as well as between ACEF and work performance. Additionally, the connection quality-creative behavior and ACEF-creative behavior correlations are positively mediated by information sharing. This work is one of the first to create and verify a novel model that explains how ACEF affects researchers' work and behavioral outcomes. The results have significant ramifications for scholars and academic institutions in encouraging participation in the academic community on SNSs, which can improve knowledge exchange, innovative behavior, and productivity.

AlFaris et al (2018) look into the trends and motivations behind SM use as well as how they relate to academic achievement. Utilizing a stratified random sample, frequency distribution, and the Chi-square and Fisher exact tests to compare categorical variables. Of the 97% who responded, 98% used social media. The most popular platforms were Whatsapp (87.8%), You Tube (60.8%), and Twitter (51.8%) for general use, while You Tube (83.5%), Whatsapp (35.5%), and Twitter (35.3%) were used for learning. Male students were significantly more likely to visit You Tube and Facebook for general use, while 55% spent one to four hours per day. The primary reasons for using SM were for academic studies (40%), entertainment (95.8%), and keeping up with news (88.0%). A small percentage of students used social media for academic objectives, despite the fact that practically all of them did. There was no correlation between SM use and academic achievement.

According to Swain and Pati (2019) Through improved communication and connections between millions of individuals worldwide, social networking sites (SNSs) provide humanity innumerable advantages. Do SNSs have more negative impacts than positive ones? By analyzing the pertinent literature on the effects of SNS use on human circadian rhythm, academic achievement, psychosocial behavior, and sleep quality, we have attempted to provide a solution to this question. The literature on the topic emphasizes how using social networking sites (SNSs) negatively impacts sleep, leading to issues like insomnia, apnea, nightmares, excessive daytime sleepiness (EDS), delayed sleep start, and poor sleep quality. Students who are addicted to social media experience mental health issues, anxiety, sadness, low self-esteem, suicidal thoughts, procrastination, and subpar academic performance. However, there is a dearth of research on how excessive SNS use affects how well humans' circadian clocks work. It was discovered that young people and teenagers are especially susceptible to the negative consequences of excessive SNS use. They advise that further studies be conducted on how

social networking sites affect human health and that successful awareness efforts be started to inform the public about the negative aspects of excessive SNS use.

According to Cao and Tian (2020), Although there is evidence that social media use (SMU) affects students' learning and academic performance in a number of ways, there are still few pertinent research, and the results are noticeably mixed. The main topic this study aims to address is: what are the ways in which SMU influences students' academic performance and learning? Based on the examination of 256 replies, a research model is created and empirically evaluated using connectivist concepts. The results show that SMU and student academic performance are indirectly related, with academic distraction, student-instructor engagement, and collaborative learning all playing a role. This conclusion contributes to the expansion of research on SMU and its impact on academic achievement and student learning by offering actual data in favor of connectivist ideas.

Jaffar and Eladl(2016) assessed medical students' involvement on anatomy Facebook sites based on their academic achievement. The majority of the engagements were the result of high performers. Additionally, they preferred higher degrees of participation in particular. The students continued to value the pages' innate social component even while they were fully engaged in their instructional component. The high performers' deep involvement suggested a link between improved student performance and Facebook use in the classroom. However, the idea that Facebook use is distracting is disproved by high achievers' deeper engagement. Rather, it bolsters the idea that Facebook might be an appropriate medium for interacting with students in a learning environment.

Ymer (2021) investigated the connection between academic success, psychosocial wellbeing, and social media use. The findings showed that while female participants used social media to sustain connections, male students used it to establish new ones. Students who spent the most time on Facebook were followed by those who utilized Telegram and WhatsApp. The Pearson correlation results showed that students' academic performance was significantly and negatively connected with their use of social media (Facebook, WhatsApp, and Telegram), but positively correlated with their self-esteem. Additionally, there was a favorable correlation between depression and the use of WhatsApp, Facebook, and Telegram. Facebook use was substantially and adversely connected with students' social anxiety and sense of self. Additionally, when it came to using social media, female students were more unhappy and had

worse self-esteem than male students. In comparison to students who used social media at high and moderate levels, those who used it less showed superior psychosocial health.

Lee(2014) investigated how African American and Hispanic teenagers use Facebook and how they feel about text messaging. It also looks at how gender and personality affect the new communication technology. The study also looks into the state of parental supervision and control. Lastly, it looks at how the teens' academic performance might be impacted by the new communication methods. Three hundred and fourteen students from middle and high schools took part in the poll. Eighty four percent of pupils had a cell phone, and nearly 91% had a Facebook account. Comparatively speaking to African American kids, less Hispanic students own cell phones. Facebook use and anxiety were significantly correlated, although cell phone owners thought they were more gregarious, upbeat, and sensitive. A sizable percentage of youngsters said that their identity and their feeling of value were intimately linked to their cell phone. The survey's findings indicated a statistically significant inverse association between respondents' Facebook engagement and their math scores. Future research implications on the possible impact of excessive Facebook and cell phone use on academic performance are examined.

Dule et al (2023) assessed the prevalence of Facebook addiction and its relationship to university students' academic achievement and other variables. Between December 1 and December 30, 2021, 422 students participated in a cross-sectional study in which the Bergen Facebook Addiction Scale (BFAS) was used to assess Facebook addiction. Self-esteem, symptoms of anxiety and depression, and study habits were evaluated using the Rosenberg Self-Esteem Scale (RSES), Hospital Anxiety and Depression Scale (HADS), and Study Habit Questionnaire (SHQ), respectively. The respondents were selected using systematic random sampling, and SPSS version 23.0 was utilized to analyze the data. They computed statistics like mean $\pm$ SD, mean differences, frequencies, and percentages. All necessary assumptions were verified, and multiple regression analysis was carried out. A 95% confidence interval and a p-value < 0.05 were used to declare statistical significance. The findings showed that 51.6% of the participants were men and that the students' mean age was 23.62 (SD = ± 1.79). The vast majority of individuals suffered from Facebook addiction, which was positively correlated with symptoms of anxiety and sadness as well as poorer academic performance. In conclusion, it was discovered that study participants had a higher prevalence of Facebook addiction, which is having a detrimental effect on their academic achievement. Likewise, it was linked to lower self-esteem and impacted mental health. The university's legislative body would be better

served by enacting strict guidelines to encourage responsible use and lessen the negative impacts of this issue on students.

Lee et al (2023) look into how students' perceptions of their academic performance and teamwork are affected when they use WhatsApp in a higher education setting. Students from a private institution in Sunway City, Malaysia, participated in two focus groups and completed a self-administered online survey as part of a convergent parallel mixed-methods study design. The results of this study shed light on WhatsApp's popularity among college students and how they use it for social and educational purposes since they believe it to be user-friendly and beneficial for improving teamwork and academic achievement. WhatsApp has a modest influence on the cohesiveness and transparency of team effectiveness, while being acknowledged as a rich and potent collaboration tool for students that improves academic performance.

Zhang et al (2023) clarified the moderating influence of academic achievement from a longitudinal viewpoint and explore the mediating effect of youth internalizing concerns. This study used panel data from the Public Assessment of Tobacco and Health (PATH) Study Waves 3–5 (2015–2019). 3,975 young people between the ages of 12 and 17 made up the sample. Analyses were conducted using a moderated mediation model. Wave 5 saw a rise in e-cigarette use as adolescents who used social media more often in Wave 3 reported increased odds of internalizing difficulties in Wave 4 ($bp = 0.061$, $p < .01$). The relationship between internalizing difficulties and e-cigarette usage was found to be negatively moderated by academic achievement ($bp = -0.088$, $p < .05$). Young people who use social media frequently have more internalizing issues, which increases their usage of e-cigarettes. Teenagers who do well in school, however, show more reluctance to using e-cigarettes. In order to avert negative health outcomes, we advise targeting frequent social media users and teenagers who struggle academically with customized anti-e-cigarette campaigns and mental health interventions.

Dzogbenuku et al (2020) investigated how social media use affects Ghanaian university students' academic achievement. The study employed a quantitative research methodology. 373 out of 400 respondents, or 93% of the volunteered participants, provided quantitative data using a straightforward random sample technique. In order to determine the connection between student performance and social media information, enjoyment, creativity, and knowledge development, the data was analyzed using structural equation modeling. According to the study's findings, social media entertainment, social media innovation, and social media

information all significantly boosted the creation of social media knowledge, which has broad implications for learning and knowledge management. Additionally, the study found that the association between social media and student performance is moderated by knowledge of information and computer technology. It was not possible to infer causal correlations between the variables because the sample was primarily cross-sectional in character. To investigate causation, future researchers ought to use a longitudinal study design. Lastly, only university students in Accra, Ghana, were included in the study. More students as well as other West African and African nations may be the subject of future studies. Managers and scholars who plan to conduct further research on social media and academic achievement may find this report to be a useful source of knowledge. Managers and university instructors can use the medium of innovation and entertainment to spread knowledge thanks to the results that social media information, innovation, and entertainment can also improve social media knowledge generation. The study's conclusions will assist policymakers in the fields of education and other fields that interact with young people in realizing the critical elements that can help them succeed on social media. The use of social media for academic purposes is becoming more and more common. However, little is known about how social media knowledge generation mediates the relationship between academic performance and social media usage. Additionally, it is unclear if students' level of knowledge about information and computer technology moderates the relationship between academic performance and social media knowledge generation among university students in sub-Saharan Africa, especially Ghana. The results of this study theoretically offer convincing evidence to direct future research on the connections between the variables under social media use, knowledge creation, and university student performance, which promotes the spread of new knowledge.

Joseph et al (2023) sought to ascertain whether Twitter use could enhance nursing students' academic achievement and contentment with pathophysiology classes. This study used a two-group quasi-experimental research design with a post-test. At Sultan Qaboos University's College of Nursing in Muscat, Oman, second-year Bachelor of Nursing students took part in a pathophysiology course. The pathophysiology course involved seventy-three second-year Bachelor of Nursing students; fifty of them decided to utilize Twitter, forming the experimental group, and the other twenty-three comprised the control group. We conducted one-hour Q&A sessions the night before tests and shared succinct course material for the pathophysiology course on Twitter. Exam results were used to evaluate academic performance, and questionnaires with a five-point Likert scale were used to gauge students' contentment with

Twitter. Mann-Whitney and t-tests were used to assess the data. The results of the poll indicated that students were generally happy with the use of Twitter in the pathophysiology course, including the Q&A sessions, even if there was no discernible difference in the experimental and control groups' final test grades. According to the results, Twitter may be a useful technique for raising nursing students' level of satisfaction with the pathophysiology course.

Altawalbeh (2021) looked into the applications that students chose and how utilizing social media affected undergraduate students' academic performance at Jordanian universities. Four hundred undergraduate students at Jordanian universities received surveys. The findings indicated a statistically significant correlation between academic performance and social network site use. Students' preferred social media platforms were Facebook, WhatsApp, and YouTube, while LinkedIn and Instagram had the fewest mentions. Additionally, Jordanian university students' academic performance may be impacted by excessive social media use without enough teacher supervision or thoughtful application planning. Additionally, when using social networking sites for educational purposes, kids need to be supervised and taught time management skills. The findings of this study could be used to provide practical strategies for incorporating social networking sites into educational exercises without having an impact on student performance.

Identification of current research gap

After extensive literature review, we found that there is no comprehensive study on Facebook usage and its impact on academic performance of university students in the context of Bangladesh. This study has examined the impact of Facebook usage on academic performance of Bangladeshi University students which will improve the information about Facebook usage along with its academic impact among the students of an emerging economy.

Chapter Summary

The chapter goes through extensive literature on Facebook, social media and academic performance.

CHAPTER THREE

CHAPTER THREE: CONCEPTUAL FRAMEWORK

Facebook

There are roughly 80 million Facebook users. This is larger than the business-oriented LinkedIn (about 20 million users), but smaller than the largest social networking site, MySpace (an astounding 200 million registered users). Facebook, in my opinion, offers advertisers the best possibility, while not being the largest. According to its reputation, LinkedIn is largely used by persons over 35 who are more focused on their work than on interacting with others. It's more of a business setting than a place where you spend hours on end. Additionally, MySpace is too rough and disorganized in my opinion to be a productive setting for marketers. Although there are registered individuals on MySpace, I don't feel like browsing people there because of how difficult the pages can be, in contrast to Facebook. Compared to MySpace, people often spend a lot more time on Facebook. The best demographics for marketers are those on Facebook. Facebook began as a website for college students on February 4, 2004 (MySpace and LinkedIn launched in August and May 2003, respectively). To participate, you had to have a college email address that ended in.edu. In September 2006, it changed. Anyone with a working email address could then sign up, but from the perspective of a marketer, Facebook's early days were important. The average user is still college-age, with plenty of extra cash, and it maintains its reputation as being more premium than MySpace. LinkedIn is a formal and guarded world of business relationships, while MySpace is a zoo that shouts at you from the page. The highly sought-after demographic of educated 18 to 26-year-olds can be found on Facebook, where they feel at ease. You often have the best chance of marketing there because that's where they live with their buddies online (Holzner, S. 2008).

Attraction of Facebook

That is the main purpose of social networking. Additionally, Facebook is excellent at bringing users and their friends together and maintaining communication. For many college students, it is an essential need both during and after their time in school. As a result, you will observe the average age of the Facebook demographic over time. You can stay in contact with other users in addition to adding them as friends, which allows them access to your information. As we'll learn in this chapter, you can visit their pages and write them remarks on "the Wall." You may message them. (For whatever reason, a lot of Facebook users consider Facebook messages to be more convenient than regular emails.) . You can inform them about events for which you have Facebook registrations.

Even better, and this is the most essential feature and one of Facebook's primary attractions, is the ability to view your friends' activities minute by minute. According on the privacy settings your friends have chosen, Facebook monitors your friends' activity and notifies you about them. thus you may observe your friends' activities while they use Facebook. One of the primary ways Facebook creates a cohesive community is by allowing you to follow your friends' activities without requiring any extra effort from them. It's the closest two people in distant states can go to maintaining contact; it's a kind of proximity-by-proxy situation. Because of this, a lot of Facebook users always have a Facebook window open while working on other tasks on their computer so they can keep an eye on their friends. Facebook also allows you to set your status, and everyone can see what you're doing there. You may list yourself as working, having fun, or online, for instance.

Facebook is really about connecting with your pals, according to users. Actually, Facebook provides recommendations for Facebook users you might already know on your Friends page. It locates these individuals by looking through the networks you've joined and the friends you could share with other users(Holzner, S. 2008).

Facebook Group

Since groups are the most traditional method of combining Facebook members, they are a suitable place to start our marketing conversation. Your group will become quite popular on Facebook if it is something unique. It has happened that groups that begin with nothing can grow to over a million members in just one week. Facebook groups are pages where users may communicate with one another and initiate conversations. Starting your own group might generate a lot of interest in your company. However, like with any Facebook marketing, keep in mind the most important guideline: content marketing. This means that you need to offer more than simply an advertisement. If your marketing activities are engaging to Facebook users, they will follow your example and go viral. You can't overburden individuals with large advertising budgets there. A group provides a focal point for building a community and sparking interest in your company. You can attract clients, acquaintances, and interested bystanders to gatherings. But keep in mind that there will be a dialogue—a two-way exchange of ideas. You might consider another marketing strategy (like pages, covered in the next chapter) if you're not ready for that. In addition to text, you may upload images and videos to groups, which presents excellent marketing options.

Messaging Your Group Members

Sending messages to your group as a whole is possible. However, since Facebook users can still report your messages (which arrive in individuals' inboxes), you must avoid making it look like you are spamming. You should be aware that Facebook will stop allowing you to send messages in bulk if your group becomes too large—more than 1,200 members is the typical cap that the social media platform states. Facebook has stated that it will lift this ban, but it remains in place.

If there is interest in your group, it can quickly expand through the Facebook equivalent of word-of-mouth since users can request their friends to join. Additionally, people's profile pages display the groups they are a part of, which might serve as a bumper sticker for your organization (Holzner, S. 2008).

Creating Your Facebook Group

In this instance, we'll set up a fake business called Beach Bum Rentals that will let beachcombers rent space on Waikiki Beach. There is vacant room on Waikiki Beach, so if you can acquire it, this is wonderful work.

The following are the fields you must complete:

- **Group Name:** Enter the name of your new group in this mandatory field. Here, we'll make use of Beach Bum Rentals.
- **Network:** You can select Global, which makes the new group accessible to all Facebook users, or any of the networks you are a part of. We intend to expand our group internationally in an effort to draw in business.

This is where you may give a description of the group. This necessary information can be read by potential group members, so make sure it is captivating. Our description will be, "Want a spot on Waikiki Beach? You can hire it from us! There are 3 x 6 parts and the standard 4 x 8 portions available. affordable monthly prices.

- **Type of Group:** You must provide the type of group in this essential field. Since Beach Bum Rentals is a business, we'll choose Business in this case. The options that are available include:

Organizations • Sports & Recreation • Student Groups • Business • Common Interest • Entertainment & Arts • Geography • Internet & Technology • Just for Fun • Music(Holzner, S. 2008).

Facebook Marketing Strategy

Businesses may use Facebook most efficiently in three key ways:

1. *Community building:* If creating a strong online presence on Facebook is your primary objective, you must implement a community development approach. You could already be active on other social media platforms, particularly those that allow you to communicate with your fans, clients, and prospects in real time. You may make use of all of Facebook's tools when you utilize it to create communities. Creating dialogues, raising awareness, growing your fan base, and participating actively in this community are your main objectives. Without a capable community manager, no community can ever succeed. Either assume this role yourself or assign it to a member of your organization.

2. *Marketing and promotion:* While creating a community gives you the chance to advertise and promote your goods, services, or forthcoming events, if that is all you are really interested in, you should start concentrating your time and energy on a few tools first. Using Facebook as a marketing and promotional tool can help raise awareness of a new product launch or special offer, as well as drive visitors to landing pages or event registration.

3. *Advertising:* Of the three strategies, a pure Facebook advertising approach is the most constrained; yet, some businesses choose to use Facebook as an additional avenue for promoting their brand, goods, or services. This is acceptable, but you won't be utilizing Facebook's full potential. As we've already covered, there are tools available that let you promote only on Facebook. Go ahead a few pages and resume reading at the beginning of this plan if that's what you're after (Levy, J. R. 2010).

Key Facebook Advertising Terms

Audience Network

a placement tool that lets you put advertisements across Facebook partners' websites and applications. The Cut the Rope app and the Huffington Post are partners.

Bid

The price you're prepared to pay to have your advertisement shown.

Call-to-Action (CTA) Buttons

Buttons that compel visitors to take a specific action, such as calling right away, signing up, shopping right away, or learning more. These buttons, which are included on all Facebook ads, will direct viewers to a landing page or, in the case of a Lead Ad, a pre-filled form.

Cost Per Acquisition (CPA)

A pricing strategy for web advertising where you pay for each designated acquisition (or action). For instance, you can decide to click, submit a form, make a sale, or make an impression. You can change the amount you want to spend on each acquisition based on your budget, and Facebook will modify your delivery in line with that.

Engagement

Likes, shares, comments, views, and clicks are some of the actions that take place on an advertisement.

Facebook Pixel

A JavaScript script that monitors how users interact with your website.

Frequency

The typical frequency with which a user saw your advertisement on Facebook.

Native Advertising

This kind of covert online advertising involves marketers crafting advertisements that mimic the appearance, tone, and purpose of typical, unsponsored posts. In contrast to sidebar ads, native ads show up inside the News Feed, among postings from loved ones. Native advertisements include News Feed ads, which are the most difficult to differentiate from unsponsored postings on Facebook. A post will be identified as an advertisement if it has the word "Sponsored" next to the publisher's name. Ads in the News Feed otherwise look like ordinary posts.

News Feed

Facebook's always changing feed of advertisements, status updates, and posts.

Negative Feedback

How frequently users take undesirable actions like burying your advertising, refusing to view them, or flagging them as spam. An excessive number of unfavorable comments will damage the effectiveness of your advertisement.

Objective

What you want people to do after viewing your advertisement. Clicks, conversions, engagement, page likes, app installs, app engagement, and video views are among the goals.

Optimized Bidding

An option for bidding that enables advertisers to tailor a bid and delivery to a particular target (or objective).

Placement

Where your advertisement is displayed. Options for placement include the right column, Instagram feed, Instagram Stories, Audience Network, desktop News Feed, mobile News Feed, and in-stream videos.

Positive Feedback

How frequently a desired action—like sharing, like, or converting—is taken by your intended audience. The performance of your advertisement is positively impacted by receiving a lot of positive feedback.

Reach

The overall count of people that saw your advertisement. This indicator keeps track of how many people saw your advertisement and how many times they did so. Facebook will consider two users reached if, for instance, one person saw your advertisement twice.

Relevance Score

A real-time indicator of how relevant your advertisement is to its intended audience. An advertisement is more likely to succeed if it is more pertinent to your target demographic. Your audience will see your adverts more frequently if they have high relevance ratings than if they have poor ones. Facebook rates the relevancy of your adverts on a scale of 1 to 10, where 10 is the most relevant and 1 is the least. Facebook weighs both positive and negative comments to decide whether your ad is relevant to your audience.

Targeting

A list of precise terms you use to characterize the target audience for your advertisements. Typically, targeting involves combining your defined interests, activities, demographics, and locations.

User

Someone who frequently utilizes social media platforms like Instagram, Twitter, Snapchat, and Facebook. Users are the individuals who view your advertisements.(Meert, 2019).

FACEBOOK AD GUIDELINES AND POLICIES

Prohibited Content

1. Community Standards

Our Community Standards must not be broken by advertisements. Instagram Community Guidelines must not be broken by advertisements.

2. Illegal Products or Services

Advertisements cannot be used to create, support, or advertise unlawful goods, services, or endeavors. Ads directed at minors are not allowed to advertise goods, services, or content that are harmful, unlawful, or improper, or that take advantage of, deceive, or put excessive pressure on the target age groups.

3. Discriminatory Practices

Race, ethnicity, color, national origin, religion, age, sex, sexual orientation, gender identity, family status, handicap, or a genetic or medical condition are just a few examples of the personal characteristics that ads cannot discriminate against or promote.

4. Tobacco Products

The sale or use of tobacco products and associated items cannot be encouraged by advertisements.

5. Drugs & Drug-Related Products

The sale or use of illicit, prescription, or recreational drugs cannot be encouraged by advertisements.

6. Unsafe Supplements

Advertisements cannot encourage the purchase or use of dangerous supplements, as Facebook may decide at its own discretion.

7. Weapons, Ammunition, or Explosives

Advertisements cannot encourage the purchase or use of explosives, firearms, or ammunition. This covers advertisements for accessories related to weapon modification.

8. Adult Products or Services

Except for advertisements for family planning and contraception, advertisements cannot encourage the purchase or use of adult goods or services. Advertisements for contraception must target individuals 18 years of age or older and concentrate on the product's contraceptive qualities rather than sexual pleasure or enhancement.

9. Adult Content

There must be no pornographic content in advertisements. This includes actions that are excessively suggestive or sexually provocative, portrayals of people in explicit or suggestive situations, and nudity. Enhancement and it must be directed at those who are at least eighteen years old.

10. Third-Party Infringement

Ads cannot include any content that violates or infringes upon the rights of third parties, including those related to copyright, trademarks, privacy, publicity, or other property or personal rights. Please visit our Intellectual Property Help Center to report content that you believe might violate your rights.

11. Sensational Content

Content that is surprising, provocative, irreverent, or overly violent cannot be included in advertisements.

12. Personal Attributes

Content that claims or suggests personal qualities cannot be included in advertisements. This covers claims or inferences that are made directly or indirectly. Concerning a person's race, ethnicity, religion, beliefs, age, gender identity, sexual orientation or practices, handicap,

medical condition (including mental or physical health), financial situation, trade union membership, criminal history, or name.

13. Misleading or False Content

Fraudulent, misleading, or deceptive content—including fraudulent claims, offers, or procedures—must be avoided in advertisements, landing sites, and commercial operations.

14. Controversial Content

Content in advertisements that takes advantage of contentious political or social problems for profit is prohibited.

15. Non-Functional Landing Page

Advertisements shouldn't take users to landing pages that don't work. This includes content on landing pages that makes it difficult for users to leave the website.

16. Surveillance Equipment

The sale of spy cameras, cell phone trackers, or other covert monitoring devices cannot be advertised.

17. Grammar & Profanity

Symbols, numbers, and letters must be utilized correctly without attempting to evade our ad review process or other enforcement mechanisms, and advertisements must not contain foul language or improper grammar or punctuation.

18. Nonexistent Functionality

Images in advertisements that depict nonexistent capabilities are prohibited.

19. Personal Health

"Before-and-after" photos or pictures with strange or improbable outcomes are not allowed in advertisements. In order to sell diet, weight loss, or other health-related items, advertising content cannot suggest or seek to create a negative self-perception. Product advertisements for fitness, health, or weight loss must be directed at adults 18 years of age or older.

20. Payday or Cash Advance Loans

Payday loans, paycheck advances, or any other type of short-term loan used to cover costs until the next salary cannot be promoted in advertisements.

21. Multilevel Marketing

Advertising that promotes income opportunities must provide a thorough description of the related product or business model; it cannot endorse multilevel marketing opportunities or business models that promise rapid returns with minimal commitment.

22. Penny Auctions

Penny auctions, bidding fee auctions, and other comparable business concepts cannot be advertised.

23. Counterfeit Documents

Advertisements are not allowed to offer phony documents, including passports, degrees, or immigration documents.

24. Low Quality or Disruptive Content

Ads cannot include anything that takes users to unanticipated or annoying external landing pages. This involves deceptive advertising positioning, including headlines that are too dramatic (Meert, 2019).

Developing a Facebook Content Strategy

With Facebook's limitations on page design, content is the simplest—and frequently most successful—way to set oneself apart from rivals. Facebook's strength resides in its vast user base, but this also generates a great amount of posts. In order to connect with these potential clients or brand aficionados, your material needs to be unique. Since content is a key component of a successful Facebook marketing campaign, this chapter examines how to produce and optimize it for Page members while simultaneously enhancing your visibility in both Facebook and organic web searches.

Competing with Other Content on Facebook

The typical Facebook user is linked to 80 community pages, groups, and events, and they have 130 friends. However, this is merely a small portion of the 900 million individuals, locations, and items that he may engage with on Facebook. Given that over 30 billion pieces of content are posted on Facebook every month, it is easy to see why content is a crucial component of your marketing plan. Of course, there are many things that the typical user sees every day. However, this average user also produces roughly 90 pieces of content per month, including posting links to blog posts or news stories, taking notes, uploading to photo albums, organizing events, writing on friends' walls, and more. Facebook has several design restrictions, thus the best method to sell to potential Page members (and future customers) and keep current Page members and consumers engaged and entertained is through content. However, you also need to address the weariness that many users have when they see an endless stream of their friends' recent likes, strange ideas, and lunch orders.

Develop a Content Strategy

A well-thought-out content strategy is essential for successful Facebook marketing without overwhelming yourself or your Page members. It's tempting to post whatever comes to mind, but it's important to stick to a plan.

Create a Content Calendar

A content calendar that lets you see the dates and days of the week clearly makes it much easier to set subjects and trends. The easiest method to stay organized and achieve your goals is to use a content calendar, which is similar to an editorial calendar but perfect for social media posts. One can be created only for Facebook, or additional sites (such as Twitter) can be included to keep the various networks in sync. A content calendar can be as easy or as difficult as you want it to be. Fundamentally, it's just a location to produce material ahead of time and map it to days, publishing frequency, and subjects. Calendars will help you stay organized, even on the busiest days. You can create content ahead of time and release it when you're ready. Some social media posts can be planned or timed. If your goal is to post once, you can do so. (Zarrella and Zarrella, 2011)

Effects of Facebook Use and Texting on Academic Performance

Alloway, Horton, Alloway, and Dawson (2013) found that studies on the impact of Facebook, texting, and other media multitasking on academic performance predominantly involved

college students and young adults. Karpinski and Duberstein (2009) and Kirschner and Karpinski (2010) investigated how Facebook use affects college students' grade point averages (GPA). They were met with immediate debate and varied results (Ahn, 2011; Pasek, More, & Hargittai, 2009).

Karpinski et al. discovered that Facebook users had worse GPAs and spent less time studying. In a survey of 451 American college students, Karpinski et al. (2013) discovered a strong negative correlation between daily social media use and GPA. Junco's investigations with college students revealed that 69% text during class and 28% use Facebook (Junco, 2012a, 2012b; Junco & Cotten, 2012). Using Facebook and texting during class had a significant negative impact on overall semester GPA.

According to Wood et al. (2012), students who did not use technology during lectures performed better on tests than those who did. In a study of 340 undergraduate business students, Paul, Baker, and Cochran (2012) discovered a substantial correlation between social networking site (SNS) use and academic performance. Social media use significantly impacts pupils' attention span. In a unique study that observed a combination of middle, high school, and university students.

Rosen, Carrier, and Cheever (2013) discovered that students spent less than 6 minutes per activity during a 15-minute study period before switching tasks, primarily due to technological distractions. They recommended taking "technology breaks" to avoid both internal and external distractions. Wang and Tchernev (2012) tracked 19 college students for 4 weeks and found that media multitasking did not meet their cognitive needs, which aligns with previous laboratory studies.

Alloway et al. (2013) observed 104 high school students in the UK and discovered that those who had used Facebook for over a year performed better on verbal ability, working memory, and spelling tests than those who had used it for a shorter period of time. Facebook can be used to broaden one's knowledge by reading shared postings from friends about news or local events. Teenagers' use of Facebook may contribute to greater cognitive exam scores due to their enhanced ability to master specialized skills. However, the study showed no significant difference in math performance between high and low Facebook users.

In a 2009 survey of two urban high school students, Ahn (2012) found that those who utilized Facebook had higher GPAs and English scores. However, her sample included 3% African American and 34% Hispanic kids. According to Purcell, Rainie, and Zickuhr's (2012) Pew

Research Center survey of high school teachers, the Internet and digital tools have had a "mostly positive" impact on students' research work. However, parents and teachers report an easily distracted generation with short attention spans, and these technologies tend to distract students rather than help them academically. There is less study on how Facebook and cell phone use affect teenagers from underrepresented racial groups. Understanding the influence of new technology tools on teenagers is crucial for interdisciplinary communication and education studies (Lee, 2014).

Academic Performance

Academic success is measured by objective measures, including final course grades and grading point average (Anthonysamy et al., 2020; Busalim et al., 2019). According to Ellore et al. (2014), the Internet plays a significant role in the lives of college and university students and is expanding in importance. Naqshbandi et al. (2017) found that Facebook is a daily habit for most students. Numerous studies (Maqableh et al., 2021) have demonstrated the benefits of Internet use for students.

McCamey et al. (2015) suggest that as the Internet expands, college students will gain access to additional content to broaden their knowledge. Emeka and Nyeche (2016) suggest that students can use the Internet for research, assignments, and presentations related to their studies.

Several research (Maqableh et al., 2021) have examined the link between using Internet resources and academic accomplishment across several topics. According to Sampath Kumar and Manjunath (2013), university teachers and researchers who use Internet resources improve their academic performance. Emeka and Nyeche (2016) found that using the Internet improves undergraduate students' academic performance.

Online knowledge sharing using Facebook

Knowledge-sharing is the voluntary sharing of newly acquired knowledge with others (Helmstädter, 2003). Cross and Cummings (2004) define "knowledge sharing" as the exchange of information to solve issues, produce new ideas, and implement procedures and policies. According to Bukowitz and Williams (1999), knowledge sharing is the exchange of information and knowledge across individuals, groups, organizations, and communities. According to Argote and Ingram (2000), knowledge sharing involves transferring information from several sources in a structured manner for future use.

Knowledge sharing According to Davenport and Prusak (1997), volunteering involves sharing talents and expertise with others. According to Cross and Cummings (2004), communication with experts can take various forms, including written and direct communication. SNSs are ideal for building relationships, sharing ideas, and sharing personal experiences. This study examines how knowledge-sharing behavior on Facebook can impact academic achievement in Jordanian colleges.

According to Xie et al. (2021), accessing social networks, such as Facebook, allows users to connect with coworkers and engage in entertainment and instructional games. Colleague involvement enhances learning by providing emotional and intellectual support for academic fulfillment, capability building, and performance improvement (Bauer et al., 2007; Yu et al., 2010). Wong et al. (2022) found that social mobile learning improves idea generation among higher education students. Numerous knowledge management research (Hosen et al., 2021; Kankanhalli et al., 2005; Nguyen et al., 2021) have found that personal factors, such as motivation, significantly effect voluntary information sharing.

Educational usage of Facebook

Facebook is regarded as a useful teaching tool due to its structure and numerous features. However, how and for what purposes these tools will be employed in educational environments remains a source of curiosity for scholars. According to related studies, Facebook and other social networks encourage informal learning since they play an active role in users' everyday lives. Social networking sites promote collaborative learning, encourage critical thinking, and improve communication and writing abilities by allowing members to work in individualized contexts (Ajjan & Hartshorne, 2008; Lockyer & Patterson, 2008).

In addition to this, Lee and McLoughlin (2007) argue that social networks are pedagogical tools since they may be used for connectedness and social support, collaborative information finding and sharing, content production and knowledge aggregation, and information modification. Taking into account the educational utilities provided by Facebook, such as bringing people together around shared interests, exchanging information, sharing ideas, discussing topics, collaborating, and so on, this study investigates the construct of Facebook educational usage under three topics: communication, collaboration, and resource/material sharing.

Communication

Facebook can be used for educational purposes, including facilitating class discussions, facilitating communication between students and their teachers, following announcements about departments, schools, and classes, delivering homework and assignments from teachers, and providing information about course-related resources and links (Mazman & Usluel 2010).

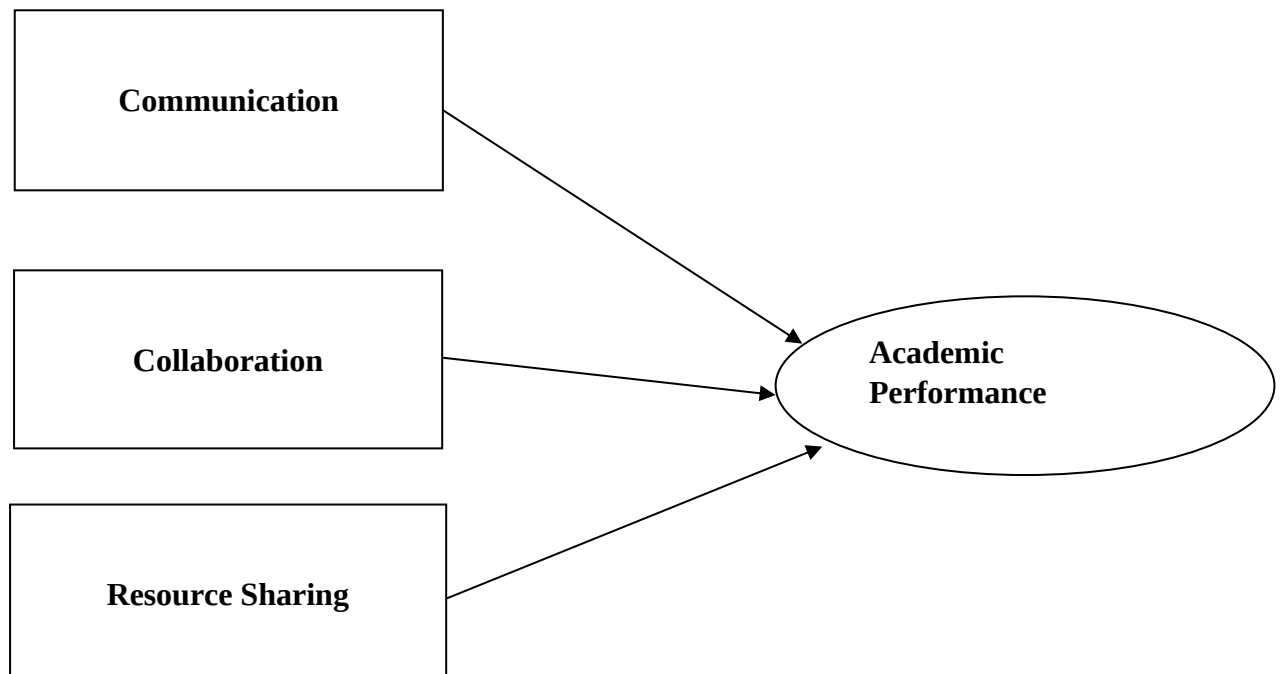
Collaboration

Facebook gives users the chance to join new networks in order to provide opportunities for collaborative learning because it has a variety of categorization groups and communities (Selwyn, 2007b). When people have similar needs, interests, and ideas, they can collaborate, share information, and trade ideas. Joining academic groups pertaining to one's school, department, or class and sharing assignments, projects, ideas, and other materials are examples of how people use Facebook for cooperation in education (Mazman & Usluel 2010).

Resource/material sharing

Facebook allows users to share their resources, assets, projects, and papers in addition to exchanging ideas and information. Facebook offers users audio and visual materials and resources through features like creating and following links to external sites or pages, as well as the ability to submit films and images. Facebook can be used for educational purposes to share resources and materials, including documents, multimedia resources, films, audio materials, and animated videos. (Usluel & Mazman 2010)

MODEL OF THE STUDY:



Chapter Summary

The chapter covers mainly Facebook strategy, relationship between Facebook and academic performance and introduce the model of the study.

CHAPTER FOUR

CHAPTER FOUR: RESEARCH METHODOLOGY

Research Design

In its most basic form, research design is a road map for achieving study goals. All of the various definitions of research design share certain characteristics. Every research effort has a time-based, procedural strategy called a design.

- Constantly keeps the research question in mind.
- Provides guidance for choosing information sources (cases).
- Offers the structure for defining the connections between the variables in the study(Schindler,2022).

A research design is a framework or plan for executing a marketing research project. It describes the techniques for gathering the information required to organize or solve marketing research problems. Although a general approach to the problem has already been defined, the research design outlines the specifics—the nuts and bolts—of putting that strategy into action. A research design provides the framework for carrying out the project. A strong research design ensures that the marketing research project is carried out properly and efficiently (Malhotra, 2020).

Qualitative Research/Exploratory Research

Exploratory research aims to provide insight and understanding of the problem at hand. Exploratory research is used to better describe a problem, discover relevant actions, and obtain insights before developing an approach. At this point, the required information is not clearly defined, and the research process is flexible and unstructured. For instance, it can include in-person interviews with professionals in the field. The small and nonrepresentative sample was chosen to yield the most insights. The analysis is based on the qualitative quality of the raw data. The results of exploratory research should be viewed as preliminary or as a starting point for additional study in light of these aspects of the research process. Usually, additional exploratory or definitive research comes after such studies. In certain cases, all of the research that is done is exploratory research, especially qualitative research. In these situations, care should be taken while applying the results (Malhotra, 2020). The following are some possible uses for exploratory research:

- Create an issue or provide a more detailed definition of one.

- Determine other options for action.
- Formulate theories.
- Separate important factors and correlations for additional analysis.
- Acquire knowledge to formulate a solution to the issue.
- Determine the research priorities (Malhotra, 2020).

Quantitative Research/Conclusive Research

Conclusive research is generally more structured and formal than exploratory research. It is predicated on sizable, representative samples, and quantitative analysis is performed on the collected data. Since the results of this study are incorporated into administrative decision-making, they are regarded as definitive in character.

Descriptive research's primary goal is to describe something, usually the features or operations of a market. The following justifies the use of descriptive research:

1. To outline the traits of pertinent groupings, such customers, salespeople, businesses, or market segments. We could, for instance, create a profile of the "heavy users"—frequent customers—of high-end department stores such as Neiman Marcus.
2. To calculate the proportion of units in a given population that display a particular behavior. Estimating the proportion of frequent shoppers at upscale department shops who also frequent bargain retailers, for instance, may be of interest to us.
3. To ascertain how people view the features of the product. How, for instance, do households view the different department stores in relation to the key elements of the selection criteria?
4. To ascertain the extent of the relationship between marketing variables. For instance, how much does eating out have to do with department store shopping?
5. To formulate precise forecasts. For instance, how much would retail sales of fashion apparel (a particular product category) at Neiman Marcus (a particular retailer) in the Dallas area (a particular region) be?

The premise of descriptive research is that the researcher is well-versed in the issue at hand. Before the descriptive survey was carried out, exploratory research had already identified the pertinent social reasons in the first scenario. Actually, one of the main distinctions between exploratory and descriptive research is that the former is distinguished by the earlier development of certain hypotheses. As a result, the information required is well specified.

Descriptive research is therefore organized and planned in advance. Usually, it is predicated on sizable representative samples. A formal study design outlines the procedures for choosing information sources and gathering data from them. The six Ws of research—who, what, when, where, why, and how—must be clearly specified in order to use a descriptive design (Malhotra, 2020).

In this study, we basically follow mixed method techniques-both qualitative and quantitative techniques. For qualitative, we conducted 2 focus group discussions (FGD) techniques-one is conducted at University of Dhaka and another was conducted at North South University. For quantitative, we administered survey among 462 students. The survey conducted 3 public universities like University of Dhaka, Jahangirnagar University and Comilla University and also survey conducted 3 private universities like North South University, Daffodil International University and Bangladesh University of Business and Technology.

Cross-sectional Design

The most popular descriptive design in marketing research is the cross-sectional study. Information from each given sample of population elements is only collected once when using cross-sectional designs. They could have one cross-sectional design or several cross-sectional designs. A single sample of respondents is selected from the target population in single cross-sectional designs, and data is only collected from this sample once. Another name for these designs is sample survey research designs.

Two or more samples of respondents are used in multiple cross-sectional designs, and data is only collected once from each sample. Information from various samples is frequently gathered over extended periods of time and at various dates. Comparisons at the aggregate level are possible with many cross-sectional designs, but not at the respondent level. It is not possible to compare the measures on a single responder between surveys since a different sample is used each time. Cohort analysis is a particularly interesting kind of multiple cross-sectional design (Malhotra, 2020).

Longitudinal Design

In longitudinal designs, the same variables are measured regularly on a fixed sample (or samples) of population constituents. In contrast to a cross-sectional design, a longitudinal design keeps the sample or samples constant over time. Stated differently, the same variables

are measured and the same subjects are investigated across time. A longitudinal research offers a number of images that provide a detailed picture of the circumstances and the changes that occur over time, as opposed to the conventional cross-sectional design, which provides a snapshot of the variables of interest at a single point in time (Malhotra, 2020).

Here we basically follow cross-sectional design. We survey respondents once.

Data Collection Design

Numerous choices on how, when, how often, and where data will be gathered are part of the data collecting plan. We measure variables of interest in study. In order to assess these variables and any correlations between them accurately, we make a lot of decisions during the data collection design process (Schindler, 2022).

Descriptive Study

A descriptive study looks for answers to the following questions: who, what, where, when, and how much. The types of thefts (clothing, electronics, housewares, money), how frequently, when (season, day, week), where (receiving dock, stockroom, sales floor, financial office), and by whom (gender, age, years of service, departmental assignment) would all be measured in descriptive research on employee theft. Descriptive studies gather fresh information that can be integrated with preexisting data; they can be straightforward or intricate (Schindler, 2022).

Causal-explanatory study and Causal-predictive study

A causal-explanatory study looks at how one variable affects another and tries to explain the links between them. For example, such a study would attempt to explain why male employees steal more than female employees or why mall A has a greater crime rate than mall B. A causal-predictive study aims to forecast how changing an independent variable would affect a dependent variable while keeping all other factors constant (Schindler, 2022).

Experiments

Experiments are typically linked to a hypothetico-deductive research methodology. An experiment's goal is to investigate the causal links between variables. Descriptive and exploratory research topics are better addressed by experimental designs. In an experiment, the independent variable is changed in order to examine how this alteration affects the dependent variable. To put it another way, the researcher purposefully modifies one or more factors, like the "reward system," in order to determine whether and how much of a change in one variable

would affect another, like "productivity," in this case. The most basic type of experiment is a two-group, post-test-only, randomized experiment in which one group receives a treatment, for as "piece wages." The therapy is not given to the other group, which is the comparison group (in this case, the "hourly wages" group). Because the subjects (workers) are divided into groups at random, the researcher can ascertain whether the two groups' post-treatment productivity differs (Sekaran, 2016).

Survey Research

According to Fink (2003), a survey is a method for gathering data about people in order to characterize, contrast, or explain their behavior, attitudes, and knowledge. Because it enables the researcher to gather both quantitative and qualitative data on a wide range of research questions, the survey approach is quite common in business research. In fact, surveys are frequently used to gather information on individuals, events, or circumstances in both exploratory and descriptive research. For example, surveys on consumer decision-making, customer satisfaction, work satisfaction, health service utilization, management information systems, and similar topics are frequently conducted in corporate settings. A significant portion of these polls are one-time questionnaires. The researcher can track changes over time thanks to ongoing surveys. Typically, survey instruments consist of self-administered questionnaires that respondents fill out independently, either on paper or on a computer. Structured observation and interviews are other survey tools (Sekaran, 2016).

Ethnography

Anthropology is the source of the study methodology known as ethnography. According to Markus and Fischer (1986, p. 18), it is a method where the researcher "closely observes, records, and engages in the daily life of another culture [...] and then writes accounts of this culture, emphasizing descriptive detail." Immersion in the specific culture of the social group under study—for example, bankers in the City of London—as well as behavior observation, conversation listening, and questioning are all components of ethnography. Thus, its goal is to provide a "insider's point of view" of a social group's culture and behavior. Ethnography and participant observation are closely related. However, opinions on the precise relationship between the two vary. In the literature, ethnography and participant observation are sometimes used interchangeably. According to some, both research methods entail spending a lot of time observing people and conversing with them about their actions, thoughts, and words in order to gain insight into the social group being studied (Delamont, 2004). Others believe that

participant observation is more specialized and associated with a specific technique of data collecting, while ethnography is a more general term. According to this viewpoint, one of the main sources of ethnographic data is participant observation. Nevertheless, it is merely one of several approaches—and rarely the sole one—that a researcher uses to develop an understanding of a social group or culture. Accordingly, one of the various approaches for ethnographic research is observation, which involves monitoring behavior through a prolonged involvement in the field environment where ethnography is conducted. Ethnographic research may also employ other techniques, such as questionnaires and interviews, to gather data (Sekaran, 2016).

Statistical studies

Statistical studies are designed for breadth rather than depth, extracting the same data from multiple cases. Hypotheses are tested quantitatively, and generalizations about findings are presented based on the validity of the design and the representativeness of the sample. A large portion of business research consists of statistical studies, such as our survey of savings account holders and our records study in our bank (Schindler, 2022).

Case Studies

A thorough contextual investigation of one or a small number of events or conditions and their interactions is given higher weight in case studies. Prioritizing contextual information yields insightful information for assessment, problem-solving, and tactical or strategic change. This information can be protected from several sources, preventing missing data and enabling the verification of the proof. A well-crafted case study can simultaneously generate new hypotheses and constructions and provide a significant challenge to an existing notion (Schindler, 2022). Case studies concentrate on gathering data about a particular item, occasion, or activity, like a specific company or division. The person, group, organization, event, or circumstance that the researcher is interested in is the case in case studies. A case study's premise is that a comprehensive understanding of an issue requires analyzing the actual situation from numerous viewpoints and using a variety of data collection techniques. A case study is a research strategy that examines a real-life event utilizing various data collection methods (Yin, 2009). Case studies may include both qualitative and quantitative data for analysis and interpretation. Case studies can also generate hypotheses, similar to experimental research. If a hypothesis is not supported by any other case studies, it cannot be used to construct an alternative hypothesis (Sekaran, 2016).

Action research

Action research is occasionally conducted by consultants who wish to launch change processes in organizations. In other terms, action research is a research technique for implementing intended improvements. The researcher starts with a pre-identified problem and collects pertinent data to propose a potential solution. This approach is then applied, with the understanding that it may result in unforeseen consequences. The consequences are examined, defined, and diagnosed, with ongoing study to properly fix the issue. Action research is a dynamic undertaking that involves problem-solving, analyzing impacts and repercussions, and developing new solutions. Action research requires a sensible and realistic problem definition, as well as inventive data collection methods (Sekaran, 2016).

Scaling Techniques

Likert Scale

The Likert scale, so named in honor of its creator, Rensis Likert, is a popular rating tool that asks respondents to rate their level of agreement or disagreement with a sequence of statements regarding the stimulus objects. Five response options, ranging from "strongly disagree" to "strongly agree," are often included for each scale item. We provide an example using a Likert scale to assess opinions about Wal-Mart within the framework of the department store patronage initiative (Malhotra, 2020).

Semantic Differential Scale

A seven-point rating scale with endpoints linked to bipolar labels that have semantic significance is known as the semantic differential. Respondents evaluate items using a series of itemized, seven-point rating scales that are restricted at either end by one of two bipolar descriptors, like "warm" or "cold." (Malhotra, 2020).

Stapel Scale

With ten categories numbered 25 to 15 and no neutral point (zero), the Stapel scale—named for its creator, Jan Stapel—is a unipolar rating system. Typically, this scale is displayed vertically. By choosing a suitable numerical response category, respondents are asked to score how properly or poorly each term represents the thing. As demonstrated by the department store patronage project, the higher the number, the more correctly the term characterizes the

object. Wal-Mart is rated as having somewhat subpar service and low quality in this instance (Malhotra, 2020).

We basically introduce Likert Scale for structured questions.

Questionnaire Development

After a thorough literature review, a 22-item questionnaire was created. Here we introduce 4 constructs. First construct was educational usage of facebook for communication and it consists of 6 items and Cronbach's alpha of this construct was 0.893. Second construct was educational usage of facebook for collaboration and it consists of 5 items and Cronbach's alpha of this construct was 0.859. Third construct was educational usage of facebook for resource sharing and it consists of 4 items and Cronbach's alpha of this construct was 0.823. Forth construct was student academic performance and it consists of 7 items and Cronbach's alpha of this construct was 0.912.

Table: Constructs and Items

Construct and Items	Code	Source
17. Educational usage of Facebook for communication		
17.1 I discuss study related topics in Facebook groups	comm1	Yotyodying et al 2022
17.2 I am writing to my fellow students on Facebook regarding study related topics	comm2	Yotyodying et al 2022
17.3 I use the chat feature on Facebook to talk to my fellow students about my distance study	comm3	Yotyodying et al 2022
17.4 I participate in study related discussions on Facebook	comm4	Yotyodying et al 2022

17.5 I share with my fellow students about my experiences in distance study on Facebook	comm5	Yotyodying et al 2022
17.6 In order to plan my further distance study, I communicate with my fellow students about professors and lecturers	comm6	Yotyodying et al 2022
18. Educational usage of Facebook for collaboration		
18.1 I work together with my fellow students on the study material via Facebook	coll1	Yotyodying et al 2022
18.2 To prepare for the exam, I work on the study material with my fellow students on Facebook	coll2	Yotyodying et al 2022
18.3 I use Facebook to discuss correspondence work assignments with my fellow students	coll3	Yotyodying et al 2022
18.4 I use Facebook to organize distance learning work assignments	coll4	Yotyodying et al 2022
18.5 I work on common distance learning tasks with Facebook groups	coll5	Yotyodying et al 2022
19. Educational usage of Facebook for resource sharing		

19.1 I exchange study material on Facebook	rs1	Yotyodying et al 2022
19.2 I benefit from the study material pool on Facebook	rs2	Yotyodying et al 2022
19.3 I use Facebook to make my own summaries of the study material available to my fellow students	rs3	Yotyodying et al 2022
19.4 I use third party summaries of the study material which I download via Facebook	rs4	Yotyodying et al 2022
20. Student Academic Performance		
20.1 Sharing knowledge in the Facebook group helped me to learn	ap1	Moghavvemi et al 2018
20.2 Sharing knowledge in the Facebook group has had a positive effect on my learning	ap2	Moghavvemi et al 2018
20.3 Sharing knowledge in the Facebook group helped significantly in my learning	ap3	Moghavvemi et al 2018
20.4 Sharing knowledge in the Facebook group helped me to learn faster	ap4	Moghavvemi et al 2018
20.5 Sharing knowledge in the Facebook group made my study easier	ap5	Moghavvemi et al 2018

20.6 Sharing knowledge in the Facebook group improved my study related performance	ap6	Moghavvemi et al 2018
20.7 Sharing knowledge in the Facebook group enlarged the sources of learning available for me	ap7	Moghavvemi et al 2018

The Sampling Process

To obtain representative samples, adopt well-defined processes.

1. Defining the target population
2. Choosing the sampling frame
3. Selecting the sampling method
4. Sample size determination

Target Population

The target population refers to the entire collection of objects or elements relevant to the study project. They are pertinent to the research project as they have the necessary information. Practical issues may impact the definition of the target population. Factors to consider include understanding of the topic, access to relevant individuals and firms, availability of resources, and time constraints(Hair, 2020).

Sampling Frame

A sampling frame lists all the items from which the sample is drawn. Examples of sample frames include Yellow Pages listings of eateries, telephone directories, internal company databases, electronic directories, and university registration lists. A sampling frame is a complete enumeration of all components in the population from which the sample was obtained. A sample frame should ideally be a precise, comprehensive inventory of every component of the population that the study is aiming to study. In actuality, a sampling frame frequently has several flaws:

- It might not be current components that do not belong to the target population may be included, while components that do belong to the target population may not be included.

- Due to the way the list was put up, it might have been assembled from several lists and contain duplicate items(Hair, 2020).

Sampling Method

Probability Sampling

Selection bias is reduced when drawing a probability sample since the items are chosen using a random process that assigns each element a known and nonzero chance of being chosen. Typically, probability sampling entails selecting sizable samples that are thought to be representative of the target population. With a certain degree of confidence, results from a probability sample can be extrapolated to the target population(Hair, 2020).

Simple Random Sampling

A basic sampling technique known as simple random sampling gives every member of the target population an equal chance of being chosen. Simple random sampling is demonstrated by drawing names from a hat or choosing the winning ticket from a container during a raffle. With a tiny population, it is simple to pick names or numbers at random. However, alternative strategies are required when the target audience is sizable.

The following steps are involved in the process of drawing large samples:

1. Give each element in the sample frame a distinct identification number in a sequential manner.
2. To determine which elements should be chosen for the sample, use a random number generator.
3. Make sure no element is chosen more than once.

Systematic Sampling

Selecting an initial beginning point on a list at random and then choosing every nth element in the sample frame is known as systematic sampling. For instance, let's say you wish to select 500 students from a list of 10,000 enrolled at a specific university. A representative cross-section of the student body is your sampling goal. You must first compute the sampling interval and then the sample size before you can draw the sample. The number of population elements that separate each unit chosen for your sample is known as the sampling interval. The sampling interval in this instance is 20 ($10,000 \text{ students/sample of } 500 = 20$). You start by choosing a random number between 1 and 20 to draw the sample. For instance, the sampling elements

numbered 7, 27, 47, 67, and so forth would make up the sample if you were to choose 7 at random(Hair, 2020).

Stratified Sampling

In order to use stratified sampling, the researcher must divide the sampling frame into discrete, nonoverlapping, and reasonably homogeneous subgroups known as strata. The stratification process is often carried out by the researcher using predefined criteria, which may be based on prior experience or even be given by the customer. Phil Samouel, for instance, could want to group his clients in his survey according to factors like age, marital status, family size, income level, frequency of eating out, degree of satisfaction, who chose the restaurant, or a combination of these. Both the overall sample size and the necessary sample sizes for each stratum are decided by the researcher. For instance, the four distinct strata may each have a sample size of 100, whereas the overall sample size may be 400. The composite of the samples drawn from the strata is known as the stratified sample. The stratified sample's components are typically chosen by selecting simple random or systematic samples of the appropriate size from the target population's strata. Elements must be chosen from each stratum of the entire sample when using stratified sampling. Stratified sampling, when done correctly, improves sample information accuracy without necessarily raising costs. One of two methods is used in practice to pick a stratified sample: proportionally or disproportionately. The following sections describe the two approaches. In proportionate stratified sampling, the total sample size includes items from each stratum. The number of items chosen from each stratum is proportional to its size compared to the overall sample size. If a stratum represents 25% of the target population, its sample size will be 25% of the entire sample. Using proportionate stratified sampling to select a sample of males and females at a university with 10,000 students would result in a sample of 60% females and 40% males. Disproportionally stratified sampling involves selecting sample items in one of two ways. One strategy involves selecting components from each stratum based on their relative value. Relative importance is frequently determined by practical concerns, such as the economic relevance of the various strata. For instance, if Samouel's restaurant is in a neighborhood with a significant proportion of older clients who dine out less frequently, he may prioritize exploring a younger consumer base(Hair, 2020).

Cluster Sampling

Cluster sampling assumes that the target population is divided into diverse groupings known as clusters. Clusters include ethnic groups, businesses, homes, and geographic locations. We

provide an example to demonstrate cluster sampling. The most common type of cluster sampling is geographic area sampling. For example, suppose you wish to interview management of banks in San Diego, California. The researcher can get a list of zip codes where banks are located. Each region is then considered a cluster. Randomly select clusters and interview all or a random sample of bank managers inside them. This approach generally works well and yields representative data.

The technique for collecting a cluster sample is as follows:

1. Define the cluster characteristics so that they may be identified unambiguously in the target population. This method predicts the population's total number of clusters.
2. Determine how many clusters to sample.
3. Choose the cluster(s) at random.
4. Obtain a sampling frame for the clusters you've picked.
5. Choose between conducting a census or taking a probability sample from the given cluster(s).
6. If a probability sample is desired, calculate the overall sample size. If more than one cluster will be used, the sample size should be adjusted accordingly. This is often done using a proportionate sampling method(Hair, 2020).

Multi Stage Sampling

Multistage cluster sampling is a series of phases. The sample below illustrates these stages. The problem is to explore the attitudes of medical practitioners in the United States regarding the usage of medical software for patient diagnosis. The first stage involves selecting a random sample of locations in the United States. The regions are the clusters. In the second stage, a random sample of hospitals from the designated regions is chosen. Information can then be collected from all medical practitioners or from a random selection within each hospital. More complicated multistage sampling is feasible(Hair, 2020).

Nonprobability Sampling

Nonprobability sampling does not necessarily select elements that are statistically representative of the population. The researcher selects sample elements based on subjective criteria such as personal experience, convenience, and expert judgment. As a result, the likelihood of selecting any element from the population is unknown. Furthermore, there are no

statistical methods to calculate sampling error for nonprobability samples. Researchers cannot confidently extrapolate their findings to the target population, unlike probability sampling. This does not mean that nonprobability samples should be avoided. Indeed, in some cases, they may be the preferred option(Hair, 2020).

Convenience sampling

Convenience sampling entails selecting participants who are easily accessible and capable of providing the necessary information for the study. Exit interviews with restaurant patrons are a convenient sampling method. Similarly, when a college professor interviews university students, they use a convenience sample. Convenience samples allow researchers to conduct several interviews efficiently and affordably. However, these studies are prone to selection bias as the interviewees may not represent the intended demographic. Using a convenience sample makes generalizing to the target population difficult and hazardous.

River sampling and web scraping are two convenience sampling methods that have evolved with the rise of social media and the internet.¹ River sampling is a web-based opt-in strategy that recruits people using attractive survey invites on a website. Web scraping is a social media research technique that collects user-generated data from sites where people share their thoughts or engage in discourse. Data is analyzed using natural language tools to categorize text(Hair, 2020).

Judgement Sampling

A judgment sample, also known as a purposive sample, selects items from a sample for a specified reason. This type of convenience sampling involves selecting sample elements based on the researcher's assessment. The researcher selects sample elements that they believe represent the target population, however this may not be the case. A judgment sample is a group of experts with knowledge about a specific problem or issue. For instance, physicians specializing in diabetes treatment may be interviewed in a survey to learn the most effective ways to encourage diabetics to adopt healthy diets and exercise habits. The benefits of judgment samples are their simplicity, quickness, and low cost(Hair, 2020).

Quota Sampling

Quota sampling is comparable to stratified random sampling. The target population's strata should be represented proportionally in the entire sample. Unlike stratified sampling, this method selects items based on convenience. In quota sampling, the researcher identifies the

target population's strata, calculates the overall sample size, and assigns quotas to sample elements from each stratum. Furthermore, the researcher describes the qualities of the components to be chosen while leaving the actual selection of elements to the discretion of the individual gathering the information. Thus, while quota sampling assures that each stratum is represented proportionately in the final sample, the sample's conclusions cannot be generalized because the elements were chosen without utilizing a probability sampling approach. Quota samples, like judgment sampling, have the advantages of being convenient, fast, and inexpensive(Hair, 2020).

Snowball Sampling

A snowball sample, also known as a referral sample, is one in which the initial responders are selected using probability methods. The researcher uses the initial respondents to identify additional respondents in the target population. This method is repeated until the desired sample size is achieved. Snowball sampling makes use of referrals to help locate unusual populations or those for which no list exists. For example, South Africa hosted the 2010 FIFA World Cup football events. There is a list of people who bought tickets, but no information of who actually went to the games. The dilemma is exacerbated by the fact that many businesses purchased numerous tickets, either for their own employees or to resell. If the organizing committee wants to conduct a survey of 2010 game attendees to better plan for the 2014 games, the accessible list would most certainly be inaccurate. An excellent strategy could be to use the accessible names, call those people, and ask them for referrals to other people or groups who attended the games. This is a particularly appropriate strategy when the target population is restricted, such as when distinguishing persons who frequently attend the World Cup and those who go less frequently(Hair, 2020).

Here we apply convenience sampling procedure for selecting samples. We select convenience sampling procedure due to nearness to the researcher, easily accessible and respondents meet up sample characteristics.

Sample Size Determination

Specify the confidence level (CL). CL = 95%

Determine the z value associated with the CL. z value is 1.96

Determine the standard deviation of the population σ is set at 0.5.

$$\begin{aligned}
 n &= \frac{0.5(0.5)(1.96)^2}{(0.05)^2} \\
 &= 384.16 \\
 &= 385 \text{ rounded to the next higher integer}
 \end{aligned}$$

The sample size of the respondents was 462.

Sample Size Distribution

University	Sample Size
University of Dhaka	110
Jahangirnagar University	90
Comilla University	78
North South University	80
Daffodil International University	70
Bangladesh University of Business and Technology	34
Total	462

Study Area

The survey was conducted Dhaka and Comilla. Two public and three private universities selected from Dhaka districts and one public university selected from Camilla district.

Study Period

The survey was conducted during June 2022 to June 2023.

Data Analysis Techniques

Partial Least Squares (PLS)

Partial least squares structural equation modeling, sometimes referred to as PLS-SEM, is a blend of interdependence and dependency methodologies. The approach belongs to the class of statistical models that seek to describe the relationships among numerous variables concurrently. Similar to covariance-based SEM (CB-SEM), PLS-SEM is composed of two models: the measurement model, which illustrates how the constructs are represented by the measured variables, and the structural model, which illustrates the relationships between the constructs. The structural model is known as the inner model in PLS-SEM, whereas the measurement model is sometimes referred to as the outer model. However, in both methods, these two models function in essentially the same way. Let's first take a quick look at the fundamental function of these two models(Hair et al , 2019).

Structural Model

Like a set of multiple regression equations, the structural model looks at the structure of relationships represented by a set of equations. These formulas simultaneously estimate a number of distinct but connected multiple regression equations. Just like with CB-SEM, the researcher draws upon theory, prior experience, and the research objectives to differentiate which independent variables predict each dependent variable. The interdependent nature of the structural model results from dependent variables in one relationship becoming independent variables in later relationships. Furthermore, a large number of the same variables have varying effects on each of the dependent variables. The structural model expresses these dependence relationships among independent and dependent variables/constructs, even when a dependent variable becomes an independent variable in other relationship (Hair et al , 2019).

Measurement Model

The measurement model, which describes the latent constructs, is the second fundamental model. A latent construct, also known as a latent variable, is an unobserved and speculated idea that can be represented by measurable or observable variables. Researchers have occasionally tried to differentiate between factor-based and composite-based latent variables/constructs in the past. However, latent constructs are typically defined as conceptual variables in statistical models. In a structural equation model, the latent constructs serve as proxies that enable empirical testing of hypotheses that indicate correlations between conceptual variables.

Therefore, regardless of the definition of the construct or the theoretical underpinnings, all measurements of conceptual variables are proxies or approximations of conceptual variables.

In a SEM, any measurement model—whether based on common factors or composites—creates linear combinations that serve as stand-ins for latent variables. Using a variety of data collection techniques (such as surveys, tests, and observational methods) and secondary sources (such as social media websites, mobile phone call logs, GPS signals, government sources, and information from company data warehouses), latent constructs are measured indirectly by looking at the relationships between several measured variables, also known as manifest variables or indicators. Similar to covariance-based structural modeling, PLS-SEM offers metrics for assessing the constructs' validity, reliability, and measurement error. As previously mentioned, both theoretical and practical viewpoints suggest that we are unable to measure an idea precisely. The majority of theoretical or abstract notions are always prone to some degree of measurement error, even though we may be able to lessen it when measuring physical concepts like time (for example, using atomic clocks). For instance, we know from experience that some people may give inaccurate answers when asked about something as simple as age, income, or weight. They may overstate these details, understate their weight, or not know the exact answer. The estimates of the genuine measurement and structural coefficients are impacted by the measurement error in the responses given to these relatively straightforward questions as well as to more complex ones like degree of commitment or trust. PLS-SEM automatically uses a correction process to account for the measurement error, much like CB-SEM does(Hair et al , 2019).

SEM Indicators

Factor Loading

Examining the indicator loadings is the first step in the assessment procedure. Loadings greater than 0.708 suggest that the construct accounts for over half of the variance in the indicator. This attests to the indicator's respectable item reliability. Although PLS-SEM and CB-SEM both interpret indicator loadings in the same way, it is important to keep in mind that PLS-SEM often has somewhat greater indicator loadings than CB-SEM. This is especially true when comparing models estimated using the two methods. Furthermore, although the main rules for the measurement features covered below apply to both methods, the researcher may decide to assess PLS-SEM indicator loadings more cautiously given the propensity for somewhat larger loadings, depending on the research setting. However, the researcher is allowed to keep more

items on the constructs thanks to the greater loadings that PLS-SEM yields, which typically leads to higher content validity for the reflective measurement models(Hair et al , 2019).

Construct Reliability

Finding the internal consistency reliability of each construct is the next stage. Despite being a popular technique for evaluating reliability, Cronbach's alpha does not give any indicator in the computations any weight. This restriction is addressed by Jöreskog's composite reliability, which is the recommended reliability technique as it weights the separate indications according to their loadings.

When analyzing results related to internal consistency reliability, greater numbers suggest higher degrees of reliability. For instance, findings between 0.70 and 0.95 indicate "satisfactory to good" dependability levels, whereas values between 0.60 and 0.70 are "acceptable in exploratory research." However, reliability might sometimes be unreasonably high (for example, 0.95 or more). When this happens, it usually means that either there is a regular pattern in the responses (like straight lining) or the survey items are redundant (like too similar or slightly different from the same underlying data). Before data is gathered for the final study, the scale should be revised to eliminate redundancy if reliability is very high, especially when it is tested in a pilot study(Hair et al , 2019).

Convergent Validity

Convergent validity is a reflective measurement model's overall metric that assesses how well a construct's indicators converge to account for item variance. Often called communality, it is measured by calculating the average variance extracted (AVE) of all the indicators linked to a specific concept. The average (mean) of the squared loadings of every indicator linked to a specific building is known as the AVE. An acceptable AVE is often defined as 0.50 or greater. At this level or above, the construct typically accounts for at least 50% of the variance of its indicators(Hair et al , 2019).

Discriminant Validity

Assessing the discriminant validity of reflective measurement models is the last stage of evaluation. This measure assesses how different a construct is from other constructs. Assessing how distinctively a construct is represented by its indicators (the shared variance within that construct) as opposed to how strongly that construct is connected with every other construct in the model (the shared variance between constructs) is the fundamental idea behind discriminant

validity. All pairs of reflective constructs in a model undergo discriminant validity tests. When the shared variance within a construct (AVE) consistently surpasses the shared variance with all other constructs, discriminant validity is present, according to the AVE idea previously stated.

The Fornell-Larcker criterion is usually used by CB-SEM, while another approach has been suggested. The AVEs of two constructs are directly compared to the shared variance between them using the Fornell–Larcker approach. The Henseler et al. heterotrait-monotrait ratio (HTMT) of correlations, on the other hand, is the suggested discriminant validity technique for PLS-SEM. The heterotrait-heteromethod correlations, or the mean value of the indicator correlations across constructs, in proportion to the (geometric) mean of the average correlations of indicators measuring the same construct, is known as the HTMT criterion. When two constructs are measured perfectly (i.e., when they are completely reliable), the HTMT criteria estimates their genuine correlation. A difficulty with discriminant validity is indicated by high HTMT readings.

Henseler et al. suggest a value of 0.90 if the path model incorporates theoretically similar constructs (such as loyalty, cognitive satisfaction, and affective fulfillment) based on simulation and earlier research. Stated differently, an HTMT score greater than 0.90 indicates that discriminant validity is lacking. A lower, more conservative threshold value of 0.85 is recommended when the conceptions are conceptually more dissimilar. Lastly, to ascertain whether the HTMT value is statistically substantially less than one (1.0), researchers should employ a bootstrapping process in addition to looking at the HTMT value's size (Hair et al , 2019).

This is basically both quantitative and qualitative type of research. This is cross sectional research. The sample size of the study was 462. The respondents were selected on the basis of convenience sampling procedure. This study conducted on three public universities – University of Dhaka, Jahangirnagar University and Comilla University and also conducted on three private universities – North South University, Daffodil International University and Bangladesh University of Business and Technology. Here we employ Likert Scale for measuring structured type questions. For analyzing data , here we employ descriptive statistical tools and confirmatory factor analysis. For analyzing data we employ two software one is SPSS 26.0 and another one SMART PLS 4.0.

Chapter Summary

The chapter introduced research design, data collection methods, sampling techniques, sample size determination, validity and reliability of the study.

CHAPTER FIVE

CHAPTER FIVE: FINDINGS OF THE STUDY

Demographic Profile of the Respondents

Table 5.1 Gender of the respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	264	57.1	57.1	57.1
	Female	198	42.9	42.9	100.0
	Total	462	100.0	100.0	

Table 5.1 shows that around 57 percent respondents were male and 43 percent respondents were female.

Figure 5.1a Gender of the respondents

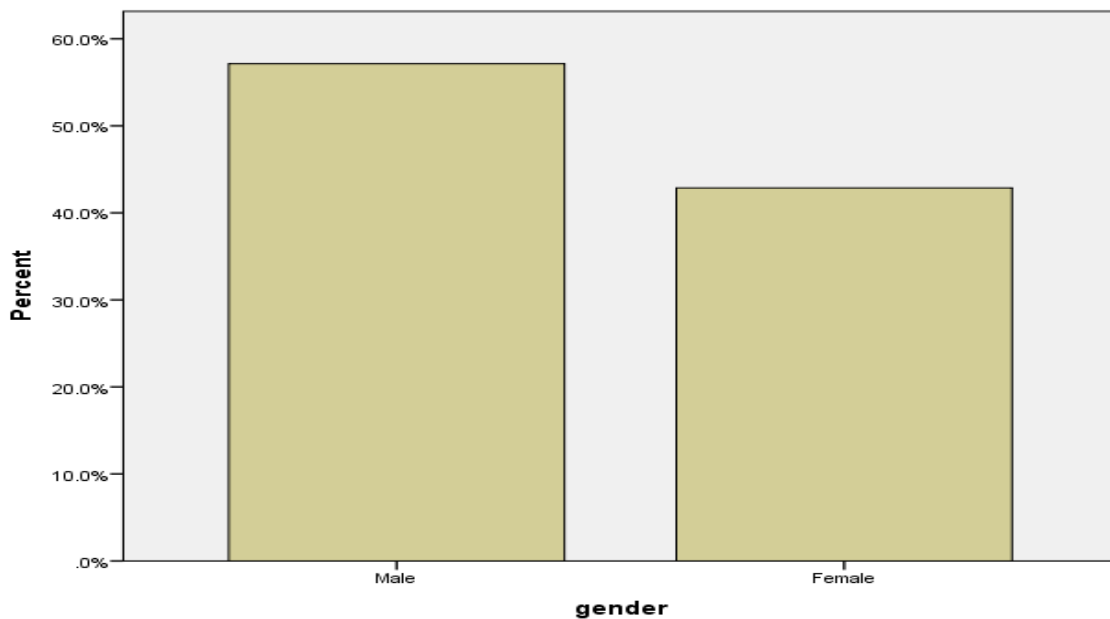


Figure 5.1a depicts that around 57 percent respondents were male and 43 percent respondents were female.

Table 5.2 Age of the respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-21 years	66	14.3	14.3	14.3
	22-25 years	396	85.7	85.7	100.0
	Total	462	100.0	100.0	

Table 5.2 shows that 86 percent respondents belong to age group 22 to 25 years, and 14 percent respondents belong to age group 18 to 21 years

Figure 5.2a Age of the respondents

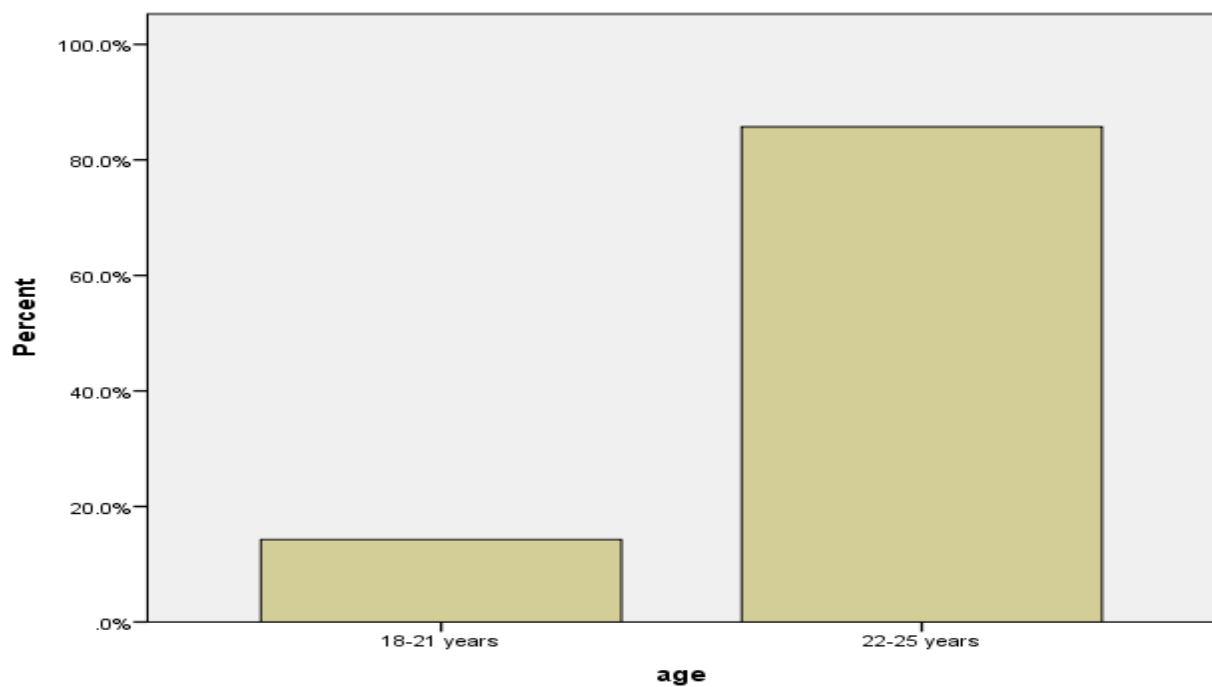


Figure 5.2a depicts that 86 percent respondents belong to age group 22 to 25 years, and 14 percent respondents belong to age group 18 to 21 years

Table 5.3 Academic Year

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	First Year	66	14.3	14.3	14.3
	Second Year	132	28.6	28.6	42.9
	Forth Year	198	42.9	42.9	85.7
	Fifth Year	66	14.3	14.3	100.0
	Total	462	100.0	100.0	

Table 5.3 shows that 43 percent respondents studying fourth year, 29 percent respondents studying second year, 14 percent respondents studying first year and 14 percent respondents studying fifth year.

Figure 5.3a Academic year of the respondents

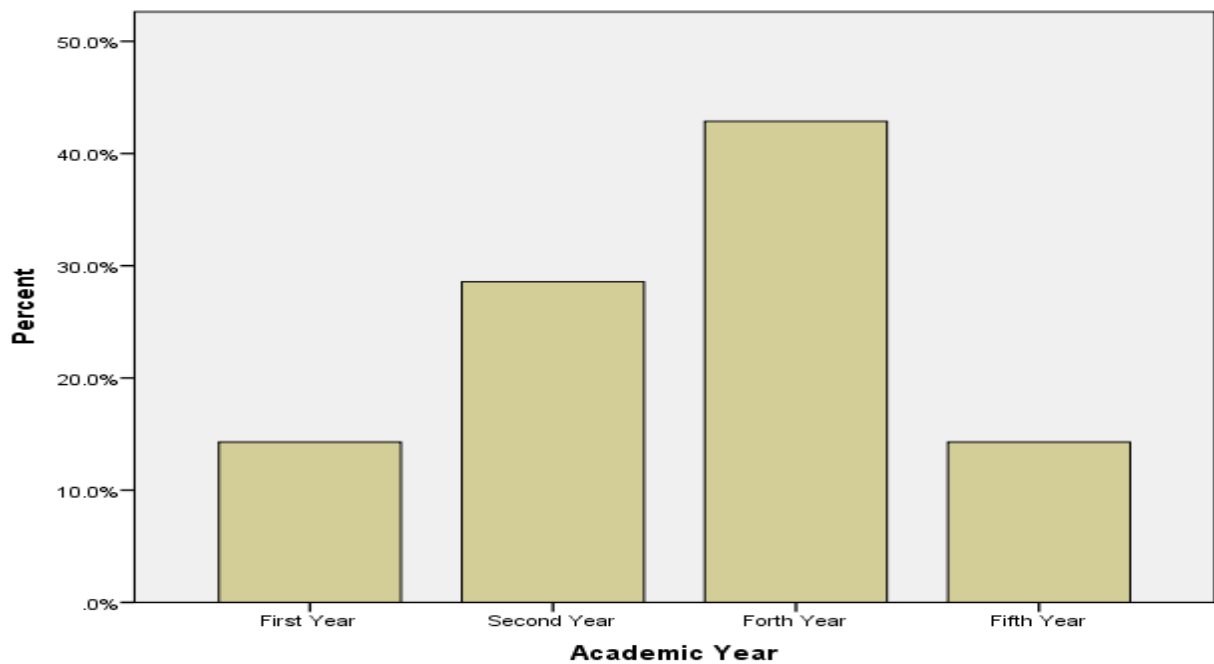


Figure 5.3a depicts that 43 percent respondents studying forth year , 29 percent respondents studying second year, 14 percent respondents studying first year and 14 percent respondents studying fifth year.

Table 5.4 Study Level

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Masters	66	14.3	14.3	14.3
Undergraduate	396	85.7	85.7	100.0
Total	462	100.0	100.0	

Table 5.4 shows that 86 percent respondents studying undergraduate level and 14 percent respondents studying master's level.

Table 5.5 Institution

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Public	198	42.9	42.9	42.9
Private	264	57.1	57.1	100.0
Total	462	100.0	100.0	

Table 5.5 shows that 43 percent respondents studying public universities, 57 percent respondents studying private universities.

Table 5.6 Frequently Visited Website

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Facebook	264	57.1	57.1	57.1
You Tube	66	14.3	14.3	71.4
WhatsApp	132	28.6	28.6	100.0
Total	462	100.0	100.0	

Table 5.6 shows that 57 percent respondents visited facebook , 29 percent respondents visited whatsapp, 14 percent respondents visited you tube.

Table 5.7 Devices used for internet browsing

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Laptop	198	42.9	42.9	42.9
	Mobile	198	42.9	42.9	85.7
	Desktop	66	14.3	14.3	100.0
	Total	462	100.0	100.0	

Table 5.7 shows that 43 percent respondents use mobile for browsing internet, 43 percent respondents use laptop for browsing internet and 14 percent respondents use desktop for browsing internet.

Table 5.8 Location of internet use

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Home	330	71.4	71.4	71.4
	University	132	28.6	28.6	100.0
	Total	462	100.0	100.0	

Table 5.8 shows that 71 percent respondents use internet at home and 29 percent respondents use internet at university premises.

Table 5.9 Frequency of internet usage

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Daily	462	100.0	100.0	100.0

Table 5.9 shows that all respondents use internet daily basis.

Table 5.10 Time spent in academic

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0-5hrs	330	71.4	71.4	71.4
	5-10 hrs	132	28.6	28.6	100.0
	Total	462	100.0	100.0	

Table 5.10 shows that 71 percent respondents spent 0-5 hrs for academic purpose and 29 percent respondents spent 5-10hrs for academic purpose.

Table 5.11 Purpose of internet use

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Social sites	198	42.9	42.9	42.9
	File sharing news	66	14.3	14.3	57.1
	Group study	198	42.9	42.9	100.0
	Total	462	100.0	100.0	

Table 5.11 shows that 43 percent respondents use internet to visit social sites, 43 percent respondents use internet for group study and 14 percent respondents use internet for sharing files.

Table 5.12 Internet usage for educational purposes

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Articles or Blogs related to academic studies	132	28.6	28.6	28.6
	Notes or lectures for academic purposes	264	57.1	57.1	85.7
	E-books or other media files	66	14.3	14.3	100.0
	Total	462	100.0	100.0	

Table 5.12 shows that 57 percent respondents usage internet sharing and downloading lecture notes, 29 percent respondents usage internet sharing and downloading journal articles and 14 percent respondents usage internet sharing and downloading e-books.

Table 5.13 Daily social media use

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1-3h	264	57.1	57.1	57.1
3-6h	132	28.6	28.6	85.7
More than 6h	66	14.3	14.3	100.0
Total	462	100.0	100.0	

Table 5.13 shows that 57 percent respondents spent 1-3 hrs daily basis to visit social media sites, 29 percent respondents spent 3-6 hrs daily basis to visit social media sites and 14 percent respondents spent more than 6 hrs daily basis to visit social media sites.

Table 5.14 Students' time spent on Facebook for Academic Related Activities per week

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Less than 5 hr	396	85.7	85.7	85.7
5-10h	66	14.3	14.3	100.0
Total	462	100.0	100.0	

Table 5.14 shows that 86 percent respondents spent less than 5 hrs on facebook for academic related activities weekly basis and 14 percent respondents spent 5-10 hrs on facebook for academic related activities weekly basis.

Table 5.15 Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Number of Facebook friends	462	104	2500	953.29	832.260
Time spent on Facebook	462	1	6	3.43	1.593
Valid N (listwise)	462				

Table 5.15 shows that average facebook friends of the respondents around 953 and they spent time on facebook average 3.43 hrs daily basis.

Table 5.16 Results of Intra Item Statistics(Descriptive Statistics)

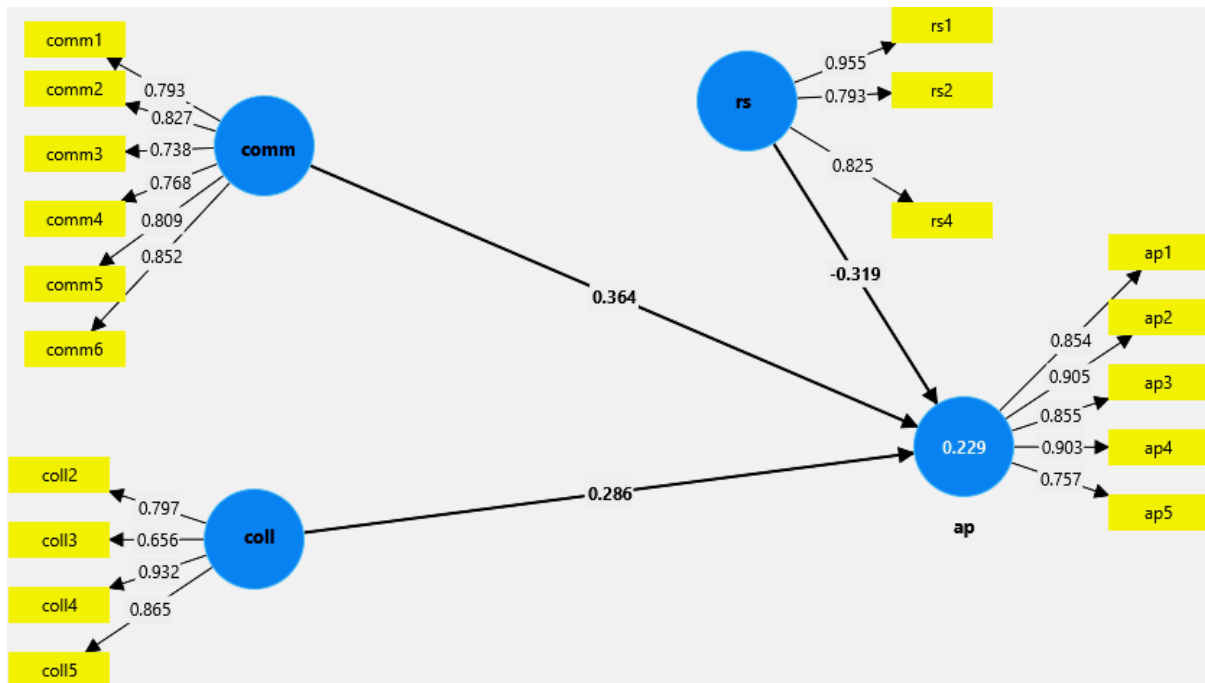
Name	Mean	Median	Standard deviation	Excess kurtosis	Skewness
comm1	3.755	4	1.088	0.498	-0.937
comm2	3.537	4	1.029	0.396	-0.919
comm3	3.794	4	1.046	1.147	-1.164
comm4	3.37	3	1.034	0.191	-0.41
comm5	3.327	3	1.095	-0.478	-0.437
comm6	3.18	3	1	-0.306	-0.223
coll1	3.223	3	0.978	-0.368	-0.306
coll2	3.403	4	0.913	-0.008	-0.523
coll3	3.563	4	1.019	-0.711	-0.3
coll4	3.312	3	0.841	-0.26	0.037
coll5	3.351	3	0.913	-0.217	-0.357
rs1	4.091	4	0.736	2.998	-1.093
rs2	4.087	4	0.73	3.124	-1.105
rs3	3.801	4	0.86	-0.816	-0.117
rs4	3.983	4	0.77	1.675	-0.798
ap1	2.167	2	0.94	-0.736	0.4
ap2	2.418	2	0.929	0.351	0.673

ap3	2.346	2	0.796	-0.248	0.357
ap4	2.249	2	1.013	-0.387	0.538
ap5	2.357	2	0.888	-0.67	0.204
ap6	4.132	4	0.766	2.159	-0.983
ap7	3.981	4	0.815	0.705	-0.59

Table 5.16 provides descriptive data for intra-factor coefficients. The mean of the individual items' scores was used to calculate the four constructs or components. Table 5.16 shows that the means of all four constructs are near the central scale point (four on a five-point Likert scale) and have an SD of less than two. All four constructs have skewness and kurtosis coefficients that are less than two.

Confirmatory Factor Analysis

Figure 5.1 Measurement Model



As can be seen in Figure 5.1, every factor loading is higher than 0.5. Academic performance's R^2 score is 0.229. Cohen (1988) states that an R^2 value of 2 percent indicates a modest influence, an R^2 value of 13 percent indicates a medium effect, and an R^2 value of 26 percent indicates a strong effect. Accordingly, Figure 5.1's findings show that the model had a medium impact on the endogenous characteristics and explained 22.9 percent of academic performance.

Table 5.17 Factor Loading of different constructs

	ap	coll	comm	rs
ap1	0.854			
ap2	0.905			
ap3	0.855			
ap4	0.903			
ap5	0.757			
coll2		0.797		
coll3		0.656		
coll4		0.932		
coll5		0.865		
comm1			0.793	
comm2			0.827	
comm3			0.738	
comm4			0.768	
comm5			0.809	
comm6			0.852	
rs1				0.955
rs2				0.793
rs4				0.825

Factor loading above 0.5, which is adequate for the construct and convergent validities, is demonstrated by the CFA approach. All independent variables have factor loadings greater than 0.5, as shown in Table 5.17.

Table 5.18 Validity and Reliability of Latent Constructs

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
ap	0.912	0.953	0.932	0.733
coll	0.859	0.988	0.889	0.67
comm	0.893	0.92	0.913	0.638
rs	0.823	0.896	0.895	0.74

Cronbach's alpha and composite reliability (CR) values for each construct were evaluated, and they were all above Cohen's recommended critical level of 0.7 (1988). All constructs had average variance extracted (AVE) values that were higher than the threshold value of 0.50 proposed by Hair et al. (2017). Table 5.18 displays the full validity and reliability results for each construct.

Table 5.19 Discriminant validity-Heterotrait-Monotrait(HTMT)

	ap	coll	comm	rs
ap				
coll	0.204			
comm	0.279	0.103		
rs	0.207	0.203	0.343	

Heterait-monotrait, or simply HTMT, is a novel approach to obtaining the discriminant validity that was offered by Heseler et al. (2015) as an additional method for proving discriminant validity. According to Heseler et al. (2015), the strict HTMT threshold value of 0.85 must be less than 0.9, which is a loosen criterion. The HTMT results are displayed in Table 5.19; all of the values fall below 0.85, meeting the necessary threshold value and hence establishing discriminant validity.

Table 5.20 Discriminant validity-Fornell –Larcker criterion

	ap	coll	comm	rs
ap	0.856			
coll	0.237	0.819		
comm	0.285	0.009	0.799	
rs	-0.18	0.163	0.254	0.86

According to the Fornell and Larcker technique, a variable must differ more from its own items or self than from other variables. According to Hair et al. (2011), the diagonal values in the table must be bigger than the column and row they represent because they are the square root of AVE. The correlation matrix, which displays the findings of the Fornell and Larcker criterion (1981), is shown in Table 5.20. All of the diagonal values satisfy the required standards, guaranteeing discriminant validity.

Table 5.21 Multicollinearity Tests

	VIF
ap1	3.017
ap2	3.439
ap3	2.391
ap4	3.965
ap5	2.514
coll2	2.363
coll3	1.887
coll4	2.419
coll5	1.948
comm1	4.803
comm2	2.41
comm3	4.206

comm4	2.039
comm5	3.181
comm6	3.343
rs1	3.405
rs2	2.011
rs4	2.1

When two variables have a strong relationship or when one predictor variable in multiple regression can be linearly predicted from another, this is known as collinearity (Hair et al, 2014). Collinearity can be checked using the inner VIF. Since the VIF values for every component were less than five (Hair et al., 2017), the results show that collinearity was not an issue (Table 5.21).

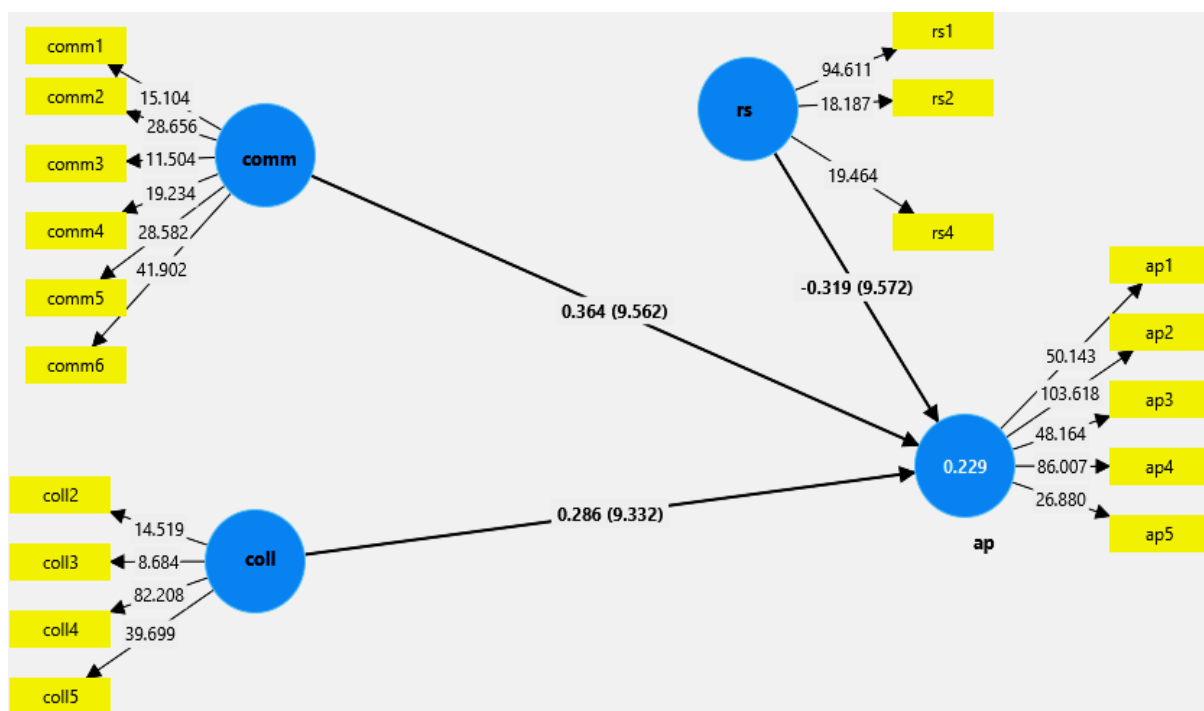
Table 5.22 Items cross loadings: discriminant validity

ap1	0.854	0.174	0.144	-0.105
ap2	0.905	0.253	0.353	-0.12
ap3	0.855	0.245	0.298	-0.147
ap4	0.903	0.199	0.221	-0.237
ap5	0.757	0.046	0.069	-0.165
coll2	0.114	0.797	0.06	0.092
coll3	0.024	0.656	0.042	0.192
coll4	0.268	0.932	0.036	0.116
coll5	0.199	0.865	-0.064	0.201
comm1	0.162	0.097	0.793	0.24
comm2	0.261	0.046	0.827	0.275
comm3	0.088	0.061	0.738	0.324
comm4	0.187	-0.032	0.768	0.253
comm5	0.252	-0.057	0.809	0.088
comm6	0.295	-0.012	0.852	0.16

rs1	-0.194	0.185	0.142	0.955
rs2	-0.12	0.058	0.204	0.793
rs4	-0.136	0.157	0.35	0.825

The cross-loading method is another way to measure discriminant validity; although though it is not employed nowadays, it is still used to assess validity. Each item's loading in its own variable must be bigger than the item's value in cross loadings in other variables, and the cross-loading method ensures that every item is loaded (Hair et al 2011; Hair Jr et al 2014). According to Gefen and Straub (2005), there must be a difference of more than 0.1 between the cross loadings of the item on its own variable and other constructs. The cross loading for each construct is displayed in Table 5.22.

Figure 5.2 Structural Model



The researchers used PLS-SEM to examine the structural model after evaluating the measurement model (Hair et al. 2019). The PLS approach (Partial Least Square) was used to test the hypothesis, and boot strapping was used to run the results (Haenlein and Kaplan 2004). From the original data set, this method produced 5000 subsamples in total (Hair Jr et al 2014).

Figure 5.2 shows the bootstrapping findings. The model predictive quality (R^2) was examined in order to assess the structural model. R^2 has three possible values: high, moderate, and low. A number greater than 0.6 is regarded as high, a value between 0.3 and 0.6 as moderate, and a value less than 0.3 as low (Sanchez 2014). Figure 5.2 displays a low R^2 value of 0.229.

Hypotheses Testing

Table 5.23 Statistics of hypotheses testing

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
coll -> ap	0.286	0.29	0.031	9.332	0.000
comm -> ap	0.364	0.366	0.038	9.562	0.000
rs -> ap	-0.319	-0.322	0.033	9.572	0.000

The findings presented in Table 5.23 indicate that there is a positive significant relationship between collaboration and academic performance ($\beta=0.286$, $t=9.332$, $p<0.000$), communication and academic performance ($\beta=0.364$, $t=9.562$, $p<0.000$), and resource sharing and academic performance ($\beta=-0.319$, $t=9.572$, $p<0.000$).

Qualitative Statement Analysis

Positive Relationship between Face book and Academic Performance

Word Clouding

Figure WC1



Figure WC1 depicts that there is a positive benefits of using facebook such as easier communication, networking that facilitate academic performance.

Network Diagram

Figure ND1

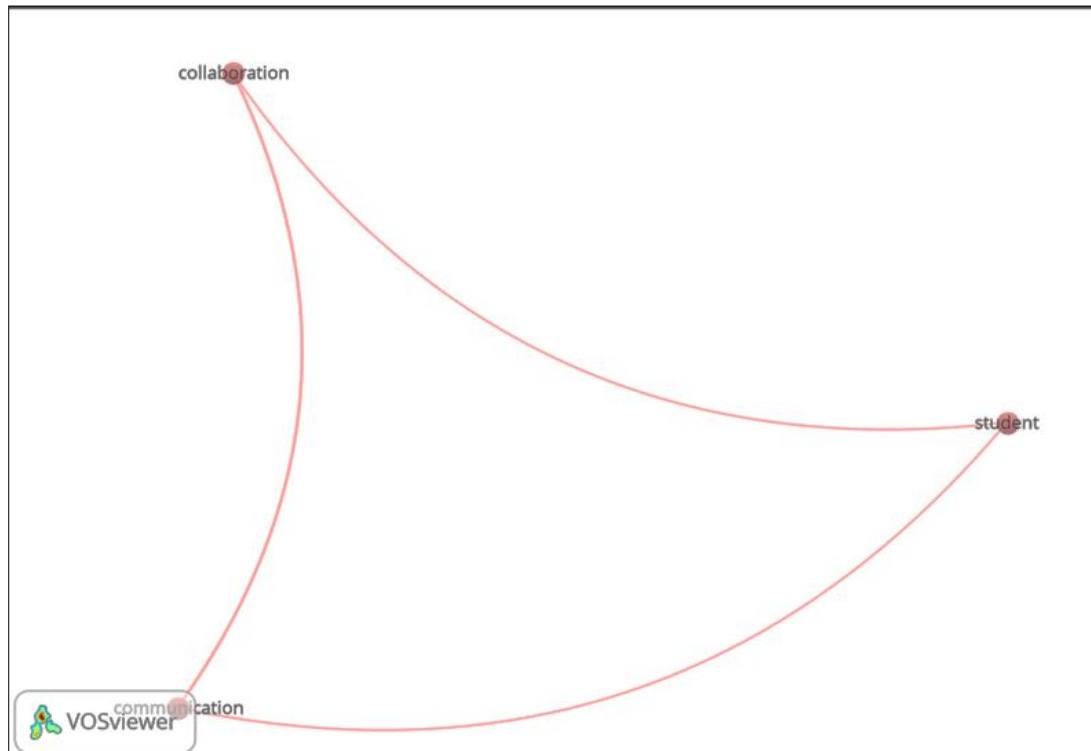


Figure ND1 depicts that there is a positive benefits of using facebook such as communication and collaboration that enhance academic performance.

Negative Relationship between Face book and Academic Performance

Word Clouding

Figure WC2



Figure WC2 depicts that there is a negative impact of using facebook such decreased skills, destruction, poor academic performance as that destroy their academic performance.

Network Diagram

Figure ND2

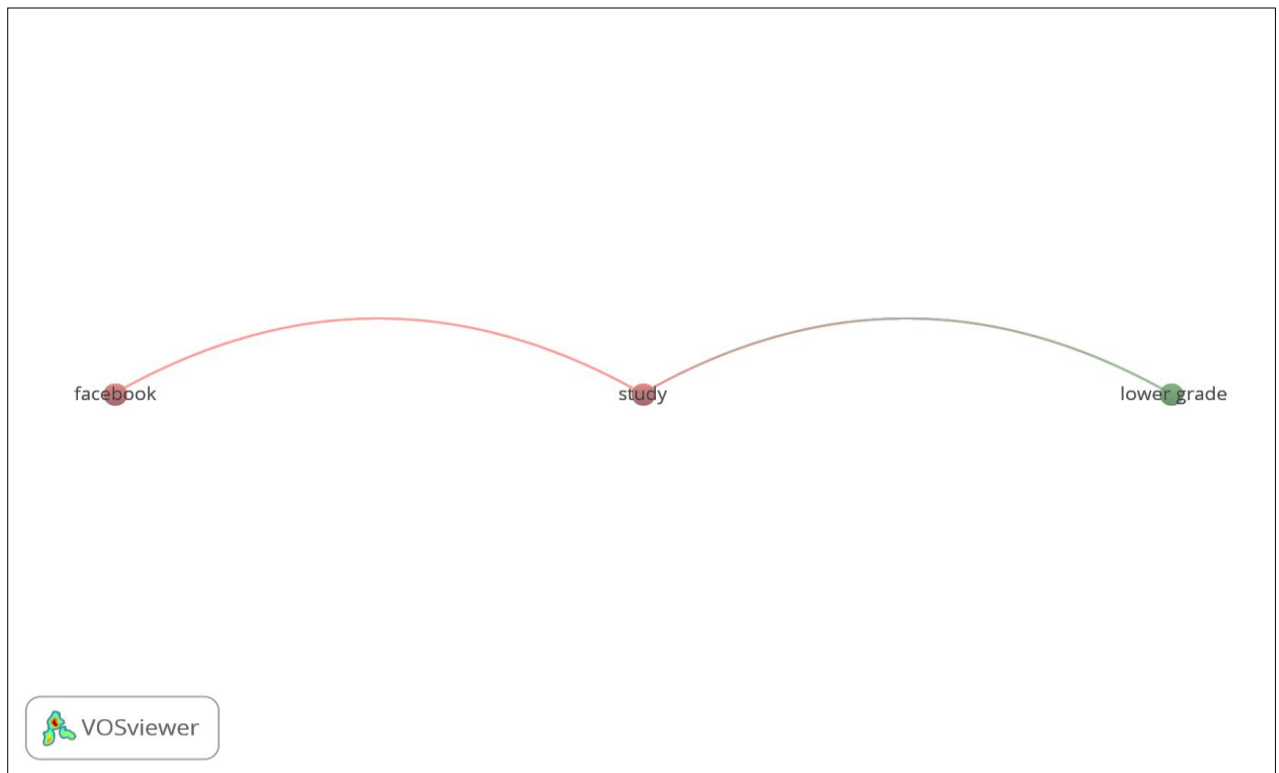


Figure ND2 depicts that facebook is responsible for lower grade.

Chapter Summary

The chapter introduced descriptive statistical tools for analyzing demographic profile of the respondents. For structured questions, we introduced structural equation modeling. For qualitative data, we introduced word clouding and network diagram.

CHAPTER SIX

CHAPTER SIX: SUMMARY AND CONCLUSIONS

Summary

The study examines Facebook usage and its impact on academic performance of university students in Bangladesh. The specific objectives of this study are: To identify the usage pattern of Facebook among university students in Bangladesh, To examine the impact of Facebook usage on university students academic performance, To analyze the effects of Facebook usage on university students academic performance. Based on the reviewed literature for this study, the theories identified and the hypotheses, some research questions are provided about Facebooking and academic performance as to how these interplay on a day to day basis among the university students in Bangladesh. The research questions of this study are: RQ1: What are the specific usage patterns of Facebook among university students in Bangladesh? RQ2: How does the usage of Facebook influence the academic performance of university students in Bangladesh? RQ3: What are effects of Facebook usage on university student's academic performance? Based on the literature review the following null hypotheses are framed and tested with suitable statistical tools. There is no significant relationship between collaboration and academic performance. There is no significant relationship between communication and academic performance. There is no significant relationship between resource sharing and academic performance.

This is basically both qualitative and quantitative type of research. This is cross sectional research. The sample size of the study was 462. The respondents were selected on the basis of convenience sampling procedure. This study conducted on three public universities – University of Dhaka, Jahangirnagar University and Comilla University and also conducted on three private universities – North South University, Daffodil International University and Bangladesh University of Business and Technology. Here we employ Likert Scale for measuring structured type questions. For analyzing data, here we employ descriptive statistical tools and confirmatory factor analysis. For analyzing data we employ two software one is SPSS 26.0, VOSViewer, and another one SMART PLS 4.0.

The major findings of the study are summarizing as follows based on the analyzed data:

Based on survey 57 percent respondents were male and 43 percent respondents were female. Eighty six percent respondents belong to age group 22 to 25 years, and 14 percent respondents belong to age group 18 to 21 years. Forty three percent respondents studying fourth year, 29

percent respondents studying second year, 14 percent respondents studying first year and 14 percent respondents studying fifth year. Eighty six percent respondents studying undergraduate level and 14 percent respondents studying master's level. Forty three percent respondents studying public universities, 57 percent respondents studying private universities. Fifty seven percent respondents visited Facebook, 29 percent respondents visited whatsapp, 14 percent respondents visited you tube. Forty three percent respondents use mobile for browsing internet, 43 percent respondents use laptop for browsing internet and 14 percent respondents use desktop for browsing internet. Seventy one percent respondents use internet at home and 29 percent respondents use internet at university premises. All respondents use internet daily basis. Seventy one percent respondents spent 0-5 hrs for academic purpose and 29 percent respondents spent 5-10hrs for academic purpose. Forty three percent respondents use internet to visit social sites, 43 percent respondents use internet for group study and 14 percent respondents use internet for sharing files. Fifty seven percent respondents usage internet sharing and downloading lecture notes, 29 percent respondents usage internet sharing and downloading journal articles and 14 percent respondents usage internet sharing and downloading e-books. Fifty seven percent respondents spent 1-3 hrs daily basis to visit social media sites, 29 percent respondents spent 3-6 hrs daily basis to visit social media sites and 14 percent respondents spent more than 6 hrs daily basis to visit social media sites. Eighty six percent respondents spent less than 5 hrs on facebook for academic related activities weekly basis and 14 percent respondents spent 5-10 hrs on Facebook for academic related activities weekly basis. Average Facebook friends of the respondents around 953 and they spent time on Facebook average 3.43 hrs daily basis. The mean of the individual items' scores was used to calculate the four constructs or components. The means of all four constructs are near the central scale point (four on a five-point Likert scale) and have an SD of less than two. All four constructs have skewness and kurtosis coefficients that are less than two. Every factor loading is higher than 0.5. Academic performance's R^2 score is 0.229. Cohen (1988) states that an R^2 value of 2 percent indicates a modest influence, an R^2 value of 13 percent indicates a medium effect, and an R^2 value of 26 percent indicates a strong effect. Accordingly, the model had a medium impact on the endogenous characteristics and explained 22.9 percent of academic performance. Factor loading above 0.5, which is adequate for the construct and convergent validities, is demonstrated by the CFA approach. All independent variables have factor loadings greater than 0.5. Cronbach's alpha and composite reliability (CR) values for each construct were evaluated, and they were all above Cohen's recommended critical level of 0.7 (1988). All constructs had average variance extracted (AVE) values that were higher than the

threshold value of 0.50 proposed by Hair et al. (2017). Heterait-monotrait, or simply HTMT, is a novel approach to obtaining the discriminant validity that was offered by Heseler et al. (2015) as an additional method for proving discriminant validity. According to Heseler et al. (2015), the strict HTMT threshold value of 0.85 must be less than 0.9, which is a loosen criterion. All of the values fall below 0.85, meeting the necessary threshold value and hence establishing discriminant validity. According to the Fornell and Larcker technique, a variable must differ more from its own items or self than from other variables. According to Hair et al. (2011), the diagonal values in the table must be bigger than the column and row they represent because they are the square root of AVE. All of the diagonal values satisfy the required standards, guaranteeing discriminant validity. When two variables have a strong relationship or when one predictor variable in multiple regression can be linearly predicted from another, this is known as collinearity (Hair et al, 2014). Collinearity can be checked using the inner VIF. Since the VIF values for every component were less than five (Hair et al., 2017), the results show that collinearity was not an issue. The cross-loading method is another way to measure discriminant validity; although though it is not employed nowadays, it is still used to assess validity. Each item's loading in its own variable must be bigger than the item's value in cross loadings in other variables, and the cross-loading method ensures that every item is loaded (Hair et al 2011; Hair Jr et al 2014). According to Gefen and Straub (2005), there must be a difference of more than 0.1 between the cross loadings of the item on its own variable and other constructs. The researchers used PLS-SEM to examine the structural model after evaluating the measurement model (Hair et al. 2019). The PLS approach (Partial Least Square) was used to test the hypothesis, and boot strapping was used to run the results (Haenlein and Kaplan 2004). From the original data set, this method produced 5000 subsamples in total (Hair Jr et al 2014). The model predictive quality (R^2) was examined in order to assess the structural model. R^2 has three possible values: high, moderate, and low. A number greater than 0.6 is regarded as high, a value between 0.3 and 0.6 as moderate, and a value less than 0.3 as low (Sanchez 2014). It displays a low R^2 value of 0.229. The findings indicate that there is a positive significant relationship between collaboration and academic performance ($\beta=0.286$, $t=9.332$, $p<0.000$), communication and academic performance ($\beta=0.364$, $t=9.562$, $p<0.000$), and resource sharing and academic performance ($\beta=-0.319$, $t=9.572$, $p<0.000$).

Conclusions

The research discussed in this study gives new information regarding the effects that can be accomplished by using Facebook as a learning tool. It has been proved that using Facebook in education improves students' knowledge. There is a favorable association between the frequency with which students use Facebook groups as a learning tool and the actual number of points earned during the course "Designing Educational Software and Media". This study used only one SNS-Facebook, but this does not diminish the significance of the study because the focus was not on the technological characteristics of the site, but on the benefits that may be obtained by facilitating communication in student-student and student-teacher relationships. For instructional reasons, students often used comments, links, and chat, which are the main capabilities of SNSs. As a result, the findings are relevant to other SNSs with comparable technical and social qualities that exist today or will exist in the future.

This study provides vital insights for educators, policymakers, and students. The Institutions should think about digital literacy programs that focus on useful and purposeful social media use, especially Facebook. Moreover, policies that encourage academic arrangement on Facebook, while reducing distraction, could help connect its benefits for educational development.

Chapter Summary

The chapter mainly covers summary of findings and conclusions.

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Appendix

Questionnaire:

The survey is being conducted for the PhD research. Your answer will really help to a lot in attaining the desired results. The objective of this study is to know the positive and negative effects of Facebook on the learning process of University students in Bangladesh. **The data will remain highly confidential.**

Part A: Demographic Information

Please complete the following (Give a tick mark)

1. Gender: (A) Male (B)Female
2. Age(years): (A)18-21 (B)22-25 (C)26-29 (D)Above 29 (E)Below 18
3. Academic year: (A)First Year (B)Second Year (C)Third Year (D)Fourth Year (E) Fifth Year
4. Study level: (A) PhD (B)M.Phil (C)Masters (D)Undergrade
5. Type of institution: (A) Public (B)Private
6. Frequently visited website : (A)Facebook (B)Google (C)Youtube(D)Whatsapp (E)Messenger (F)Instagram (G)Twitter (H)Gmail (I)Others
7. Devices used for internet browsing: (A)Laptop (B)Mobile (C)Desktop
8. Location of internet use: (A)Home(B)Library (C)University (D)Cyber café
9. Frequency of internet usage: (A)Daily (B)Weekly (C)Monthly
10. Time spent in academic (hrs/day): (A)Rarely (B)0-5h (C)5-10h (D)10-15h (E)15-20h (F)20-24h
11. Purpose of internet use: (A)Social sites (B)File sharing news (C)Group study (D)Music (E)Shopping
12. Internet usage for educational purposes: (A)Articles or Blogs related to academic studies (B)Notes or lectures for academic purposes (C)Courses available on specific topics (D)E-books or other media files
13. Daily social media use: (A)1-3h (B)3-6h (C)More than 6h (D)Below 1 hr
14. Number of Facebook friends:
- 15.Time spent on Facebook(hrs/day):

16. Students' time spent on Facebook for Academic Related Activities per week

(A) Less than 5 hr (B)5-10h (C)11-20hr (D)More than 20hr

Part B:

17. Educational usage of Facebook for communication	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
17.1 I discuss study related topics in Facebook groups					
17.2 I am writing to my fellow students on Facebook regarding study related topics					
17.3 I use the chat feature on Facebook to talk to my fellow students about my distance study					
17.4 I participate in study related discussions on Facebook					
17.5 I share with my fellow students about my experiences in distance study on Facebook					
17.6 In order to plan my further distance study, I communicate with my fellow students about professors and lecturers					
18. Educational usage of Facebook for collaboration					
18.1 I work together with my fellow students on the study material via Facebook					
18.2 To prepare for the exam, I work on the study material with my fellow students on Facebook					
18.3 I use Facebook to discuss correspondence work assignments with my fellow students					

18.4 I use Facebook to organize distance learning work assignments					
18.5 I work on common distance learning tasks with Facebook groups					
19. Educational usage of Facebook for resource sharing					
19.1 I exchange study material on Facebook					
19.2 I benefit from the study material pool on Facebook					
19.3 I use Facebook to make my own summaries of the study material available to my fellow students					
19.4 I use third party summaries of the study material which I download via Facebook					
20. Student Academic Performance					
20.1 Sharing knowledge in the Facebook group helped me to learn					
20.2 Sharing knowledge in the Facebook group has had a positive effect on my learning					
20.3 Sharing knowledge in the Facebook group helped significantly in my learning					
20.4 Sharing knowledge in the Facebook group helped me to learn faster					
20.5 Sharing knowledge in the Facebook group made my study easier					
20.6 Sharing knowledge in the Facebook group improved my study related performance					

20.7 Sharing knowledge in the Facebook group enlarged the sources of learning available for me					
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Thank you for your cooperation.

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