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Social Media As A Learning Tool: A Comparative Study Of Academic Gains In Online And Classroom Education Using Inferential Statistics

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Abstract
This study investigates the impact of social media on students academic performance by comparing its influence across conventional (classroom-based) and non-conventional (online/distance) learning environments. Through a combination of factor analysis, chi-square tests, and logistic regression on data collected from 300 undergraduate and postgraduate students across India, the research reveals that while general usage patterns of social media are similar across educational modes, significant differences exist in how these platforms affect academic outcomes. Students with higher academic scores tend to prefer conventional learning, while social media-based learning tools show varied effectiveness depending on the instructional setting. Gender and age also emerged as significant factors influencing educational mode preferences. The findings highlight the complex interplay between social media use and academic performance and underscore the importance of context-specific strategies for integrating digital tools in higher education.

Keywords: *Social media, Academic performance, Chi-square tests, Logistic regression.*

1. INTRODUCTION

The widespread presence of social media across multiple sectors, including higher education, has drawn growing interest from researchers in recent years. Scholars and educators have investigated how social media can be utilized to boost student participation, encourage active learning, and build a sense of community within both traditional classrooms and online learning environments [3, 13]. Nevertheless, incorporating social media into academic contexts comes with its own set of challenges. There is ongoing debate about how effective these platforms truly are in enhancing academic performance and learning outcomes [2]. Current research presents a complex and varied picture, acknowledging both the advantages and limitations of using social media in educational settings. This body of work provides important insights into the intricate connection between social media use and academic success, addressing its role across both conventional and alternative forms of learning.

Social media's role as a learning tool in higher education has been widely examined by researchers. Recent studies suggest that integrating social media platforms into academic instruction can boost student motivation, participation, and engagement [8]. These platforms also offer additional channels for communication and collaboration between students and instructors, contributing to a stronger sense of community in online learning environments [3]. Despite these potential advantages, challenges remain in using social media in educational contexts. Questions about its actual impact on academic achievement and learning outcomes continue to be debated [8, 3].

While more academics are adopting social media in their professional practices, the degree to which these tools are embedded in teaching and learning varies greatly among institutions [3]. Many scholars advocate for the intentional use of social media in education, highlighting its potential to enrich instruction and foster student-centered, interactive learning [8]. However, the existing research base offers limited empirical evidence, with most studies relying heavily on self-reported experiences and content analysis, rather than objective measures of academic effectiveness [8].

Current research on the relationship between social media use and academic performance offers a complex and layered understanding, emphasizing both the advantages and the limitations of integrating these digital platforms into traditional and alternative educational settings. This study seeks to conduct a comparative analysis of how social media affects academic performance, examining its role across both conventional classroom environments and non-traditional modes of learning.

1.1 Potential Academic Advantages of Social Media

The use of social media in higher education has been linked to a variety of potential advantages for both learners and educators [8]. These platforms can support collaborative learning and meaningful dialogue by allowing users to generate, exchange, and interact with content that enriches the educational process [2]. Instructors and students can utilize social media for communication and research purposes, which can help cultivate a stronger sense of community in both online and hybrid learning settings [9].

Studies indicate that strategically incorporating social media into academic instruction can lead to higher levels of student interest, engagement, and participation [8]. These tools promote active learning by encouraging students to take part in discussions, share materials, and interact with course content in a more engaging and participatory way. Moreover, the integration of different media types through digital platforms enables the broad distribution of educational content across various formats—including digital, print, and broadcast—thereby potentially expanding its accessibility and influence (A Systematic Review of Information Dissemination, Public Health Awareness, and Media Effectiveness, n.d.).

1.2 Conventional Teaching

In traditional classroom settings, social media can be effectively utilized to enrich the educational experience and build a sense of community among students. Educators may employ platforms such as Twitter, Facebook, or Instagram to distribute learning materials, facilitate class discussions, and offer timely feedback. Additionally, social media can be incorporated into classroom activities—for example, by using hashtags to organize group conversations or encouraging students to live-tweet insights during lectures.

1.3 Non-Conventional Teaching and Learning Approaches

The use of social media in alternative instructional models—such as online and blended learning—has increasingly attracted academic attention. Studies have found that integrating social media into these flexible learning formats can broaden the educational experience beyond the confines of the traditional classroom, allowing for ongoing interaction and collaboration among students and instructors [6, 5, 2].

1.4 Challenges and Limitations of Social Media in Education

While social media offers promising opportunities in academic environments, it also brings a range of concerns and limitations that deserve thoughtful consideration. Educators and researchers have pointed out that these platforms can easily become sources of distraction, drawing students away from their studies and making it difficult to maintain focus on academic responsibilities. Additionally, there are ongoing questions about how to use social media effectively and appropriately for educational purposes.

Another concern is the growing reliance on social media for information, which can sometimes lead to the spread of false or misleading content. When students do not critically assess the sources of the information they consume, it may weaken their analytical thinking and ability to evaluate facts [5, 2].

Moreover, using social media in educational settings raises important issues around privacy and digital safety. Both students and instructors may be vulnerable to risks such as data breaches, misuse of personal information, or even online harassment and cyberbullying, making it essential to approach these tools with caution and awareness.

2. LITERATURE REVIEW

The role of social media in higher education has drawn growing scholarly interest, with researchers exploring its integration across both traditional and online learning environments. In distance education, social media platforms are recognized for their potential to enhance collaboration, communication, and student engagement. A qualitative study by [2] found that many online adjunct instructors valued social media for its ability to foster real-world connections and align with students' digital communication habits. However, the study also emphasized a lack of institutional support and faculty training necessary for effective implementation. In traditional classroom settings, the integration of social media has been met with cautious optimism; while many educators promote its purposeful use, the evidence supporting its effectiveness remains limited, often relying on self-reported data rather than rigorous empirical methods. Nonetheless, meta-analytic research has shown that when social media is thoughtfully embedded into course activities, it can positively influence student motivation, participation, and learning outcomes [19]. These findings suggest that while social media holds promise as a pedagogical tool, its application must be supported by evidence-based strategies and institutional investment in faculty development. However, some studies have provided more rigorous empirical evidence on the impact of social media on academic performance and engagement.

Despite a growing body of literature on the intersection of social media and academia, its overall impact on academic outcomes remains debated. Meta-analytic findings indicate a small but statistically significant negative correlation between social media use (including addiction to social networks) and academic performance, suggesting that heavier usage may undermine GPA and performance [20]. Specific case studies—such as one conducted at Walter Sisulu University—found that students using social media for more than four hours a day often reported decreased assignment completion and lower grades [21].

Social Media and Higher Education

The proliferation of social media platforms has significantly impacted various aspects of higher education, including teaching, learning, and student engagement. Social media refers to a wide range of applications that enable the creation, sharing, and discussion of digital content, and has the potential to transform education into a more social, open, and collaborative experience [7].

Impact on Conventional Teaching and Learning

In recent years, scholarly interest in embedding social media within traditional, face-to-face educational settings has intensified. Research indicates that thoughtfully harnessed social media in the classroom can significantly enhance student engagement, encourage collaboration, and facilitate knowledge sharing among both learners and instructors [23]. Platforms such as Twitter, Facebook, and blogs have been shown to boost student participation and spark interest in course content [22]. Furthermore, social media serves as an effective channel for extending communication beyond class hours—students can ask questions, seek clarification, and engage in dialogue with their instructors on digital platforms, promoting continuity of learning and fostering an inclusive, supportive academic environment [23].

Impact on Non-Conventional Learning Modes

The role of social media in supporting non-traditional educational settings—such as online and distance learning—has become a prominent focus in educational research. These platforms offer remote learners meaningful ways to engage with their peers, join interactive discussions, and access a broader spectrum of academic materials beyond standard course content. Studies have indicated that integrating social media into online education environments contributes to stronger feelings of social presence and connectedness, which are associated with enhanced student satisfaction and improved academic performance [9]. Moreover, social media tools are frequently used to promote collaborative learning by enabling group assignments, interactive peer feedback, and real-time communication, despite the absence of in-person interactions [10].

Students Academic Behavior in Conventional and Non-Conventional Learning Modes

The influence of social media on students academic performance continues to be a topic of considerable academic discussion. While these platforms can support communication and collaboration, several studies have raised concerns about their potentially harmful effects. Specifically, frequent or unregulated

use of social media has been linked to reduced concentration, increased susceptibility to distractions, and the unchecked spread of misinformation—all of which can negatively affect academic achievement [4, 7, and 9]. The broader body of research reflects a complex relationship between social media use and academic outcomes, emphasizing that its impact varies depending on how it is integrated into the learning process. Both conventional and online learning environments experience these effects, highlighting the dual nature of social media as both a resource and a possible hindrance. As a result, scholars have called for more systematic and evidence-based research to examine the nuanced connections between social media behaviors and academic performance across educational settings [4, 7].

3. OBJECTIVE OF THE STUDY

1. To explore how social media influences students academic performance and participation across traditional and alternative learning environments.
2. To assess the advantages and drawbacks of using social media within higher education institutions.
3. To suggest practical and responsible strategies for incorporating social media into teaching and learning processes in academic settings.

4. METHODOLOGY

The COVID-19 pandemic significantly heightened the role of social media in everyday life, highlighting both its positive and negative aspects. While it offers valuable opportunities for interaction and maintaining connections, there is also a risk of overuse, making it essential to strike a balance between digital engagement and real-world activities. In educational settings, social media can be a powerful tool, but it must be used thoughtfully and responsibly. This study aims to enhance student outcomes by promoting effective and purposeful use of social media.

The study's target population consisted of under graduate students and Postgraduate students enrolled in the different Govt and Private Institution of India. Data was gathered using a pre-made and pre-tested questionnaire. Students were given a Google Forms questionnaire to complete in order to collect data. A particular group or category from the population is selected to form the sample using the Purposive Sampling Technique because it is believed that this category reflects the entire population with respect to the relevant attribute. Three hundred people made up the study's sample.

The main goal of this study was to assess the influence of social media on academic performance across both traditional and non-traditional learning formats. Effectively supporting student achievement involves taking into account various elements that may either enhance or hinder their educational progress.

4.1 Preliminary Analysis

A preliminary analysis of the questionnaire was conducted to assess its reliability and ensure the questions were well structured for data collection by fifty students who were not included in the selected sample. The Cronbach's alpha test yielded an average correlation coefficient of $\alpha = 0.73$ for all test items. In order for interviewers and supervisors to understand the completeness and capability of the questionnaire, a discussion was held before to the actual data collection activity to resolve any misunderstandings.

4.2 Data Collection and Method of Statistical Analysis

Undergraduate and postgraduate students from various government and private institutions across India were selected for this study, as they commonly use smartphones and computers in their daily lives. The results reveal that the primary reason for using social media is maintaining connections with friends, followed closely by purposes such as expanding social networks, entertainment, professional engagement, and other activities.

The logistic regression analysis investigates whether academic scores can predict the mode of education (conventional classroom-based vs. non-conventional online/distance learning).

4.2.1 Logistic Regression Analysis

Logistic regression is a statistical method used to examine the relationship between a binary dependent variable and one or more independent variables. In this study, it is used to evaluate whether academic performance can predict students preference for either traditional classroom learning or online/distance education. Since the outcome variable—mode of education—is binary, logistic regression is an appropriate choice. Unlike linear regression, which deals with continuous outcomes, logistic regression estimates the probability of a categorical outcome by analyzing the odds based on predictor variables such as academic scores. The logistic regression model can be expressed as [11]:

$$\log\left(\frac{P}{1-P}\right) = \beta_0 + \beta_1$$

where:

- p is the probability of the student engaging in a particular mode of education (e.g., online learning),
- $\frac{P}{1-P}$ is the odds of that mode,
- $\beta_0$intercept,
- β_1 is the coefficient for the academic score predictor X

The coefficients indicate how changes in academic scores affect the odds of selecting one mode over the other. This model helps to understand whether higher or lower academic performance is associated with a greater likelihood of attending conventional or non-conventional learning [23, 24].

Academic performance dependent variable was also analyzed,

- **High performers** (60% -100%)
- **Average performer** (50%-60%)
- **Low performer** (Below 50%)

Students' names, residence, age group, gender, and academic performance were collected via a Google questionnaire. The data was then entered into Excel spreadsheets and assembled, tabulated, and analyzed using JMP. Student edition 18.2.0

4.2.2 Chi-Square Test:

The connection between the independent and dependent variables was assessed using this method [11, 12].

Testing hypotheses:

H_0: The dependent and independent variables were significantly correlated.

H_1: Not H_0

Hypothesis testing:

The null hypothesis can be tested by comparing χ^2cal and χ^2 tab, which are provided by

$$\chi^2_{cal} = \sum_{i=1}^{n}\sum_{j=1}^{m}\frac{(O_{ij} - E_{ij})^2}{E_{ij}} \quad (i=1, 2 \ldots, n, j=1, 2 \ldots, m)$$

Where, E_{ij} is expected frequency corresponding to $(ij)^{th}$ and O_{ij} be the observed frequency.

4.2.3 Cronbach alpha Formula

As stated in [16], reliability analysis was conducted using Cronbach's Alpha to evaluate the internal consistency of the scales. Based on the works of [17, 11], the Cronbach's Alpha can be calculated using the following formula

$$\alpha = \frac{N.\bar{c}}{\bar{v} + (N-1).\bar{c}} .$$

Here, N represents the total number of items,

$\bar{c}$ denotes the mean covariance between item pairs,

In addition, $\bar{v}$ stands for the average variance

5. RESULT AND DISCUSSION

Table 1: Pearson Chi-Square test of Mode of Education and Gender

		Mode of education		
	Count Total % Col % Row %	Conventional (Classroom-based	Non-Conventional (Online & Distance)	Total
Gender	Female	85 28.33 47.49 51.83	79 26.33 65.29 48.17	164 54.67
	Male	94 31.33 52.51 69.12	42 14.00 34.71 30.88	136 45.33
	Total	179 59.67	121 40.33	300

Test	Chi-square	Prob>ChiSq
Pearson	9.234	0.0024*

Table 1 applies the chi-square test to analyze the association between gender and mode of education. H_0: There is no significant relationship between gender and mode of education. H_1: There is a significant relationship between gender and mode of education. With a chi-square value of 9.234 and a p-value of 0.0024 (less than 0.05), the null hypothesis is rejected, indicating a significant link between gender and educational preference. The findings suggest that male students are more likely to prefer offline or hybrid learning, while female students may opt for online education due to factors such as safety, flexibility, or family responsibilities. These insights highlight the need for gender-responsive teaching strategies in academic settings.

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Table 2: Pearson Chi-Square test of Mode of Education and Age Group of Students

Age group you belong to	Count / Total % / Col % / Row %	Conventional (Classroom-based	Non-Conventional (Online & Distance)	Total
		Mode of education		
Above 25 years		18	78	96
		6.00	26.00	32.00
		10.06	64.46	
		18.75	81.25	
Below 20 years		111	5	116
		37.00	1.67	38.67
		62.01	4.13	
		95.69	4.31	
Between 20-25 years		50	38	88
		16.67	12.67	29.33
		27.93	31.40	
		56.82	43.18	
Total		179	121	300
		59.67	40.33	

Test	ChiSquare	Prob>ChiSq
Pearson	129.630	<.0001*

Table 2 applies the chi-square test to examine the link between students' age groups and their mode of education.

H_0: There is no significant relationship between age group and mode of education.
H_1: There is a significant relationship between age group and mode of education.

The test result ($\chi^2 = 129.630$, $p < 0.0001$) leads to the rejection of the null hypothesis, indicating a strong association between age and preferred learning format. The data suggest that younger students tend to choose online education, while older students lean toward traditional or blended learning. This highlights the need for age-sensitive instructional approaches in academic planning.

Table 3: Pearson Chi-Square test of Mode of Education and Area

Area	Count / Total % / Col % / Row %	Conventional (Classroom-based	Non-Conventional (Online & Distance)	Total
		Mode of education		
Metro		25	20	45
		8.33	6.67	15.00
		13.97	16.53	
		55.56	44.44	
Rural		46	41	87
		15.33	13.67	29.00
		25.70	33.88	
		52.87	47.13	
Urban		108	60	168
		36.00	20.00	56.00
		60.34	49.59	
		64.29	35.71	
Total		179	121	300
		59.67	40.33	

Test	ChiSquare	Prob>ChiSq
Pearson	3.474	0.1761

Table 3 applies the chi-square test to examine the relationship between students area of residence and their chosen mode of education. The analysis begins by stating the hypotheses:
H_0:There is no significant relationship between area and mode of education.
H_1:There is a significant relationship between area and mode of education.

The results show a chi-square value of 3.474 with a P-value of 0.1761, which exceeds the 0.05 significance level. As a result, the null hypothesis is accepted, indicating no meaningful association between students area (metro, urban, rural) and their preferred education mode (online, offline, or hybrid). This suggests that factors beyond geographical location—such as individual preferences, technology availability, or institutional options—may have a greater impact on education mode choice. For policymakers, this implies that similar educational strategies could be applied effectively across different areas.

Table 4: Pearson Chi-Square test of Mode of Education and Average time spend on Social media per day.

What is average time you spent on Social Media per day ?	Count / Total % / Col % / Row %	Mode of education: Conventional (Classroom-based)	Mode of education: Non-Conventional (Online & Distance)	Total
Above 4 hours		68	29	97
		22.67	9.67	32.33
		37.99	23.97	
		70.10	29.90	
Below 4 hours		111	92	203
		37.00	30.67	67.67
		62.01	76.03	
		54.68	45.32	
Total		179	121	300
		59.67	40.33	

Test	ChiSquare	Prob>ChiSq
Pearson	6.488	0.0109

Table 4 uses the chi-square test to analyze the relationship between daily social media use and mode of education.
H_0: There is no relationship between social media use and mode of education.
H_1: There is a significant relationship between social media use and mode of education.
With a chi-square value of 6.488 and a P-value of 0.0109 (less than 0.05), the null hypothesis is rejected. This shows that social media usage varies across online, hybrid, and traditional learners, likely influenced by differences in schedule and screen time. These findings suggest education mode influences students digital habits, which can affect their academic performance.

Table 5: Pearson Chi-Square test of Mode of Education and Opinion regarding Social Media help in students studies

Has social media helped you in your studies?	Count / Total % / Col % / Row %	Mode of education: Conventional (Classroom-based)	Mode of education: Non-Conventional (Online & Distance)	Total
No impact		21	1	22
		7.00	0.33	7.33
		11.73	0.83	
		95.45	4.55	
No, it has been distracting		9	7	16
		3.00	2.33	5.33
		5.03	5.79	
		56.25	43.75	
Yes, significantly		66	57	123
		22.00	19.00	41.00
		36.87	47.11	
		53.66	46.34	
Yes, to some extent		83	56	139
		27.67	18.67	46.33
		46.37	46.28	
		59.71	40.29	
Total		179	121	300
		59.67	40.33	

Test	ChiSquare	Prob>ChiSq
Pearson	13.631	0.0035

The chi-square test in Table 5 examines the relationship between students' views on social media's academic benefits and their mode of education. The null hypothesis

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H_0: states there is no connection between these variables
H_1: suggests a significant link.

With a chi-square value of 13.631 and a p-value of 0.0035 (less than 0.05), the null hypothesis is rejected. This indicates a significant association between students' learning modes and their perception of social media as an academic aid, highlighting the importance of considering educational methods when evaluating social media's role in learning.
Table 6 uses the chi-square test to analyze the relationship between social media networking sites and the mode of education.

H_0: There is no significant difference in engagement between social media platforms and traditional classroom teaching.
H_1: There is a significant difference in engagement between social media platforms and traditional classroom teaching.

With a chi-square value of 1.739 and a P-value of 0.4192 (greater than 0.05), the null hypothesis is accepted. This indicates no meaningful association between students mode of education and their engagement with social media sites. The results suggest that students do not find social media significantly more engaging than classroom instruction, and the method of education does not strongly influence their preference for social media as a learning tool.

Table 6: Pearson Chi-Square test of social media networking sites is far more interesting than that of the lecturers in the classrooms and Mode of education

Do you feel that study through social media networking sites is far more interesting than that of the lecturers in the classrooms?	Count / Total % / Col % / Row %	Mode of education: Conventional (Classroom-based	Mode of education: Non-Conventional (Online & Distance)	Total
Disagree		37	19	56
		12.33	6.33	18.67
		20.67	15.70	
		66.07	33.93	
Neutral		97	65	162
		32.33	21.67	54.00
		54.19	53.72	
		59.88	40.12	
Agree		45	37	82
		15.00	12.33	27.33
		25.14	30.58	
		54.88	45.12	
Total		179	121	300
		59.67	40.33	

Test	ChiSquare	Prob>ChiSq
Pearson	1.739	0.4192

Table 7: Pearson Chi-Square test of academic stress or procrastination due to excessive social media usage and Mode of education

Have you ever experienced academic stress or procrastination due to excessive social media usage?	Count / Total % / Col % / Row %	Mode of education: Conventional (Classroom-based	Mode of education: Non-Conventional (Online & Distance)	Total
No		88	47	135
		29.33	15.67	45.00
		49.16	38.84	
		65.19	34.81	
Yes		91	74	165
		30.33	24.67	55.00
		50.84	61.16	
		55.15	44.85	
Total		179	121	300
		59.67	40.33	

Test	ChiSquare	Prob>ChiSq
Pearson	3.106	0.0780

Table 7 uses the chi-square test to analyze the relationship between academic stress or procrastination due to excessive social media use and the mode of education.

H_0: There is no correlation between academic stress or procrastination from excessive social media use and mode of education.

H_1: There is a significant correlation between academic stress or procrastination from excessive social media use and mode of education.

With a chi-square value of 3.106 and a P-value of 0.0780 (greater than 0.05), the null hypothesis is accepted. This indicates no significant link between students' learning mode and the level of stress or procrastination caused by heavy social media use. The findings suggest that stress and delays related to social media are experienced similarly across online, hybrid, and traditional education formats.

Table 8: Pearson Chi-Square test of grades/performance improved due to social media-based learning resources and Mode of education

Have your grades/performance improved due to social media-based learning resources?	Count Total % Col % Row %	Mode of education: Conventional (Classroom-based	Non-Conventional (Online & Distance)	Total
	No	34 11.33 18.99 77.27	10 3.33 8.26 22.73	44 14.67
	No noticeable change	34 11.33 18.99 53.13	30 10.00 24.79 46.88	64 21.33
	Yes	111 37.00 62.01 57.81	81 27.00 66.94 42.19	192 64.00
	Total	179 59.67	121 40.33	300

Test	ChiSquare	Prob>ChiSq
Pearson	7.080	0.0290*

Table 8 uses the chi-square test to explore the link between students academic performance improvements from social media-based resources and their mode of education.

H_0: No significant relationship exists between education mode and performance influenced by social media.
H_1: A significant relationship exists between education mode and performance influenced by social media.
The chi-square value of 7.080 with a p-value of 0.0290 (below 0.05) leads to rejection of the null hypothesis. This suggests that the effectiveness of social media in enhancing academic performance differs across learning formats.

Relationship Between Academic Scores and Mode of Education

From Figure1, the logistic regression analysis investigates whether academic scores can predict the mode of education (conventional classroom-based vs. non-conventional online/distance learning).

The graph shows a negative relationship between academic scores and the likelihood of being in non-conventional (online & distance) education. As academic scores increase, the probability of a student being in a non-conventional mode of education decreases.

Conversely, higher academic scores are positively associated with conventional (classroom-based) education.

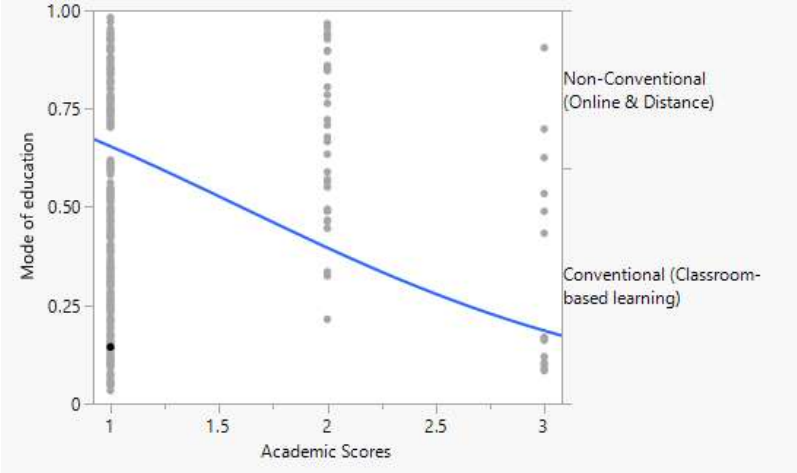

Figure 1: Logistics Regression Curve

Table 9: Logistics Regression Model

Whole Model Test

Model	-LogLikelihood	DF	ChiSquare	Prob>ChiSq
Difference	10.50911	1	21.01821	<.0001*
Full	191.79292			
Reduced	202.30203			

RSquare (U)	0.0519
AICc	387.626
BIC	394.993
Observations (or Sum Wgts)	300

Parameter Estimates

Term	Estimate	Std Error	ChiSquare	Prob>ChiSq
Intercept	1.69691487	0.3266916	26.98	<.0001*
Academic Scores	-1.0587258	0.2509857	17.79	<.0001*

For log odds of Conventional (Classroom-based learning)/Non-Conventional (Online & Distance)

Statistical Significance (Whole Model Test)

The chi-square statistic of 21.01821 and a p-value below 0.0001 indicate that the model is highly statistically significant. This suggests that academic scores play a meaningful role in predicting the mode of education.

Parameter Estimates

The estimate for Academic Scores is -1.0587, which is statistically significant ($p < 0.0001$). This negative coefficient confirms that higher academic scores are associated with greater odds of being in conventional (classroom-based) education, rather than non-conventional. The intercept (1.6969) is also significant and gives the baseline log-odds when academic scores are zero (though not meaningful in a real-world context without score = 0).

Model Fit

The R-square value of 0.0519 suggests that academic scores account for approximately 5.2% of the variation in the chosen mode of education. Although the relationship is statistically significant, academic performance alone has a limited ability to predict the type of educational setting. The findings indicate that students with higher academic scores tend to prefer traditional classroom-based learning, whereas

those with lower scores are more commonly associated with alternative formats such as online or distance education. Nonetheless, the low explanatory power of the model implies that additional factors influence students educational choices.

6. CONCLUSION

The study offers important insights into how students educational modes, academic outcomes, and social media usage are interconnected. Using statistical tools such as chi-square tests and logistic regression, the analysis revealed several notable patterns.

- **Significant association with time spent on social media:** This suggests that regardless of whether students are enrolled in conventional or non-conventional programs, their social media usage patterns are relatively similar.
- **Limited influence on stress and procrastination:** These results indicate that the psychological impacts of social media may be more individual-dependent rather than influenced by the learning environment.
- **Significant link between education mode and academic gains from social media:** However, a significant relationship was observed between the mode of education and the improvement in academic performance attributed to social media-based learning tools. This suggests that students' learning environments may shape their ability to harness social media for academic benefits.
- **Academic scores and education mode:** The logistic regression analysis further demonstrated that academic performance significantly predicts the mode of education, with higher academic scores being more strongly associated with enrollment in conventional (classroom-based) education. This finding may reflect differences in student engagement, support systems, or self-directed learning habits across educational formats.

Overall, the study highlights that while general social media use and its potential downsides (like procrastination) do not differ significantly by education mode, academic outcomes and the perceived value of social media as a learning aid do vary meaningfully between conventional and non-conventional learners. These insights may help educators and policymakers tailor digital learning tools and support systems to better serve students across different learning environments. Future research could further explore the underlying causes of these differences, incorporating additional variables such as motivation, learning styles, and digital literacy.

Credit Authorship contribution statement:
Santoshi Kumari: Conceptualization, Literature Review, Data Collection, Methodology, Formal Analysis, Writing – Original Draft.
V.K. Shivgotra: Supervision, Writing – Review & Editing.
Komal Bansal: Data Collection, Review & Editing, Critical Revisions, Proofreading, and Formatting.
All authors have read and approved the final manuscript.
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