



# Social Media Impact on Student's Academic Performance: A Study of College Students in Bhubaneswar

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**Abstract.** In modern society, it is essential that individuals have a comprehensive understanding of both current events and prevailing fashion trends. However, what impact does this pattern have on the academic performance of the students? The advent of social media platforms such as Facebook, YouTube, and Twitter has led to a dichotomy between the virtual and physical realms of our society. Social media refers to digital platforms that facilitate the connection of individuals on both local and global scales. The projected trajectory for social media user penetration in India indicates a gradual increase of 22.4 percentage points from 2023 to 2028. According to this forecast, it is projected that by the year 2028, the rate of penetration would have a consecutive fifth-year increase, reaching 83.16 percent. Significantly, during the last several years, there has been a consistent increase in the number of individuals engaging with social media platforms. As a result of the current circumstances, their academic accomplishments are consistently devalued. It is important to ascertain the extent to which the study has taken into account the academic achievement of pupils across many disciplines, including graduate, under graduate and post graduate students of different streams arts, science, and engineering. The aim of this study is to analyse the effect of social media use on the academic performance of college students in Bhubaneswar. This analysis included both primary and secondary data sources. To get the necessary primary data, a sample of college students from various academic disciplines, including Arts, Science, and Engineering, were invited to participate in a survey. The questionnaire used in this study was carefully designed, pre-tested, and ensured transparency in its construction. A total of 180 graduate and postgraduate students from various institutions in Bhubaneswar were recruited in a random manner for the purpose of this research study. Social media, an integral aspect of individuals' lives, has dual advantages for students: it facilitates academic development and serves as a potential source of addiction. The degree to which youngsters perform academically in their classrooms and engage in courteous interactions on social media platforms serves as a reliable indicator of their overall behaviour. It is recommended that parents start their children's education at home due to their heightened sense of responsibility compared to educational institutions, hence potentially providing significant benefits inside academic contexts.

**Keywords:** Social media · digital platforms · Academic performance



## 2 Review of Literature

A general overview of the literature review on the impact of social media on college student's academic performance.

Sl.No	Journal	Year	Author	Title
1	Computers in Human Behavior	2015	Kirschner, P. A., & Karpinski, A. C	Facebook® and academic performance
2	Journal of Applied Developmental Psychology	2016	Junco, R	Student class standing, Facebook use, and academic performance
3	Computers & Education	2017	Al-rahmi, W. M., Alias, N., Othman, M. S., & Ahmed, E	The role of social media for collaborative learning to improve academic performance of students and researchers in Malaysian higher education
4	Educational Technology & Society	2018	Rouis, S., Limayem, M., & Salehi-sangari, E	Impact of Facebook on student academic performance
5	Journal of Educational Computing Research	2019	Khan, G. F	The impact of Facebook use on academic performance: Evidence from a developing country
6	International Journal of Environmental Research and Public Health	2020	Rosas-Salgado, M. R., Morales-Vargas, A. E., & Jiménez, Z. R	Relationship between sleep quality, academic performance, and the use of electronic devices
7	Frontiers in Psychology	2021	Verduyn, P., Lee, D. S., Park, J., Shablack, H., Orvell, A., Bayer, J.,... & Kross, E	Passive Facebook usage undermines affective well-being: Experimental and longitudinal evidence

## 3 Statement of the Problem

In current digital age, when youth and academic genre are more affected, students who experience significant negative effects from social media are more vulnerable. Current results in merciless down streaming of their academic accomplishments. The authors are mentioned in the problem statement. 1) **Das, B, and Sahoo [3]** individuals spend more time communicating with and sharing information with their peers on social networking networks. They develop a dependency on checking their own status every few minutes throughout the day. 2) The results of the study, in the opinion of **Kolan and Dzadza**

[4], have demonstrated the nature of social media as a valuable servant but a hazardous master and a two-edged sword. Despite the benefits that students can derive from social media networks, including the sharing of information, the development of relationships, and participation in group discussions, there is a risk of addiction and attention-deficit disorder caused by social media use, which could have a significant negative impact on students' academic lives. Understanding the degree to which the academic accomplishment of students from various streams of the arts, sciences, and engineering was taken into consideration for the research is crucial.

## **4 Objectives of the Study**

To assess the frequency and extent of social media usage among college students in arts, science, and engineering institution in Bhubaneswar.

## **5 Research Methodology**

This study is a quantitative one using a survey approach. The greater part of the study is descriptive. Both primary and secondary data were used in this research. College students from several streams (Arts, Science, and Engineering) were asked to complete a pre-tested, carefully designed, and transparent questionnaire in order to get the necessary primary data. For the study, Graduate and Postgraduate students from various institutions of Bhubaneswar are chosen at random. Random sampling involved in dividing the population into subgroups (strata) based on certain characteristics (e.g., grade level, gender), and then a simple random sample is selected from each stratum. The formula used in this case relates to determining the sample size for each stratum and then using simple random sampling within each stratum. A sample of 180 student responders was chosen using a basic random sampling procedure. Percentage analysis and the Chi-square test were the statistical methods employed in the current study.

## **6 Hypotheses**

H01: There is no significant association between age and academic performance.

H02: There is no significant association between gender and academic performance.

H03: There is no significant association between stream of education and academic performance.

H04: There is no significant association between frequency of using social media and academic performance.

H05: There is no significant association between purpose of using social media and academic performance.

To understand the elements impacting academic performance among students as the overall context and goal of our study, which is in accordance with the single objective, which gives the overarching framework and purpose of our research.

## 7 Data Analysis

### 7.1 Variables and Usage of Social Media in Demographic

Age and gender are taken into account as demographic factors for students in arts, science, and engineering colleges, while frequency of use, purpose of use, and academic performance (the dependent variable) are taken into account as social media usage patterns among students for all previous categories for comparison.

**Table 1.** Variables and usage of social media in Demographic

Sl. No.	Variables	Frequency	Percentage
1	Age		
	Below 20 years	74	41.1
	20 to 23 years	51	28.3
	Above 23years	55	30.6
2.	Gender		
	Female	66	36.7
	Male	114	63.3
3.	Stream of education		
	Arts and Science	108	60.0
	Engineering	72	40.0
4.	Frequency of using social media		
	Very often	67	37.2
	Occasionally	63	35.0
	Rarely	50	27.8
5.	Purpose of using social media		
	Entertainment purpose	71	20
	Knowledge development	73	31.7
	Both	36	48.3
6.	Academic Performance		
	High	36	20
	Moderate	57	31.7
	Low	87	48.3

Table 1 shows Age: The majority of the respondents are above 20 years old, with 28.3% in the 20 to 23 years age group and 30.6% above 23 years. About 41.1% of the respondents are below 20 years old. Gender: The respondents are predominantly male, accounting for 63.3% of the total, while females represent 36.7%. Stream of Education: The majority of the respondents (60.0%) are from the Arts and Science stream of education. Engineering students make up 40.0% of the respondents. Frequency of Using Social Media: A significant number of respondents (37.2%) use social media very often. The usage of social media is occasional for 35.0% of respondents. 27.8% of respondents use social media rarely. Use of Social Media: The majority of respondents (40.6%) use social media primarily for knowledge growth, which includes academic-related and self-improvement activities. 39.4% of survey participants said they use social media for pleasure, such as gaming and chit-chatting. 20.0% of respondents said they use social media for enjoyment and education. Academic Performance: A significant proportion (48.3%) of respondents reported having low academic performance. 31.7% of respondents have moderate academic performance. 20.0% of respondents reported high academic performance.

## 7.2 Two-Way Table and Chi-Square Test

**Table 2.** A connection Between Age and Academic Performance

Age	Academic Performance			Total	Result
	High	Moderate	Low		
Below 20 years	11	22	41	74	$\chi^2=11.056$ $df=4$ $TV=9.488$ $Sig.0.026$ Result: Significant $H_0$ : Rejected
	30.6%	38.6%	47.1%	41.1%	
20 to 23 years	8	23	20	51	
	22.2%	40.4%	23.0%	28.3%	
Above 23 years	17	12	26	55	
	47.2%	21.1%	29.9%	30.6%	
Total	36	57	87	180	

Table 2 presents the frequency distribution of academic performance (High, Moderate, Low) for three age groups: Below 20 years, 20 to 23 years, and Above 23 years. Below 20 years: Out of 74 respondents below 20 years old, 11 have high academic performance, 22 have moderate academic performance, and 41 have low academic performance. The percentages for each academic performance level in this age group are as follows: High academic performance: 14.9%. Moderate academic performance: 29.7%. Low academic performance: 55.4%. 20 to 23 years: Among the 51 respondents in the 20 to 23 years age group, 8 have high academic performance, 23 have moderate academic performance, and 20 have low academic performance. The percentages for each academic performance level in this age group are as follows: High academic performance: 15.7%. Moderate academic performance: 45.1%. Low academic performance: 39.2%. Above 23 years: For the 55 respondents above 23 years old, 17 have high academic performance, 12 have moderate academic performance, and 26 have low academic performance. The percentages for each academic performance level in this age group are as follows: High academic performance: 30.9%. Moderate academic performance: 21.8%. Low academic performance: 47.3%. Chi-Square Test: The Chi-Square test statistic ( $\chi^2$ ) is 11.056 with degrees of freedom (df) equal to 4. The critical value at a significance level (Sig.) of 0.05 is 9.488. The test result (Sig. 0.026) indicates that there is a statistically significant association between age and academic performance. Hypothesis Testing: The null hypothesis ( $H_0$ ) is that there is no association between age and academic performance. Since the p-value (0.026) is less than the significance level of 0.05, we reject the null hypothesis ( $H_0$ ) and conclude that there is a significant association between age and academic performance. The data suggests that the distribution of academic performance varies across different age groups. The percentage of respondents with high academic performance increases with age, while the percentage with low academic performance decreases. The below 20 years age group has the highest proportion of respondents with low academic performance, while the above 23 years age group has the highest proportion with high academic performance (Table 3).

**Table 3.** Link between Gender and Academic Performance

Gender	Academic Performance			Total	Result
	High	Moderate	Low		
Male	17	35	62	114	$\chi^2=6.472$ df=2 TV=5.991 Sig.0.039 Result: Significant H <sub>0</sub> : Rejected
	47.2%	61.4%	71.3%	63.3%	
Female	19	22	25	66	
	52.8%	38.6%	28.7%	36.7%	
Total	36	57	87	180	

**7.3 Gender and Academic Performance**

Academic Performance by Gender: Male Students: Among the male respondents, 71.3% exhibited low academic performance, 61.4% showed moderate academic performance, and 47.2% achieved high academic performance. Female Students: Among the female respondents, 52.8% exhibited high academic performance, 38.6% showed moderate academic performance, and 28.7% achieved low academic performance. Chi-Square Test Result: The Chi-Square test statistic ( $\chi^2$ ) is 6.472 with degrees of freedom (df) equal to 2. The critical value at a significance level (Sig.) of 0.05 is 5.991. The test result (Sig. 0.039) indicates that there is a statistically significant association between gender and academic performance. Hypothesis Testing: The null hypothesis (H<sub>0</sub>) is that there is no association between gender and academic performance. The alternative hypothesis (H<sub>1</sub>) is that there is an association between gender and academic performance. Since the p-value (0.039) is less than the significance level of 0.05, we reject the null hypothesis (H<sub>0</sub>) and conclude that there is a significant association between gender and academic performance. The analysis demonstrates that there is a statistically significant association between gender and academic performance. Male students tend to have higher percentages in the low and moderate academic performance categories compared to female students. Female students tend to have a higher percentage in the high academic performance category compared to male students (Table 4).

**7.4 Stream of Education and Academic Performance**

**Table 4.** A connection between stream of education and Academic Performance

Stream	Academic Performance			Total	Result
	High	Moderate	Low		
Arts and Science	21	27	60	108	$\chi^2=6.745$ df=2 TV=5.991 Sig.0.034 Result: Significant H <sub>0</sub> : Rejected
	58.3%	47.4%	69.0%	60.0%	
Engineering	15	30	27	72	
	41.7%	52.6%	31.0%	40.0%	
Total	36	57	87	180	

Arts and Science: Among the 108 respondents from Arts and Science stream, 21 have high academic performance, 27 have moderate academic performance, and 60 have low academic performance. The percentages for each academic performance level in the Arts and Science stream are as follows: High academic performance: 19.4%. Moderate academic performance: 25.0% Low academic performance: 55.6%. Engineering: Among the 72 respondents from the Engineering stream, 15 have high academic performance, 30 have moderate academic performance, and 27 have low academic performance. The percentages for each academic performance level in the Engineering stream are as follows: High academic performance: 20.8%. Moderate academic performance: 41.7% Low academic performance: 37.5%. Chi-Square Test: The Chi-Square test statistic ( $\chi^2$ ) is 6.745 with degrees of freedom (df) equal to 2. The critical value at a significance level (Sig.) of 0.05 is 5.991. The test result (Sig. 0.034) indicates that there is a statistically significant association between the stream of education and academic performance. Hypothesis Testing: The null hypothesis (H0) is that there is no significant association between the stream of education and academic performance. Since the p-value (0.034) is less than the significance level of 0.05, we reject the null hypothesis (H0) and conclude that there is a significant association between the stream of education and academic performance. The percentage of students with high academic performance is slightly higher in the Engineering stream (20.8%) compared to the Arts and Science stream (19.4%). However, the percentage of students with moderate academic performance is significantly higher in the Engineering stream (41.7%) compared to the Arts and Science stream (25.0%). On the other hand, the percentage of students with low academic performance is higher in the Arts and Science stream (55.6%) compared to the Engineering stream (37.5%).

## 7.5 Frequency and Academic Performance

**Table 5.** A connection between Frequency and Academic Performance

Frequency	Academic Performance			Total	Result
	High	Moderate	Low		
Very often	6	19	42	67	$\chi^2=29.543$ df=4 TV=9.488 Sig.0.000 Result: Significant H <sub>1</sub> : Rejected
	10.7%	33.3%	48.3%	37.2%	
Occasionally	8	27	28	63	
	22.2%	47.4%	32.2%	35.0%	
Rarely	22	11	17	50	
	61.1%	19.3%	19.5%	27.8%	
Total	36	57	87	180	

Table 5, the chi-square test has been conducted, which resulted in a chi-square value ( $\chi^2$ ) of 29.543 with 4 degrees of freedom (df = 4) and a test value (TV) of 9.488. The significance level (Sig.) is reported as 0.000, which means it is less than 0.001, indicating a very low p-value. The test result states that the null hypothesis (H<sub>01</sub>) is rejected, which means there is a significant relationship between the frequency of an

event and academic performance. Analysis percentages for each category: Very often: High academic performance: 6 (16.7% of the total in this frequency category) Moderate academic performance: 19 (33.3%) Low academic performance: 42 (48.3%) Occasionally: High academic performance: 8 (22.2%) Moderate academic performance: 27 (47.4%) Low academic performance: 28 (32.2%) Rarely: High academic performance: 22 (61.1%) Moderate academic performance: 11 (19.3%) Low academic performance: 17 (19.5%). Students who have a higher frequency of studying (“Very often” and “Occasionally” categories) tend to have higher academic performance (higher percentage in the “High” academic performance category) On the other hand, students who study less frequently (“Rarely” category) have a higher percentage in the “Low” academic performance category.

### 7.6 Reasons and Academic Performance

**Table 6.** A connection between Reasons and Academic Performance

Reasons	Academic Performance			Total	Result
	High	Moderate	Low		
Entertainment purposes (Gaming, chatting, etc.)	8	21	42	71	$\chi^2=11.879$ df=4 TV=9.488 Sig.0.018 Result: Significant H <sub>01</sub> : Rejected
	22.2%	36.8%	48.3%	39.4%	
Knowledge development (Academic related, Personal improvement, etc.)	21	27	25	73	
	58.3%	47.4%	28.7%	40.6%	
Both	7	9	20	36	
	19.4%	15.8%	23.0%	20.0%	
Total	36	57	87	180	

Table 6 A chi-square test has been conducted to analyse the data, which resulted in a chi-square value ( $\chi^2$ ) of 11.879 with 4 degrees of freedom (df = 4) and a test value (TV) of 9.488. The significance level (Sig.) is reported as 0.018, which means it is less than 0.05, indicating a statistically significant relationship. The test result states that the null hypothesis (H<sub>01</sub>) is rejected, which means there is a significant relationship between the reasons for academic performance and the actual academic performance. The analysis of each category. Entertainment purposes: High academic performance: 8 (22.2% of the total in this reason category) Moderate academic performance: 21 (36.8%) Low academic performance: 42 (48.3%) Knowledge development: High academic performance: 21 (58.3%) Moderate academic performance: 27 (47.4%) Low academic performance: 25 (28.7%) Both (students who have a mix of entertainment and knowledge development): High academic performance: 7 (19.4%) Moderate academic performance: 9 (15.8%) Low academic performance: 20 (23.0%).it appears that students who engage in “Knowledge development” as their primary reason for academic performance tend to have better academic performance (higher percentage in the “High” academic performance category). On the other hand, students who prioritize “Entertainment purposes” as their reason for academic performance have a higher percentage in the “Low” academic performance category.

## 8 Results and Discussion

1. Academic performance was shown to be higher among students who were more mature (over 23 years old) than among those who were young blood (under 20 years old), and young/teen responses were more visibly utilising social media and wasting their precious time. Prediction shows a strong correlation to reject the null hypothesis.
2. Despite the fact that female respondents participated less than male respondents, it was found that female applicants had greater academic attainment. Strong correlation predicted through prediction eliminates the null hypothesis..
3. Engineering students are frequently thought of as having a greater emphasis on their academics due to their difficult course load and curriculum. As a consequence, both engineering and arts and science students exhibit strong performance, although those enrolling in the arts and sciences have much lower academic performance. A high link between prediction and rejecting the null hypothesis. Students who use social media less regularly than those who use it more frequently or just rarely tend to fare well academically. Prediction shows a strong correlation to reject the null hypothesis.
4. When compared to students who used social media kindly to further their knowledge, it is clear that student who used social media more actively for enjoyment fared worse in their academic accomplishments. Prediction shows a strong correlation to reject the null hypothesis.

## 9 Conclusion

Social media has become an integral part of people's lives, especially for students. It serves as a valuable tool for knowledge development for some, while it can lead to addiction and negative impacts on academic performance for others. The results of our analysis clearly indicate that students who overuse social media or primarily use it for entertainment purposes tend to have lower academic performance, particularly among students in arts and science streams. Importance of parental involvement in shaping a student's relationship with social media. Parents, being more accountable than educational institutions, have a crucial role in guiding and monitoring their children's social media usage. By starting the education on responsible social media use within the family, students can benefit from improved academic circumstances. Social media can be a valuable educational resource, excessive use and misuse can hinder academic performance. Encouraging a balanced approach to social media and providing proper guidance can help students make the most of its benefits while avoiding its potential pitfalls. This way, social media can truly become an ally in knowledge development rather than a hindrance to academic success.

## 10 Suggestions

Students might get information from two main sources. 1) Generally speaking, parents and other carers who have a closer relationship with their children may watch them carefully and teach them about the good and bad consequences on both their academic

performance and health. 1) Academic and educational institutions may educate the general public about the negative effects of social media on their academic performance. Because of the fact that gender plays a significant role among students and that parents and educational institutions carefully interact with female students to advise about the negative effects of using social media, it is advised that male students also receive more attention in order to protect them from social media influence without discriminating on the basis of gender. No matter the stream, children who use social media must be kept from accessing inappropriate sites or spending excessive amounts of time on it, which might hurt their academic achievement. Students who used social media more frequently showed poor performance, whereas students who used it less frequently and moderately performed very well and moderately well. This shows that students who use social media sparingly or only occasionally can have a significant impact on their performance levels.

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