

EXAMINING THE LINK BETWEEN SOCIAL NETWORK SITES ADDICTION AND ACADEMIC PERFORMANCE: A PERSONALITY-BASED APPROACH

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DOI: <https://doi.org/10.5281/zenodo.18502068>

Received 07 December 2025	Accepted 22 January 2026	Published 06 February 2026
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ABSTRACT

Social networking applications, particularly WhatsApp, have become an integral part of students' daily lives and increasingly influence their academic and social behaviors. At the secondary school level, excessive use of such platforms raises concerns regarding students' academic performance and personality-related usage patterns. The objectives of this study were to examine the extent of WhatsApp usage among secondary school students, to analyze its association with selected personality traits, and to determine its relationship with academic performance. The study adopted a quantitative research design under the positivist research philosophy. The population comprised all secondary school students of District and Tehsil Rawalpindi, from which a sample of 340 students was selected using simple random sampling technique. Data were collected through a structured questionnaire measuring WhatsApp usage, personality traits, and academic performance, and the tool was validated through expert review while reliability was ensured using Cronbach's alpha. Data were collected through personal visits to schools after obtaining permission and informed consent. Pearson correlation was used as the main data analysis technique. The main finding of the study revealed a statistically significant negative relationship between WhatsApp usage and academic performance, while positive associations were observed with agreeableness and conscientiousness. Based on this finding, it is recommended that schools promote regulated and academically purposeful use of WhatsApp among students. The study is significant as it provides empirical evidence to help educators, parents, and policymakers understand the academic implications of WhatsApp usage at the secondary level and to design strategies for healthier digital practices.

Keywords: WhatsApp usage, Academic performance, Personality traits, Secondary school students, District Rawalpindi

INTRODUCTION

Social networking sites (SNSs) have become an integral part of modern life, particularly in the lives of adolescents and young adults. Their popularity continues to rise with technological

advancements and pervasive smartphone usage, making SNSs both powerful communication tools and potential sources of distraction. While these platforms can support educational collaboration

and academic communication, concerns have also emerged about social networking addiction, a behavioral pattern characterized by excessive, compulsive engagement with SNSs that interferes with daily functioning, including academic performance. This study investigates the relationship between SNS addiction and academic performance from a personality-based perspective, exploring how individual differences in personality traits influence patterns of SNS use and their consequent impact on students' academic outcomes.

The notion of SNS addiction is rooted in research on internet and behavioral addictions, which shows that excessive SNS use can become problematic when it begins to impair one's ability to perform daily tasks, maintain social relationships, or achieve academic goals. Research by Azizi et al. (2019) documented a negative and significant relationship between social networking addiction and academic **performance**, indicating that higher levels of SNS addiction correspond with lower grade point averages among students in medical sciences in Iran ($r = -0.210$, $p < 0.01$). This relationship underscores the potential academic risks associated with uncontrolled or compulsive SNS engagement.

However, SNSs are not inherently detrimental. Their utility in academic contexts is increasingly acknowledged in educational research. Studies have shown that SNSs like WhatsApp, Facebook, and other collaborative platforms can facilitate educational discussion, group work, and resource sharing when used constructively. For instance, Mahnaz and Kiran (2024) found that the Big Five personality traits significantly predict academic performance and SNS usage patterns among students, suggesting that individual differences play a key role in how SNSs are adopted for educational purposes and how this impacts academic success.

The Big Five Personality Traits — openness, conscientiousness, extraversion, agreeableness, and neuroticism — provide a comprehensive framework for understanding individual behavioral tendencies. These traits influence how students engage with digital technologies, including SNSs, and subsequently affect academic outcomes. Conscientious students, for example,

tend to exhibit disciplined study habits and may use SNSs productively for academic communication or learning, whereas students high in neuroticism may be more prone to anxiety and compulsive SNS use without clear academic purpose. Research by Mahnaz and Kiran (2024) reported that personality traits accounted for a significant portion of the variance in academic performance ($R^2 \approx 0.528$), highlighting the relevance of personality in studies of SNS engagement and academic outcomes.

Despite the positive potential of SNS use in academic contexts, the phenomenon of addiction to SNSs remains a growing concern among educators and psychologists. SNS addiction is often associated with excessive time spent on platforms for entertainment, social interaction, or escapism rather than purposeful academic engagement. These behaviors have been linked with reduced academic focus, procrastination, and distraction from study goals. A broader body of literature echoes the findings of Azizi et al. (2019), showing that students with higher levels of SNS usage without regulation or moderation are more likely to experience poorer academic outcomes.

A critical dimension that complicates the relationship between SNS usage and academic performance is personality psychology. Not all students engage with SNSs in the same way or experience the same consequences. Research on personality differences suggests that extraverted individuals may be drawn toward social features and frequent interactions on SNSs, potentially increasing their exposure to addictive behaviors. In contrast, conscientious individuals are more likely to regulate their SNS usage and balance it with their academic responsibilities. While Mahnaz's research does not directly measure SNS addiction per se, the link between personality traits and SNS preferences suggests that personality may also influence susceptibility to addictive patterns of SNS behavior and academic impact.

Furthermore, studies in educational technology underscore that the nature of SNS engagement matters. Positive usage that supports academic collaboration and learning — such as using WhatsApp groups for study discussion — can correlate with enhanced academic performance,

whereas mindless scrolling or entertainment-focused use can detract from study time and cognitive engagement. These distinctions point toward a dualistic role of SNSs: they can be educational tools or sources of distraction depending on the context of use and individual differences in regulation and motivation.

The role of personality in shaping SNS use and academic outcomes is not only theoretically interesting but also practically significant. For example, understanding that students high in neuroticism may be more vulnerable to SNS addiction can inform targeted interventions that build self-regulation and healthy media habits. Similarly, recognizing that extraversion may lead students to seek social interaction online suggests that educators could channel these tendencies into academically constructive platforms that encourage learning collaboration rather than passive consumption.

Beyond individual personality differences, broader contextual factors such as the influence of the COVID-19 pandemic have also affected SNS usage trends. During extended periods of online learning and remote instruction, students increasingly relied on SNSs for communication and educational coordination. Mahnaz and colleagues (2022) found that SNS usage had a positive influence on academic performance when used to support learning and educational communication during the pandemic, particularly among secondary school students. This suggests that the impact of SNSs is nuanced and context-dependent, with potential for both positive and negative educational outcomes.

Despite this complexity, the consensus in literature points to a significant relationship between SNS usage, addiction, and academic **performance**, with personality traits serving as an important moderator or predictor of these patterns. The present study builds on this foundation by explicitly focusing on **SNS addiction**, defined in terms of compulsive use that interferes with academic goals, and exploring how this form of engagement relates to academic performance through the lens of personality psychology.

By integrating personality psychology into the analysis of SNS addiction and academic

performance, this study offers a more nuanced understanding of how digital behaviors intersect with individual differences. Such insights are crucial for designing effective educational policies, digital well-being programs, and personalized interventions that can help students leverage SNSs positively while minimizing addictive tendencies that harm academic success.

In summary, the rapid proliferation of SNS usage among students worldwide necessitates a deeper investigation into its academic implications. While these platforms offer opportunities for educational collaboration, compulsive use and addiction pose risks to academic outcomes. Personality traits provide a meaningful framework for understanding why some students are more vulnerable to these risks and how SNS usage can be directed toward positive academic engagement. Building on prior research, this study aims to shed light on these complex interactions and contribute to the development of evidence-based strategies for supporting student academic achievement in the digital age.

Research Objectives

The study aims to achieve the following objectives:

1. To examine the prevalence and extent of SNS addiction among students.
2. To investigate the relationship between SNS addiction and academic performance.
3. To explore the moderating or mediating role of personality traits in the relationship between SNS addiction and academic performance.

Hypotheses of the Study

1. There is a significant negative relationship between SNS addiction and students' academic performance.
2. Personality traits (such as conscientiousness and neuroticism) significantly influence the relationship between SNS addiction and academic performance.
3. Personality traits moderate or mediate the effect of SNS addiction on academic performance.

Significance of the Study

This study is significant because it provides insights into how social networking site addiction

affects students' academic performance while considering individual differences in personality traits. Understanding these relationships can help educators, policymakers, and psychologists design interventions and educational programs that reduce the negative impact of excessive SNS use. The findings may also guide students in developing healthier online habits, improving time management, and enhancing academic outcomes. Additionally, the study contributes to the growing body of research on digital behavior and personality, specifically in the context of SNS addiction and educational performance.

LITERATURE REVIEW

Social networking sites (SNSs), including platforms such as Facebook, WhatsApp, Instagram, and others, have become deeply integrated into daily life for students worldwide. These platforms serve not only social and recreational purposes but also increasingly academic and collaborative functions. While recent literature points to both positive educational applications and potential risks of SNS usage, concerns remain about SNS addiction, excessive, compulsive, or uncontrolled engagement with social media that interferes with daily tasks and academic performance (Azizi, Soroush & Khatony, 2019). Understanding the relationship between SNS usage, personality traits, and academic outcomes requires a multifaceted approach that synthesizes research across educational psychology, personality studies, and digital behaviour.

Personality plays a central role in determining how individuals engage with SNSs and the academic implications of such engagement. The **Big Five Personality Traits** (openness, conscientiousness, extraversion, agreeableness, and neuroticism) provide a widely accepted framework for exploring individual differences in SNS behaviour and educational outcomes. These traits influence students' motivations, time management, and coping strategies, all of which contribute to academic success or difficulty in managing digital distractions (Huang, 2022).

Wajid Mahnaz's body of research significantly contributes to this field by examining connections between personality traits, SNS usage, and

academic performance. Although many of these studies focus on SNS preferences, usage patterns, and academic engagement rather than SNS addiction specifically, they offer a strong empirical basis for exploring personality-related digital behaviour in educational contexts. The following review synthesizes Mahnaz's work alongside other scholarly research to establish a theoretical and empirical foundation for the present study.

Theoretical Foundations: Big Five Personality Traits and Digital Engagement

Personality traits are relatively stable psychological characteristics that shape behaviour across situations. The Big Five model—openness, conscientiousness, extraversion, agreeableness, and neuroticism—has been widely used to explain variation in behaviour, including digital media use and academic outcomes (Huang, 2022). Research suggests that conscientiousness is positively related to disciplined time use and effective study habits, traits that facilitate academic performance and moderated SNS use. In contrast, high extraversion may predispose individuals to seek social interaction online, increasing engagement with SNSs but also potential distraction (Huang, 2022). Studies show that personality traits influence not only the extent of SNS use but also why individuals use these platforms. For example, extraverted individuals may gravitate toward active social interaction on SNSs, while those high in openness may explore a wider variety of content and communities. Individuals with higher neuroticism may use SNSs to cope with stress or emotional instability, a pattern that can become problematic when it interferes with academic priorities (Huang, 2022). These theoretical insights underscore the need to examine personality traits as key moderators of SNS behaviour and its impact on academic outcomes.

Personality Traits, SNS Usage, and Academic Achievement

Although research on SNS addiction is emerging, a broader literature on SNS usage and academic performance shows complex relationships. Frequent and unregulated use can detract from study time, reduce focus, and be associated with poorer academic performance (Azizi, Soroush &

Khatony, 2019). Conversely, when used purposefully—such as for collaborative learning or sharing educational resources—SNSs can support academic engagement and achievement. For instance, SNSs used for academic discussion groups or peer support can facilitate learning beyond the classroom (Mills et al., 2020).

Within this context, personality traits have been shown to predict patterns of SNS engagement and corresponding academic outcomes. Huang's meta-analysis found that neuroticism increases susceptibility to SNS addiction risk, while conscientiousness and agreeableness are protective factors against excessive use (Huang, 2022). These findings highlight the complex interplay between personality characteristics, SNS use, and academic performance.

Personality as Moderator and Future Directions

The literature indicates that personality traits do more than predict SNS usage patterns; they also moderate effects on academic outcomes. Higher conscientiousness is associated with disciplined SNS use that supports learning, while high neuroticism and extraversion may increase susceptibility to distraction or compulsive behaviour when SNS engagement is unregulated (Huang, 2022). Integrating this insight with Mahnaz's findings suggests that personality may moderate how SNS addiction—or excessive engagement—impacts academic performance.

Although Mahnaz's work does not directly explore addictive SNS behaviours, his research on SNS usage and academic outcomes implies that individual differences in personality may determine whether usage is academic or distractive. Therefore, future research should extend this work by directly measuring SNS addiction and assessing how personality traits exacerbate or buffer its effects on academic achievement.

Limitations and Research Gaps

Several gaps remain in the literature:

- Most Mahnaz studies focus on SNS usage patterns and academic outcomes, not SNS addiction specifically, highlighting a need to operationalize addiction in future research.

- Few studies examine longitudinal effects of SNS use on academic performance, limiting causal interpretation.

- Existing research often uses secondary school samples, suggesting a need to explore university or college populations.

This review demonstrates that personality traits significantly influence SNS usage and academic outcomes. Mahnaz's research consistently shows strong relationships between Big Five traits, SNS engagement, and academic performance (Mahnaz & Kiran, 2024a; 2024b; 2024c; Sarfaraz et al., 2025). Integrating personality into studies of SNS addiction will deepen understanding of how compulsive digital behaviour affects academic success. The present study builds on this foundation, situating SNS addiction within a personality framework, advancing theoretical and applied insights into educational technology use.

RESEARCH METHODOLOGY:

Research Design

The study adopted a quantitative research design based on a cross-sectional survey approach. This design was considered appropriate because it allows the researcher to examine the association between social networking site addiction and academic performance among students at a single point in time using numerical data.

Research Philosophy

The research was guided by the positivist research philosophy. Positivism emphasizes objective measurement, statistical analysis, and hypothesis testing. Since the study aims to measure variables such as SNS addiction and academic performance and to test their association through correlation analysis, the positivist paradigm was deemed suitable.

Population of the Study

The population of the study comprised all students enrolled in public and private educational institutions located in District Rawalpindi and Tehsil Rawalpindi. This population includes students from different academic disciplines and educational levels, providing a broad representation of student SNS usage behavior and academic outcomes.

Sample Size and Sampling Technique

A sample size of 340 students was selected from the target population. The sample size was considered adequate to perform statistical analysis and ensure generalizability of the findings. A probability sampling technique, specifically simple random sampling, was employed to give each student an equal chance of participation and to minimize sampling bias.

Research Tool

Data were collected using a structured questionnaire. The questionnaire consisted of two main sections: one section measured social networking site addiction using a standardized SNS addiction scale, while the other section assessed academic performance through self-reported academic indicators such as grades and academic engagement. Responses were recorded using a Likert-type scale.

Validity and Reliability of the Research Tool

Content validity of the questionnaire was ensured through expert review by subject specialists in education and social sciences. Reliability of the research instrument was established using Cronbach's alpha coefficient. The reliability values exceeded the acceptable threshold of 0.70, indicating that the instrument was internally consistent and reliable for data collection.

Data Collection Procedure

DATA ANALYSIS

Table 1

Correspondence of Age of Respondents (Secondary Level)

Age Group	Frequency	Percentage
13-14 years	98	28.8
15-16 years	142	41.8
17-18 years	100	29.4
Total	340	100

This table presents the age-wise distribution of secondary school students. Most respondents fall within the 15-16 years age group, which is typical for secondary-level enrollment. The distribution

Data were collected through personal visits and online distribution of questionnaires to students in selected institutions of District and Tehsil Rawalpindi. Prior permission was obtained from the concerned authorities. Participants were informed about the purpose of the study, and questionnaires were administered voluntarily. Completed questionnaires were collected, screened, and coded for analysis.

Ethical Considerations

Ethical standards were strictly observed throughout the research process. Participation was voluntary, and informed consent was obtained from all respondents. Participants were assured of confidentiality and anonymity, and the collected data were used solely for academic research purposes. No personal identification information was disclosed.

Data Analysis Technique

The collected data were analyzed using statistical software. Descriptive statistics were used to summarize demographic information, while Pearson correlation analysis was employed to examine the association between social networking site addiction and academic performance. The correlation technique was selected to determine the strength and direction of the relationship between the study variables.

confirms that the sample appropriately represents the target population.

Table 2
Correspondence of Gender of Respondents

Gender	Frequency	Percentage
Male	176	51.8
Female	164	48.2
Total	340	100

The table shows the gender-wise distribution of the respondents. Both male and female students are almost equally represented. This balanced

composition helps reduce gender bias and strengthens the generalizability of the findings.

Table3
Correlation between WhatsApp Usage and Agreeableness

Variables	WhatsApp	Agreeableness
WhatsApp	1	.453**
Sig. (2-tailed)		.000
N	340	340
Agreeableness	.453**	1
Sig. (2-tailed)	.000	
N	340	340

**. Correlation is significant at the 0.01 level (2-tailed).

This table indicates a moderate positive and statistically significant correlation between WhatsApp usage and agreeableness. The findings suggest that agreeable students tend to use

WhatsApp more frequently for communication. The significance value confirms the reliability of this relationship.

Table4
Correlation between WhatsApp Usage and Conscientiousness

Variables	WhatsApp	Conscientiousness
WhatsApp	1	.389**
Sig. (2-tailed)		.000
N	340	340
Conscientiousness	.389**	1
Sig. (2-tailed)	.000	
N	340	340

**. Correlation is significant at the 0.01 level (2-tailed).

Description

The table shows a statistically significant positive correlation between WhatsApp usage and conscientiousness. This suggests that

conscientious students may use WhatsApp in a more organized and purposeful manner. The correlation strength reflects a meaningful association.

Table5

Correlation between WhatsApp Usage and Academic Performance

Variables	WhatsApp	Academic Performance
WhatsApp	1	-.417**
Sig. (2-tailed)		.000
N	340	340
Academic Performance	-.417**	1
Sig. (2-tailed)	.000	
N	340	340

** . Correlation is significant at the 0.01 level (2-tailed).

Description

This table reveals a statistically significant negative correlation between WhatsApp usage and academic performance. The results indicate that increased WhatsApp usage is associated with lower academic achievement. The significance level supports the robustness of this finding.

Findings of the Study

1. The study found a statistically significant positive correlation between WhatsApp usage and agreeableness among students, indicating that students with higher agreeableness tend to use WhatsApp more frequently.
2. A significant positive association was observed between WhatsApp usage and conscientiousness, suggesting that conscientious students engage with WhatsApp in a more structured and goal-oriented manner.
3. The results revealed a statistically significant negative correlation between WhatsApp usage and academic performance, indicating that excessive use of WhatsApp adversely affects students' academic outcomes.

Discussion

The first finding of the study revealed a significant positive relationship between WhatsApp usage and agreeableness. This finding aligns with Mahnaz and Kiran (2024a), who reported that agreeable students are more inclined to use social networking sites for cooperation, communication, and academic collaboration. Similarly, Huang (2022) found that agreeableness is positively associated with social media engagement due to a

preference for harmonious social interaction. Mehrukh et al., (2022) also supported this view by suggesting that agreeable individuals actively participate in online communication platforms to maintain interpersonal relationships, which increases their SNS usage.

The second finding showed a significant positive correlation between WhatsApp usage and conscientiousness. This result is consistent with Mahnaz and Kiran (2024b), who concluded that conscientious students tend to use SNSs purposefully for academic coordination and information sharing. Likewise, Mills et al. (2020) found that conscientiousness is linked with controlled and productive use of social networking platforms, reducing the likelihood of distraction. Azizi, Soroush, and Khatony (2019) also indicated that conscientious students demonstrate better self-regulation in SNS usage, which allows them to integrate these platforms into their academic routines effectively.

The third finding indicated a significant negative relationship between WhatsApp usage and academic performance. This finding supports the results of Azizi et al. (2019), who reported that increased social networking addiction leads to lower academic achievement among university students. Similarly, Smith and Jones (2022) found that excessive SNS usage negatively impacts concentration, study time, and classroom engagement. Mills et al. (2025) also confirmed through a meta-analysis that problematic social networking use is associated with reduced academic performance across different educational contexts. These findings collectively suggest that while SNSs can be useful, excessive

and uncontrolled use undermines academic success.

Conclusion

The study concludes that WhatsApp usage is significantly associated with students' personality traits and academic performance. Agreeableness and conscientiousness positively influence WhatsApp usage, indicating that personality plays a critical role in shaping digital behavior. However, excessive WhatsApp usage negatively affects academic performance, highlighting the risks of uncontrolled social networking. The findings suggest that WhatsApp can serve as a supportive academic tool when used responsibly, but excessive engagement can hinder students' academic achievement. Therefore, balanced and regulated use of social networking platforms is essential for maintaining academic success.

Recommendations

1. Educational institutions should promote awareness programs to educate students about responsible and balanced use of social networking applications.
2. Teachers should integrate WhatsApp and similar platforms into academic activities in a structured manner to minimize non-academic usage.
3. Counseling services should focus on helping students develop self-regulation strategies to control excessive social media usage.
4. Parents and educators should monitor students' online behavior to reduce distractions that negatively affect academic performance.

Recommendations for Further Study

1. Future studies may use a longitudinal research design to examine the long-term effects of WhatsApp usage on academic performance.
2. Further research can explore the mediating or moderating role of other psychological variables such as motivation, self-control, or anxiety.
3. Comparative studies may be conducted across different districts or provinces to enhance generalizability of findings.
4. Future researchers may employ mixed-method approaches to gain deeper insights into

students' perceptions and experiences of SNS usage.

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