TEACHING

Role of Social Media Platforms in Facilitating Collaborative Learning Among Students of Air Force Institute of Technology, Kaduna

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Abstract

This study investigated the role of social media platforms in facilitating collaborative learning among students of the Air Force Institute of Technology (AFIT), Kaduna. A descriptive survey research design was adopted, with a working sample size of 400 students selected through stratified random sampling from a population exceeding 2,000 students. Data were collected using the Social Media and Collaborative Learning Questionnaire (SMCLQ), which recorded a Cronbach's Alpha reliability coefficient of 0.78. Data were analysed using frequencies, percentages, means and standard deviations. Findings revealed that WhatsApp was the most frequently used platform (82.9%), followed by Zoom (44.6%) and Telegram (39.4%). Students used social media for academic discussions, sharing learning materials, seeking feedback and peer interaction. Positive perceptions were also reported regarding its contribution to communication (M = 4.39) and knowledge sharing (M = 4.15). However, poor internet connectivity (55.6%), distractions (44.0%) and limited participation by group members (33.6%) were identified as major challenges. The study concluded that social media facilitates collaborative learning and recommended its structured integration into academic activities, improved internet connectivity and guidance on responsible academic use.

1 Introduction

The rapid advancement of digital technologies has transformed higher education, particularly in communication, knowledge sharing and student engagement. Social media platforms such as WhatsApp, Telegram, Facebook and YouTube have become useful tools for facilitating interaction and academic collaboration among students. Through these platforms, students can exchange learning materials, discuss academic concepts, seek feedback and participate in group beyond conventional classroom settings. Collaborative learning, which involves students working together to achieve shared academic objectives, promotes active participation, peer support, knowledge construction and critical thinking (Sabah, 2022). Studies have also highlighted the contributions of social media to student interaction, engagement and collaborative learning (Ansari and Khan, 2020; Al-Rahmi et al., 2020; Jayarathna et al., 2020). Similarly et al. (2024) reported a positive association between social media-supported collaborative learning and student engagement. Despite these benefits, challenges such as poor internet connectivity, distractions, high data costs and unequal participation can limit the effective academic use of these platforms (Bhattacharyya Roy, 2024).

Although previous studies have examined social media use in educational settings, institution-specific evidence is necessary to understand how students utilise these platforms for academic collaboration and the challenges they encounter. At the Air Force Institute of Technology (AFIT), Kaduna, understanding students' use and perceptions of social media for collaborative learning is

important for identifying its educational contributions and limitations. Therefore, this study investigated the role of social media platforms in facilitating collaborative learning among AFIT students, focusing on the platforms used, collaborative learning activities, students' perceptions, perceived effectiveness and challenges associated with their academic use.

2 Review of related literature

2.1 Social media platforms and collaborative learning

Social media platforms such as WhatsApp, Telegram, Facebook, YouTube and X among others provide digital spaces for communication, information sharing and academic interaction. In higher education, these platforms support synchronous and asynchronous discussions, the exchange of learning materials, group assignments and peer feedback (Alqahtani et al., 2022; Bicen and Sadik, 2021; Yeboah and Ewur, 2020). Their interactive and multimodal features enable students to communicate, share resources and participate in learning activities beyond the conventional classroom. However, their educational value depends on students' digital competence, access to reliable internet services and purposeful integration into academic activities (Musa and Danjuma, 2022; Sefotho and Modise, 2023).

Collaborative learning involves students working together towards shared academic goals through discussion, mutual support, knowledge exchange and joint problem-solving. It encourages active participation and allows learners to develop understanding through interaction with their peers (Luo et al., 2020; Al-Rahmi et al., 2022). Social media can facilitate this process by providing accessible channels for group discussions, resource sharing, clarification of difficult concepts and feedback. These activities can strengthen communication, engagement and knowledge construction among students. Nevertheless, challenges such as unequal participation, distractions, poor connectivity, data costs and limited digital skills can reduce the effectiveness of online collaboration (Kwon et al., 2022; Xie et al., 2021).

2.2 Theoretical framework

This study is primarily anchored in Vygotsky's Sociocultural Theory (1978), which explains learning as a socially mediated process in which individuals develop knowledge through interaction with more knowledgeable others. The theory emphasizes dialogue, collaboration and guidance from more knowledgeable individuals, particularly within the Zone of Proximal Development (ZPD). In the context of this study, social media platforms provide opportunities for students of the Air Force Institute of Technology (AFIT), Kaduna, to interact with peers, exchange explanations, seek assistance and provide academic support. Such interactions can facilitate learning by allowing students to benefit from shared knowledge and peer guidance.

The study is also informed by Connectivism (Siemens, 2005), which views learning as the process of creating and maintaining connections across people, information sources and digital networks. This perspective explains how social media connects students to academic resources and learning communities. In addition, the Technology Acceptance Model (Davis, 1989) provides insight into students' adoption of social media for academic purposes through perceived usefulness and perceived ease of use. These perspectives complement the sociocultural foundation by explaining the networked and technology-related dimensions of social media-supported collaboration.

2.3 Empirical review

Several empirical studies have investigated the relationship between social media use and collaborative learning. Ansari and Khan (2020), in a quantitative study involving 360 undergraduate students in India, found that platforms such as WhatsApp, Facebook and Google Docs supported peer interaction, knowledge sharing and academic engagement. Similarly, Abdul Rahman et al. (2020), in a study of 243 Malaysian university students, reported that perceived enjoyment and ease of use influenced students' attitudes towards using social media for collaborative learning.

Qureshi et al. (2021) examined 385 university students in Pakistan and found that student engagement, collaborative learning and social media use contributed positively to academic performance. Khan et al. (2021), using responses from 289 students in Pakistani public universities, also reported that perceived usefulness and ease of use influenced students' intentions to use social media for academic collaboration. In Poland, Zarzycka et al. (2021) found that platforms such as Facebook, Messenger and Microsoft Teams supported communication, resource sharing and group assignments during the transition to remote learning, although digital fatigue and unequal participation remained challenges.

More recent studies have continued to demonstrate the educational relevance of social media. Kasumu et al. (2025), in a study involving students from two Nigerian universities, reported that social media supported knowledge sharing, group discussions and virtual classes. Nurul Dafiqah et al. (2025) similarly identified positive relationships between social media interactivity, collaboration and student engagement among Malaysian polytechnic students. Khan et al. (2025) also reported that social media supported creativity and collaboration among university students in Lahore. Other studies, including Zhao (2024) and Idries et al. (2024), identified benefits for peer interaction, communication and knowledge sharing, while highlighting concerns relating to privacy, distractions and digital skills.

Fernando et al. (2024), through a bibliometric review, identified the growing research interest in social media and collaborative learning. However, the review also highlighted gaps concerning the pedagogical integration of social media and its cognitive and psychological dimensions. Alvi and Khechine (2025) further demonstrated that cultural values can influence students' adoption of social media for collaborative learning. Collectively, these studies establish the relevance of social media to academic collaboration, but they also reveal that its use and benefits may vary across institutional and student contexts.

2.4 Summary and research gap

The reviewed literature indicates that social media platforms support collaborative learning through communication, peer interaction, knowledge sharing and group-based academic activities. Existing studies have largely reported positive contributions to student engagement and collaboration, while identifying challenges such as poor internet connectivity, data costs, distractions, unequal participation and inadequate digital skills.

Despite these contributions, there remains a need for institution-specific evidence on how students in Nigerian higher education institutions use social media for collaborative learning. Much of the reviewed empirical evidence comes from institutions outside Nigeria, while the available Nigerian studies provide limited insight into the patterns of use, collaborative activities, students' perceptions and challenges within AFIT, Kaduna. This study addresses this contextual gap by investigating the

role of social media platforms in facilitating collaborative learning among students of the Air Force Institute of Technology, Kaduna.

3 Methodology

A descriptive survey research design was adopted to investigate the role of social media platforms in facilitating collaborative learning among students of the Air Force Institute of Technology (AFIT), Kaduna. The population comprised students across the various academic programmes and levels of the institution, estimated at over 2,000. A sample of 300 students was selected using stratified random sampling. Students were grouped according to their academic levels, after which respondents were randomly selected from the respective strata.

Data were collected using a structured questionnaire titled Social Media and Collaborative Learning Questionnaire (SMCLQ). The questionnaire consisted of two sections. Section A obtained respondents' demographic information, while Section B contained items on social media usage, collaborative learning activities, students' perceptions of social media-supported collaboration, and challenges encountered. The relevant items were measured on a five-point Likert scale ranging from Strongly Disagree (1) to Strongly Agree (5).

The instrument was validated to ensure that its items adequately addressed the objectives of the study. Its reliability was established through a pilot test, which yielded a Cronbach's alpha coefficient of 0.78, indicating acceptable internal consistency. The questionnaires were administered through printed copies and Google Forms. Participation was voluntary, and respondents' information was treated confidentially. Of the 300 questionnaires administered, 287 were properly completed and found suitable for analysis, representing a response rate of 95.7%.

Data were analysed using the Statistical Package for the Social Sciences (SPSS). Frequencies and percentages were used to summarise categorical responses, while mean scores and standard deviations were used to analyse responses to the Likert-scale items.

4 Findings

The findings are presented according to the five research questions guiding the study.

4.1 Research Question 1: What types of social media platforms are commonly used by students at AFIT, Kaduna, for academic collaboration?

Table 1 presents the social media platforms used by students for academic collaboration.

Table 1. Social media platforms used by students for academic collaboration.

Social Media Platform	Frequency	Percentage (%)
WhatsApp	238	31.0
Telegram	113	14.7
Facebook	43	5.6
X (formerly Twitter)	18	2.3
Instagram	33	4.3
YouTube	99	12.9

Social Media Platform	Frequency	Percentage (%)
Zoom	128	16.7
Google Meet	95	12.4

The findings show that WhatsApp was the most commonly reported platform for academic collaboration (31.0%), followed by Zoom (16.7%) and Telegram (14.7%). YouTube (12.9%) and Google Meet (12.4%) were also used, while Facebook (5.6%), Instagram (4.3%), and X (2.3%) recorded lower usage. The findings indicate that students relied more on messaging and virtual meeting platforms for academic collaboration than on platforms primarily associated with general social networking. The combined responses also suggest that students used multiple platforms for different academic purposes.

4.2 Research Question 2: In what ways do students engage in collaborative learning through social media platforms?

Table 2 presents the ways students engage in collaborative learning through social media platforms.

Table 2. Students' engagement in collaborative learning through social media platforms.

S/N	Statement	N	Mean	SD
1	I participate in group discussions on social media about course topics.	284	3.61	1.011
2	I collaborate with my peers online to complete academic assignments.	282	3.44	1.267
3	I share learning materials such as notes and links with classmates on social media platforms.	274	3.79	1.212
4	I use social media to ask questions and get feedback from classmates.	269	3.94	1.157
5	I contribute actively to online study groups or forums.	259	3.60	1.057

The results indicate that students engaged in various collaborative learning activities through social media. Asking questions and obtaining feedback from classmates recorded the highest mean score (M = 3.94, SD = 1.157), followed by sharing learning materials (M = 3.79, SD = 1.212). Participation in group discussions recorded a mean of 3.61 (SD = 1.011), while contributing to online study groups or forums had a mean of 3.60 (SD = 1.057). Collaboration with peers to complete academic assignments recorded the lowest mean score (M = 3.44, SD = 1.267). Overall, the findings show that students used social media for peer interaction, sharing academic resources, group discussions, feedback, and joint academic tasks.

4.3 Research Question 3: How do students perceive the role of social media platforms in facilitating collaborative learning?

Table 3 presents students' perceptions of the role of social media platforms in facilitating collaborative learning.

Table 3. Students' perceptions of social media-supported collaborative learning.

S/N	Statement	N	Mean	SD
1	Social media platforms help me share what I know with other students.	260	4.15	0.996

S/N	Statement	N	Mean	SD
2	I feel more involved in class discussions when we use social media.	264	4.00	0.806
3	Social media makes it easier to communicate with my classmates.	264	4.39	0.820
4	I learn better in group chats than in face-to-face group work.	264	3.40	1.313
5	I believe social media enhances teamwork and collaborative skills.	260	3.83	1.263

The findings indicate that students generally held positive perceptions of social media-supported collaborative learning. Ease of communication with classmates recorded the highest mean score (M = 4.39, SD = 0.820), followed by sharing knowledge (M = 4.15, SD = 0.996) and involvement in class discussions (M = 4.00, SD = 0.806). Teamwork and collaborative skills recorded a mean of 3.83 (SD = 1.263), while the preference for group chats over face-to-face group work recorded the lowest mean (M = 3.40, SD = 1.313). This suggests that students particularly recognised the contribution of social media to communication and knowledge sharing.

4.4 Research Question 4: How effective are social media platforms in supporting students' collaborative learning activities?

Table 4 presents students' responses on the effectiveness of social media platforms in supporting collaborative learning.

Table 4. Effectiveness of social media platforms in supporting collaborative learning.

S/N	Statement	N	Mean	SD
1	Social media platforms make it easier to communicate with group members anytime.	266	4.53	0.852
2	Using social media improves the overall quality of group projects.	264	4.08	0.764
3	I learn more when I interact with classmates on social media.	246	3.92	1.053
4	Social media tools are effective for sharing feedback among students.	258	4.11	1.060
5	Social media enhances motivation to participate in academic collaboration.	262	3.95	1.106

The results show that students generally perceived social media platforms as effective tools for supporting collaborative learning. Communication with group members at any time recorded the highest mean score (M = 4.53, SD = 0.852), followed by sharing feedback among students (M = 4.11, SD = 1.060) and improving the quality of group projects (M = 4.08, SD = 0.764). Motivation to participate in academic collaboration recorded a mean of 3.95 (SD = 1.106), while learning through interaction with classmates recorded a mean of 3.92 (SD = 1.053). These findings highlight the value students placed on the flexibility of communication and feedback offered by social media platforms.

4.5 Research Question 5: What challenges do students encounter when using social media platforms for collaborative learning?

Table 5 presents the challenges encountered by students when using social media platforms for collaborative learning.

Table 5. Challenges encountered in using social media for collaborative learning.

S/N	Challenge	Frequency	Percentage (%)
1	Poor internet connection	144	27.3
2	Distractions from unrelated posts	114	21.6
3	Too many messages at once	75	14.2
4	Expensive internet data	82	15.6
5	Not all students participate actively	87	16.5
6	No access to smartphones or computers	25	4.7
	Total	**527**	**99.9**

Multiple responses were allowed; percentages are based on the total number of responses.

The findings reveal that poor internet connection was the most frequently reported challenge (27.3%), followed by distractions from unrelated posts (21.6%), limited active participation (16.5%), expensive internet data (15.6%), and receiving too many messages at once (14.2%). Lack of access to smartphones or computers was the least reported challenge (4.7%). These results indicate that connectivity problems, online distractions, data costs, and unequal participation remain barriers to the effective use of social media for collaborative learning.

5 Conclusion

The findings establish that social media platforms provide useful avenues for facilitating collaborative learning among students of the Air Force Institute of Technology (AFIT), Kaduna. Beyond supporting communication and the exchange of learning materials, these platforms create opportunities for peer interaction, feedback, group discussions, and joint academic activities. However, poor internet connectivity, online distractions, and unequal participation remain challenges that require attention.

To maximise the academic benefits of social media, AFIT should encourage purposeful use of these platforms for collaborative activities while promoting responsible online engagement. Improved internet access and clear guidelines for academic interaction could further strengthen their contribution to students' learning experiences.

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