



SOCIAL MEDIA'S IMPACT ON ACADEMIC ACHIEVEMENT OF PRE-SERVICE TEACHERS AT COLLEGES OF EDUCATION

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Abstract:

Recent trends show that students are increasingly ignoring their academics, raising concerns about the impact of social media on academic achievement. This study investigated social media's impact on the academic achievement of pre-service teachers at colleges in the Northern Region of Ghana. A quantitative descriptive survey design was used for the study. Through convenience sampling strategy, 272 pre-service teachers were selected from three Colleges of Education, out of a total target population of 1,483. Data collection was done using questionnaires. The results highlighted that students commonly utilize social media platforms to access course-related materials, yet it was observed that social media usage has led to a reduction in study hours and sleep duration. Furthermore, significant gender disparities were identified in the effects of social media. To address these issues, it was recommended that guidance and counseling services be enhanced to better support students in managing their academic pursuits and sleep patterns amidst the influence of social media.

Keywords: academic achievement, colleges of education, pre-service teachers, social media

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1. Introduction

The rise of global networks has fundamentally altered the dynamics of information exchange, storage, and retrieval, irrespective of geographical constraints or the individuals involved.

Marshall McLuhan introduced the notion of a "global village", highlighting that electronic communication cuts over national boundaries and promotes a feeling of interdependence among people (McCluhan, 1964). He claims that "*the medium is the message*" emphasising the significant influence that communication medium attributes have on human experience and perception. Social media is a crucial medium in modern settings, enabling rapid connections and having a substantial impact on the distribution and perception of information in this increasingly interconnected environment. Social media expertise encompasses the utilization of web-based and mobile applications, facilitating the creation, interaction, and dissemination of user-generated or existing content within digital realms through interactive communication channels (Davis *et al.*, 2012).

The advent of the internet has ushered in many online technologies, including WhatsApp, Facebook, Skype, and Instagram, among others, significantly reshaping the landscape of information dissemination and interpersonal communication. Virtually every society worldwide has experienced the impact of this technological revolution, with outcomes ranging from advantageous to adverse. Notably, communication, research, and education have reaped substantial benefits from the widespread adoption of social media platforms. Among the array of available online communication tools, social media stands out as the foremost, universally embraced, and captivating medium for fostering global connectivity (Aghazamani, 2010).

Kuss and Griffiths (2017) highlighted that social network platforms tend to encourage teenagers to engage in activities such as socializing with friends, potentially leading to the development of social media addictions. This aligns with findings that many students spend a significant portion of their daily time on platforms like Facebook, MySpace, and World of Warcraft. While some view this as unproductive, research indicates that such engagement can support the acquisition of information and the development of interpersonal skills (Giunchiglia *et al.*, 2018). Those who frequently use social media are often highly engaged individuals who actively create and share content. However, Kubey, Lavin, and Barrows (2001) highlighted the negative consequences of internet and social media use, such as psychological dependence and academic impairment, which can reduce study time. Moreover, Kolhar, Kazi, and Alameen (2021) found that late-night social media use resulted in students getting less sleep than recommended, further hindering effective studying and potentially causing students to fall asleep during instructional periods.

The extensive usage of social media networks in recent years across the globe, notably in Africa, has put stakeholders in education in a bind. Worryingly, each new culture has its own set of negative consequences. Many parents fear that their college of

education students are spending too much time on social media sites like Facebook and WhatsApp rather than studying. Investigating the influence of students' social media usage and its effects on academic performance could yield significant insights. Furthermore, with the rapid advancements in social media platforms and the introduction of new features, there is a pressing need for updated research to understand the implications of the emerging trends in social media use on the academic achievements of pre-service teachers in Ghana. The study, therefore, explored social media's impact on pre-service teachers' academic achievement among Colleges of Education in Ghana.

2. Literature Review

2.1 The Concept of Social Media

Social media are online communities where users can share material they have created (Kaplan & Haenlein, 2010). Usenet is a worldwide discussion system for posting messages publicly, which was invented in 1979 by Tom Truscott and Jim Ellis of Duke University. This is when the term emerged. Bruce and Susan Abelson founded "Open Diary" in 1998. Social media, as outlined by Martin (2008), comprises platforms such as LinkedIn, Facebook, Instagram, YouTube, and Twitter. Dollarhide (2019) defines social media as computer-based technology facilitating information sharing through the establishment of online communities and networks. Manning's survey in 2014 found that social media was the most commonly used term to describe emerging media forms characterized by interactive engagement. The essence of social media is seen as novel and interactive. Moreover, social media enables immediate and direct participation, as highlighted by Vadivel *et al.* (2021).

2.2 Theoretical Framework

The two widely used theories in information systems (IS) research are the Technology Acceptance Model (TAM) and Ajzen's (1985) Theory of Planned Behavior (TPB). Originating as an extension of the Theory of Reasoned Action (TRA), the Technology Acceptance Model (TAM) was developed by Davis (1986) to elucidate potential information system usage behaviors through a sequence of causal interactions (external factors-beliefs-attitude-behavioral intention-actual conduct). Perceived usefulness (PU) and perceived ease of use (PEOU), constituting belief elements, are integrated into the TRA model by TAM (PE). These beliefs serve as proxies for the user's subjective inclination to adopt IS behavior. PU denotes the subjective likelihood that a specific IS will enhance a user's job performance, while perceived ease of use reflects the user's perception of how effortless implementing the IS would be. According to TAM, PU and PEOU directly influence attitudes toward using information technologies, subsequently affecting behavioral intentions and actual adoption. PU also mediates the impact of PEOU on attitudes toward using IS. Employing TAM enables researchers to identify and mitigate the effects of external factors on PU and PEOU, thereby influencing consumers' ultimate adoption behavior.

TAM was further expanded to TAM2 by Venkatesh and Davis (2000) to elucidate the user acceptability of IS within corporate environments. TAM2 introduces various additional components, moderating variables, and linkages. It posits that PU is directly influenced by social influence and cognitive instrumental processes. Additionally, system characteristics and individual differences (or anchors) are believed to impact PEOU (or related adjustments). Experience and voluntariness are identified as two moderators influencing the relationships between external factors and beliefs, as well as external factors and behavioral intention. Although today's college students are deeply interested in social media, its profound influence on students remains undeniable.

2.3 Social Media on Students' Academic Performance

Social media usage has become increasingly prevalent among pre-service teachers, with a sharp rise in the number of social networks such as Facebook. This surge is notable given that Facebook only became widely accessible in 2006. Leyrer-Jackson and Wilson (2018) indicated that while social platforms can serve as valuable resources for academic support, they also have negative effects on academic performance. The study indicated that undergraduate students' study habits and academic performance are negatively impacted by social media use, especially for those studying biological sciences. Zhang *et al.* (2024) reveal a positive association between social media use and academic achievement, yet excessive use, particularly on platforms like Facebook, has been associated with decreased study time and lower academic performance compared to non-users. Additionally, insufficient sleep can further exacerbate these effects, impacting mood and cognitive function. Despite the widespread adoption of social media among college students, studies have shown that their academic performance, as measured by grade-point averages (GPAs), tends to be lower than that of their non-social media-using peers.

However, despite some studies suggesting otherwise, there is inconsistency in the evidence linking heavy social media usage with academic performance. According to Alfari *et al.* (2018), female students use social media more often than male students do. They utilize it for things like socializing, online shopping, entertainment, and experience sharing. Females also use social media as a means to take study breaks and enhance productivity. Conversely, males typically use social media more than females to stay informed about current events, seek opinions from others, and manage their time efficiently. Plunkett's (2018) research indicated that both genders utilize social networking sites and apps (SNSAs) to a limited extent for academic purposes, perceiving predominantly positive effects associated with their usage.

WhatsApp (2010) showcases how online students can utilize platforms like WhatsApp to share various content with their social networks or groups. These platforms also allow for the creation of social network groups by students or teachers, facilitating interactions and giving access to discussion forums. This finding is supported by Kolhar, Kazi, and Alameen (2021), who argued that social media platforms can be used to find important material for educational reasons.

On the contrary, Jacobsen and Forste (2011) reported that approximately two-thirds of students use electronic devices during class, homework, or study sessions. Yeboah and Ewur's (2014) study suggests that social media usage, especially through apps like WhatsApp, might distract students from focusing in class and negatively impact their academic performance, with a notable portion of students engaging in social media activities during class, particularly during breaks. This suggests that academic outcomes are affected when students get distracted by their social media usage. A study done by Mehmood and Taswir (2013) argued that students' language practices change due to frequent social media use, with some students adopting slang language, which could adversely affect their formal writing skills.

Similarly, Yeboah and Ewur (2014) confirmed that social media use could hinder students' spelling and sentence construction abilities. Horton, Alloway, and Dawson (2012) found compromised spelling skills among students due to Facebook usage. Wood, Kemp, Waldron, and Hart (2014) observed a decline in grammatical understanding among students who frequently use texting language. Nonetheless, Mehmood and Taswir (2013) also noted that students who actively engage on social media networks tend to have improved reading abilities, as reported by a significant portion of respondents in their study.

According to Bensalem (2018), WhatsApp improved students' attitudes toward learning new vocabulary. This has the potential of enhancing their writing abilities, which in turn enhances their reading abilities. McManus *et al.* (2020) found that gender played a part in the relationship between interactive screen time and sleep quality, with interactive screen time being linked to better sleep for men but worse sleep for women. How screen usage interferes with sleep time varies depending on the media domain. Males may experience decreased sleep quality over time compared to females due to interactive screen use. However, Kjell (2022) conducted a study to answer the question, "Are there any gender differences in social motivation in sleep-deprived individuals?" The results showed that sleep deprivation appears to have an impact on social motivation in both males and females.

2.5 Objectives

The study sought to:

- 1) Determine the social media networks that pre-service teachers in colleges of education effectively use.
- 2) Investigate the effects of social media on the academic performance of pre-service teachers among colleges of Education.
- 3) Assess the difference in gender in terms of the effects of social media on pre-service teachers' academic performance.

3. Material and Method

For this study, a descriptive survey design was used. According to Creswell (2013), the descriptive survey design aims to collect data regarding the current state of affairs. The goal of the descriptive technique is to methodically find a thorough explanation and description of the study objective. The target population of the study was all level three hundred students of all the four colleges in the northern region of Ghana, which stood at 1483 students at the time of the study. The northern region was purposively selected for the study. The accessible population was the level three hundred students of the three randomly sampled colleges, which also stood at 637 pre-service teachers. The sample size of the study was 272, based on Krejcie and Morgan's (1970) sample size determination conveniently selected from the sample colleges.

A questionnaire was used for the data collection. The Social Media Impact Scale (SMIS), which consists of 14 items on a four-point Likert scale from strongly disagreed to strongly agreed, was partially developed to gather data on the impact of social media on pre-service teachers' academic achievement. The Social Media Impact Scale (SMIS) was pilot-tested, and the Cronbach alpha coefficient was estimated to be 0.710. As specified by Pallant (2010), a reliability coefficient (alpha) of 0.60 or higher is considered moderately appropriate. Data was collected through Google Forms and analyzed as soon as possible. Before the data collection, the researchers sought permission from the principals of all the sampled colleges. The principals were informed of the purpose of the study, and the issues about confidentiality and anonymity were all addressed. The researchers used three weeks for the data collection process. To ensure that data obtained from the study was adequately analyzed to address the research questions, the study employed SPSS (version 20.0). For research objective one, frequencies and percentages were used, while means and standard deviation were used for research objective two. An Independent sample t-test was used for research objective three.

4. Results

4.1 Social Media Networks that Pre-service Teachers in Colleges of Education in Ghana Mostly Use

As seen in Table 1, out of the total respondents of 272, 47.1% forming the majority of the respondents agreed that "WhatsApp" is the most effectively used social media site that can enhance students' academic performance while 33.8% of the participants agreed in favour of "You Tube". It can be inferred that the most suitable social media site that can enhance the academic performance of pre-service teachers in recent years is WhatsApp.

Table 1: Responses on the Most Effective Social Media Network

Social media network	Frequency	Percent (%)
WhatsApp	128	47.1
Facebook	20	7.4
Skype	4	1.5
Instagram	16	5.9
You Tube	92	33.8
Twitter	12	4.4
Total	272	100.0

Source: Field survey.

4.2 Social media affects the academic achievement of colleges of Education

To address this research question, items that obtained a cut-off mean of 2.5 and above were regarded as an effect of social media since a four-point Likert scale was used for the data collection as indicated in Table 2.

Table 2: Effects of Social Media on Academic Achievement

S/N	Items	N	Mean	Std. deviation
1	Facebook has helped me pass my exams.	272	1.94	0.78
2	Social media has done more harm than good to my academic affairs.	272	2.14	0.84
3	I participated on social media during instructional hours.	272	2.27	0.82
4	Facebook has affected my ability to correct spelling.	272	2.48	0.73
5	I feel more attracted to social media than to study.	272	2.50	0.83
6	Social media distracts my concentration during the period of instructions.	272	2.67	0.90
7	Social media has reduced my time studying.	272	2.79	0.74
8	Social media affects my sleeping duration.	272	2.95	0.75
9	Facebook enables me to explore my interests.	272	3.01	0.79
10	Social media has improved my reading skills.	272	3.14	0.52
11	I use social media sites to send and receive relevant course content.	272	3.23	0.54
12	Social media enables me to broaden my knowledge.	272	3.38	0.57
13	Social media motivates me as a student to search for information.	272	3.44	0.62
	Average Mean/SD	272	2.76	0.72

Source: Field survey.

As shown in Table 2, the responses were analyzed to establish the effect of social media on students' academic achievement. The results indicated that majority of the respondents agreed to the statements that "Social media enables me to broaden my knowledge" ($M = 3.38$, $SD = 0.62$), "I use social media sites to send and receive relevant course content" ($M = 3.23$, $SD = 0.54$), "Social media has improved my reading skills" ($M = 3.14$, $SD = 0.52$), "Facebook enables me to explore my interest" ($M = 3.01$, $SD = 0.79$), "Social media affects my sleeping duration" ($M = 2.95$, $SD = 0.07$), "Social media has

reduced my time on studying" ($M = 2.79$, $SD = 0.74$), "Social media distract my concentration during the period of instructions" ($M = 2.67$, $SD = 0.90$).

From the average mean of 2.76 and the corresponding standard deviation of 0.72, the majority of the respondents agreed that social media has an impact on students' academic achievement. However, items 1 to 4 deviated from the cut-off mean of 2.5, which implies they could not be considered as the impact of social media among pre-service teachers in colleges of education in the northern region of Ghana.

Hypothesis 1: There is no significant difference in gender in terms of the impact of social media on pre-service teachers' academic achievement.

As indicated in Table 3 below, there was a significant difference between males (34.56) and females (33.14) in terms of the impact of social media $t(270) = 3.185$, $P = 0.002$. This implies that the effects of social media on pre-service teachers' academic performance varied across gender. Per the mean scores obtained, social media affect male students more than their female counterparts.

Table 3: Independent Sample t-test on the Impact of Social Media Based on Gender

Gender	N	Mean	SD	Df	t-value	p-value
Male	204	34.56	4.078	270	3.185	0.002
Female	68	33.140	2.836			

Source: Field survey.

5. Discussion

This research identified WhatsApp as the most effective social media platform for improving students' academic performance. The study confirmed that WhatsApp was the most suitable social media platform for enhancing academic performance among students. Specifically, students at the College of Education utilized WhatsApp for exchanging valuable course content in various formats, such as videos, images, and voice recordings, leading to notable advancements in their academic performance. This is consistent with Davis's (1986) Technology Acceptance Model (TAM), which holds that perceived utility (PU) and perceived ease of use (PEOU) have an impact on users' acceptance of technology. According to this study, students acknowledged WhatsApp's value in providing access to educational resources and its user-friendliness, which helped explain why it has become so popular for academic reasons. These findings are also consistent with previous research by Wade and Renata (2011), who revealed that nearly two-thirds of participants utilized electronic devices for class-related activities, homework, or studying. Moreover, WhatsApp's (2010) asserted that its service facilitates communication among online students through text messages, photos, videos, and voice notes aligns with the observed usage patterns. Furthermore, WhatsApp's feature allowing the creation of groups, accommodating up to 11 members, was highlighted, facilitating communication and providing access to discussion forums for group members.

The study examined the effect of social media on students' academic performance, revealing several notable findings. Firstly, it was found that students' engagement with social media positively influences their reading abilities. A significant majority of participants acknowledged that their reading skills were enhanced through their exposure to diverse content on various social media platforms. This finding resonates with the research conducted by Bensalem (2018), who asserted that students' use of WhatsApp contributes to the improvement of their vocabulary, writing skills, and ultimately, their reading proficiency.

Moreover, the study highlighted the role of Facebook as a social media platform in fostering academic support and communication skills among students. By participating in Facebook groups and discussions, students have the opportunity to interact with peers, seek academic assistance, and enhance their communication abilities. This aligns with the findings of Brydolf (2007), who demonstrated that social media platforms facilitate connectivity and communication, thereby enabling individuals to share ideas and seek support easily. Furthermore, the study revealed that social media platforms provide students with a virtual space to discuss their interests and academic concerns with like-minded individuals. This not only enhances their academic performance but also improves their online communication skills and knowledge. Additionally, social media platforms offer opportunities for students who may be hesitant to participate actively in traditional classroom settings to engage in meaningful discussions and produce content for a real audience (Hachemi, 2021). Overall, the study underscores the multifaceted benefits of social media for students, including the enhancement of reading abilities, facilitation of academic support, improvement of communication skills, and provision of a platform for meaningful engagement and knowledge sharing.

The findings also indicated that social media motivates students to search for information. The findings thus imply that students' involvement on social media platforms arouses them to look for information to address their information needs. This result is consistent with the claims made by Kolhar *et al.* (2021), who argued that social media platforms can be used to find important material for educational reasons. In this regard, students get motivated through social media (WhatsApp and YouTube) usage to search for appropriate information to address their educational needs. The study further established that students' involvement in social media distracts their concentration during classes. Students who engage on social media, especially during class hours, are distracted as well as their subject tutors. Most social media users have no regard for time and place, especially students. This claim was supported by a study carried out in Ghana by Yeboah and Ewur (2014), who found how academically distracting social media networks are. They assumed that social networking platforms like WhatsApp would disrupt students' academic pursuits and impair their ability to focus in class. The results of this study corroborated Yeboah and Ewur's (2014) findings that students used social media during class hours, with the majority doing so during breaks and free periods and a minor number doing so during teaching. Jacobsen and Forste (2011) claimed that

multitasking probably increases distraction which previous studies have proven to be bad for student performance—also supported this conclusion. Social media platforms such as Facebook, YouTube, and Twitter are becoming more popular, but they are also becoming riskier as they provide ways to complete schoolwork. This part of the study was aimed at finding out whether participation in social media helps broaden students' knowledge. The knowledge base and the understanding of concepts among students in our Colleges of Education today are influenced by social media.

Moreover, the study established that the sleep duration of college students in the northern region of Ghana is affected by prolonged participation on social media sites which affects their sleep quality and academic performance. This result is in line with Kolhar *et al.* (2021), who indicated that students sleep for fewer hours than the recommended amount of time due to late-night social media use. In this sense, poor sleep quality contributes to increased daytime fatigue. Poor academic performance may result from sleep restriction because it can have a terrible negative impact on attitude and cognitive function. An overwhelming majority of the respondents also agreed that social media has reduced their time for studying. The results further revealed that students use a lot of time on social media to engage in events that have no direct impact on academic performance. This study supported Yeboah and Ewur (2014), who indicated that some students partake in social media during class hours, with the majority doing so during breaks and free periods and a small percentage doing so during class hours. Kolhar *et al.* (2021) argued that social media platforms can be used to access important data that is useful for education. According to the report, students use social media platforms to send and receive pertinent academic material. The results of Kolhar *et al.* (2021) also indicated that social media platforms can be used to find important material for educational reasons, which is supported by this finding. Therefore, it may be concluded that college students used social media to share and receive pertinent course material from friends and colleagues, which ultimately helped them do better academically.

The research also indicated that there was a significant difference between males and females based on the social media effects. This implies that the effects associated with the use of social media sites vary across genders. The results of the study corroborate those of Alfariis *et al.* (2018), who found that female students use social media more frequently than male students for entertainment, friendship, sharing of experiences, getting away from their studies, being more productive, and online shopping. However, they also demonstrated that male students use social media more than female students to keep up with current events, get other people's viewpoints, and manage their time more efficiently. The effect of social media on female students varies greatly from that of male students in this regard.

6. Conclusion

The study concludes that WhatsApp is the most effective social media platform for improving students' academic achievement, given its widespread use for sending and

receiving course materials compared to other social media platforms. However, despite the benefits of social media usage among students, the study also highlights the potential negative impact on academic performance if not used appropriately.

Social networking sites offer chances to exchange ideas, share knowledge, and get better at reading. However, pre-service teachers' performance and academic lives may suffer if they abuse these sites. Overuse of social media can cause procrastination, diversions, and poor time management, all of which can eventually hurt a student's academic performance. Therefore, despite the advantages of student participation in social media networks, students must use these platforms responsibly to avoid negative consequences on their academic journey.

6.1 Recommendation for Policies and Practice

- 1) Colleges of education should consistently conduct lectures and moral talks addressing the implications of social media usage to mitigate its negative impact, aiding students in making informed decisions regarding their social media use.
- 2) Guidance and counseling services should be made appealing to all students, irrespective of gender, to address social media addiction, particularly among those experiencing compromised sleep quality. This initiative could be led by the college counseling coordinator in collaboration with the principal.

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Conflict of Interest Statement

This research, authorship, and publication are devoid of any potential conflict of interest.

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