DIALOGUE SOCIAL SCIENCE REVIEW

Exploring the Impact of WhatsApp, Facebook Usage and Big Five Personality Traits on Scholastic Performance among Secondary School Students

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Abstract
The Impact of Big Five Personality Traits on usage of WhatsApp, Facebook has gained considerable attention now a days and the reason behind it is growing prevalence of digital platforms in everyday life. Objectives of the study were; 1) To explore the influence of Big Five personality traits on students' engagement with WhatsApp and Facebook for academic purposes. 2) To explore the influence of Big Five personality traits on students' engagement with WhatsApp and Facebook for academic purposes. 3) To analyze the mediating role of Scholastic Performance in the effect of WhatsApp and Facebook usage Personality Traits of secondary school students. All 8617 Students of grade 10th of District Attock, (4,868 Boys & 3,749 Girls) at secondary and higher secondary school level in 248 public schools were the population of the study. 816 students were the sample for this study from the population. Proportional Sampling technique was used for sampling. Big Five Personality Tool consists of 39, Usage of Social Network Sites tool consists of twenty nine different items for five basic and commonly used Social Network Sites. Reliability of the tools was found by using Cronbach's Alpha. For content validity, both research tools were validated from the experts of field of education while for construct validity, EFA was performed. The findings from the PROCESS procedure (Model 4) offer insights into the relationships between Big Five Personality Traits (BFPTs), Scholastic Performance (SP), and Social Network Sites (SNSs). The analysis shows that BFPTs significantly predict Scholastic Performance (SP), with a positive coefficient of 1.528 ($p < 0.01$). The model's R-squared value of 0.528 indicates that 52.81% of the variance in Scholastic Performance can be explained by BFPTs. This relationship suggests that students' personality traits are strongly related to their academic performance. Hence, it is recommended that, Interventions should focus on improving both Scholastic Performance and personality traits to help students manage their social media usage effectively.
Keywords: Social Network Sites (SNSs), Big Five Personality Traits (BFPTs), Academic Achievement,

Introduction
The widespread integration of Facebook and WhatsApp into students' daily routines has raised significant questions about their impact on academic performance, particularly when analyzed through the lens of personality

psychology. Secondary school students, who form a significant portion of these platforms' users, experience varying outcomes based on their usage patterns, influenced by underlying personality traits (Maziriri, 2019; Sindermann et al., 2020). This study explores the intricate relationships between the Big Five Personality Traits—openness, conscientiousness, extraversion, agreeableness, and neuroticism—and the use of Facebook and WhatsApp, focusing on their collective influence on scholastic performance.

The Role of Facebook and WhatsApp in Education:
These platforms have transformed how students interact, learn, and share information. WhatsApp, known for its ease of communication and group functionalities, has become a popular tool for academic collaboration, allowing students to engage in peer discussions, share study materials, and seek instant clarification (Sindermann et al., 2020; Whelan et al., 2020). In contrast, Facebook, with its broader social and recreational nature, presents both opportunities and challenges. While it can facilitate peer support and access to educational resources, it may also introduce distractions that negatively impact academic focus (Sha et al., 2019; Oliveira et al., 2021).

Personality Traits and Facebook and WhatsApp Usage Patterns:
The Big Five Personality Traits provide a robust framework for understanding individual differences in SNS usage. For instance, extraverts are more likely to engage actively on platforms like Facebook due to their inherent need for social interaction and stimulation (Montag et al., 2020; Roshita & Ningsih, 2021). This heightened engagement can foster a sense of belonging and support, potentially enhancing academic motivation. In contrast, individuals high in neuroticism often use Facebook and WhatsApp for emotional regulation, which may lead to excessive usage and reduced focus on academic tasks (Alfasi, 2022).

Conscientious students, characterized by their disciplined and goal-oriented nature, tend to use these platforms more purposefully. Research indicates that conscientiousness is positively correlated with academic performance, as these individuals are better at managing their online activities to avoid distractions (Marengo et al., 2020; Richter et al., 2021). Conversely, openness to experience, associated with intellectual curiosity, may lead to productive use of Facebook and WhatsApp for educational exploration but could also result in information overload if not managed properly (Sindermann et al., 2020; Züger et al., 2022).

Empirical Evidence and Trends:
Several studies have examined the relationship between Facebook and WhatsApp usage, personality traits, and academic outcomes. For example, a study by Alfasi, (2022) found that students with high levels of extraversion and agreeableness reported more positive experiences with Facebook, using it to enhance collaborative learning and peer support. However, the same study highlighted that neurotic students often exhibit compulsive usage patterns, negatively

affecting their academic performance. Another study by Sha et al., (2019) emphasized the addictive potential of platforms like WhatsApp and Facebook, particularly for students who rely heavily on social validation and interaction.

Moreover, the impact of these platforms on academic performance is not uniform across all students. Factors such as the purpose of use, duration, and content consumed play crucial roles. For instance, using WhatsApp for academic discussions can enhance learning outcomes, while excessive use of Facebook for non-academic purposes might lead to procrastination and poor time management (Bakker & Albrecht, 2018).

Objectives

Objectives of the study were;

1. To explore the influence of Big Five personality traits on students' engagement with WhatsApp and Facebook for academic purposes.
2. To explore the influence of Big Five personality traits on students' engagement with WhatsApp and Facebook for academic purposes.
3. To analyze the mediating role of Scholastic Performance in the effect of WhatsApp and Facebook usage Personality Traits of secondary school students.

Hypotheses:

H_1: Big Five personality traits significantly influence students' engagement with WhatsApp and Facebook for academic purposes.

H_2: Big Five personality traits significantly influence students' engagement with WhatsApp and Facebook for academic purposes.

H_3: Scholastic performance mediates the relationship between WhatsApp and Facebook usage and Personality Traits among secondary school students.

Literature Review

In recent years, the usage of social media platforms such as Facebook and WhatsApp among students has garnered significant attention in research, particularly concerning their impact on Scholastic Performance. Secondary school students, in particular, are heavy users of these platforms, which are widely integrated into their academic and social routines. While these platforms offer potential benefits such as peer support, collaboration, and resource sharing, they also pose risks related to academic focus and productivity. The Big Five personality traits—openness, conscientiousness, extraversion, agreeableness, and neuroticism—are key predictors of how students engage with Facebook and WhatsApp, potentially influencing their academic outcomes (Montag et al., 2020; Maziriri, 2019). This review examines the relationship between Facebook and WhatsApp usage, personality traits, and academic performance among secondary school students.

Facebook and WhatsApp Usage: Opportunities and Risks for Scholastic Achievement:

Facebook and WhatsApp offer distinct opportu[nities] [for] [studen]ts' academic lives. WhatsApp, with its instant mess[aging] [can be used] for academic group discussions, clarifying doubts, a[nd] [sharing resources, oft]en contributing to positive academic outcomes (Sir[...]). [Resear]ch has shown that students who engage in educat[ional] [...] App

report greater academic engagement and performance, benefiting from increased communication and collaboration (Whelan et al., 2020). In contrast, Facebook serves both academic and recreational purposes. Students use Facebook for educational activities such as joining study groups and participating in academic discussions, but it is also used for socializing and entertainment, leading to potential distractions (Sha et al., 2019). Oliveira et al. (2021) found that while WhatsApp tends to be more academically focused, Facebook's recreational usage may reduce time management and study focus, negatively affecting Scholastic Performance.

Despite the academic potential of these platforms, their misuse can detract from scholarly efforts. A study by Maziriri (2019) found that excessive use of Facebook, especially for non-academic purposes, correlates with procrastination and reduced study time, which ultimately impairs academic outcomes. Similarly, students' engagement in non-academic content on Facebook is linked to negative impacts on performance due to time spent away from study-related tasks (Sha et al., 2019). Hence, the way students engage with these platforms determines their academic effects.

The Role of Personality Traits in Facebook and WhatsApp Usage:
The Big Five Personality Traits significantly shape how students use Facebook and WhatsApp. Extraverted students, who enjoy social interaction, tend to use both platforms for socializing, which can either enhance or detract from their academic efforts depending on the context (Montag et al., 2020; Roshita & Ningsih, 2021). For example, extraverts may benefit from academic discussions or collaborations facilitated by these platforms but may also struggle with distractions if their usage becomes more social than academic.

Conscientiousness plays a pivotal role in academic-related platform usage. Conscientious students, known for their self-discipline and organization, are more likely to use WhatsApp and Facebook in a structured, goal-oriented way. Research indicates that conscientious students tend to join educational groups or use these platforms for academic purposes, which can enhance their academic performance (Marengo et al., 2020). Conversely, students with low conscientiousness are more likely to engage in unstructured, recreational use, which can lead to procrastination and lower Scholastic Performance (Richter et al., 2021). Similarly, openness to experience influences how students use these platforms for intellectual exploration, with students high in openness more likely to engage with diverse academic content on Facebook and WhatsApp, contributing to their academic success. However, the risk of information overload and reduced focus may emerge for highly open students (Zuger et al., 2022).

Agreeableness and neuroticism also affect students' social media habits. Agreeable students use these platforms for academic collaboration and support, leading to positive outcomes. However, neurotic students, who often seek emotional support, may engage in social interactions on these platforms that distract from academic tasks, ultimately affecting their academic performance (Correa et al., 2013). For instance, neurotic students may become overly engaged in emotional exchanges on Facebook or WhatsApp, detracting from their focus on studies.

Empirical Evidence on the Impact of Facebook and WhatsApp on Academic Performance:

A growing body of research has explored the impact of Facebook and WhatsApp usage on Scholastic Performance, revealing both positive and negative effects. Studies suggest that students with high conscientiousness and extraversion benefit from using WhatsApp and Facebook for academic purposes, such as group collaborations and academic discussions, which contribute to better academic engagement and performance (Sindermann et al., 2020). However, students high in neuroticism and low in conscientiousness are more prone to distractions from Facebook and WhatsApp, leading to negative academic outcomes due to excessive time spent on non-academic content (Sha et al., 2019). Whelan et al. (2020) conducted a study that revealed the dual nature of Facebook and WhatsApp usage, showing that when these platforms are used for academic collaboration, they can improve academic performance. Conversely, their recreational usage can impair time management and reduce study time, leading to lower Scholastic Performance. Research by Richter et al. (2021) further highlighted the importance of self-regulation, showing that students with better time management skills tend to use WhatsApp and Facebook for educational purposes, contributing positively to academic outcomes.

Theoretical Framework

The Uses and Gratifications Theory (UGT) is highly relevant to understanding the impact of WhatsApp and Facebook usage on scholastic performance among secondary school students. UGT posits that individuals actively select media and technologies based on their needs and desires, seeking gratifications such as social interaction, information acquisition, entertainment, or emotional support. This theory helps explain why students use platforms like WhatsApp and Facebook, as they may be motivated by both academic and social needs, such as staying connected with peers, sharing study materials, or participating in academic discussions.

In the context of this study, UGT can provide insights into how students use WhatsApp and Facebook for academic purposes, such as group study sessions, access to educational resources, and communication with teachers or classmates. These gratifications, driven by specific needs related to Scholastic Performance, might positively influence scholastic performance. For instance, students who use WhatsApp for collaborative study groups may experience enhanced academic engagement (Whelan et al., 2020), while those who use Facebook for educational content or group discussions may see improvements in academic performance as well (Sha et al., 2019).

However, UGT also suggests that excessive use of Facebook for recreational purposes, such as socializing or entertainment, could detract from academic focus, potentially leading to negative impacts on scholastic performance. The theory suggests that students' personalities, as reflected in the Big Five traits, may influence their media choices and usage patterns, with conscientious students more likely to use WhatsApp and Facebook for academic purposes, while others may engage with these platforms for social and emotional needs, which could interfere with their academic goals (Montag et al., 2020).

Research Methodology

Research Design

This study employs a quantitative research approach, for Exploring the Impact of WhatsApp, Facebook Usage and Big Five Personality Traits on Scholastic Performance Among Secondary School Students

Population

All 8617 Students of grade 10th of District Attock, (4,868 Boys & 3,749 Girls) at secondary level in 248 public schools were the population of the study.

Sample and Sampling Technique

Sample of the study consist of 816 students from the population. Proportional Sampling technique was used for sampling. In this methodology, the sample size of each stratum is determined in direct proportion to the population size of the overall stratum population. This implies that every sample within each stratum is selected using an identical sampling percentage.

Research Instruments

Two different types of research tools were used to achieve the objectives of the study.

Research Tool No. 1: Big Five Personality Traits Tool (BFPTs)

Research Tool No. 2: Usage of Social Network Sites (USNSs)

Usage of Social Network Sites tool consists of twenty nine different items for five basic and commonly used Social Network Sites.

Reliability of the Tools:

Reliability of the tools was found by using Cronbach's Alpha. The internal consistency of the items of variables was as given below;

Table 1: Factor / Variable / Item wise Internal Consistency of BFPTs

Variable	No. of Items	Cronbach's Alpha (α)	Level of Internal Consistency
Openness	07	0.916	Excellent
Conscientiousness	10	0.972	Excellent
Extraversion	07	0.933	Excellent
Agreeableness	07	0.956	Excellent
Neuroticism	05	0.951	Excellent
Overall (BFPTs)	36	0.867	Good

The reliability analysis for the Big Five Personality Traits (BFPTs) tool demonstrates excellent internal consistency across all subscales, with Cronbach's Alpha values ranging from 0.916 to 0.972, indicating a highly reliable instrument. Openness (α = 0.916), conscientiousness (α = 0.972), extraversion (α = 0.933), agreeableness (α = 0.956), and neuroticism (α = 0.951) all exhibit excellent reliability, ensuring that each subscale consistently measures its respective trait. The overall BFPTs scale, with a Cronbach's Alpha of 0.867, reflects good internal consistency, affirming the tool's robustness in assessing personality traits among

secondary school students. These results indicate that the BFPTs instrument is dependable for capturing accurate and consistent data in the context of the study.

Table 2: Factor / Variable / Item wise Internal Consistency of USNSs

Variable	No. of Items	Cronbach's Alpha (α)	Level of Internal Consistency
Facebook	05	0.965	Excellent
WhatsApp	06	0.969	Excellent
Instagram	06	0.979	Excellent
Twitter	06	0.979	Excellent
TikTok	06	0.974	Excellent
Overall (USNSs)	29	0.917	Excellent

The reliability analysis for the Usage of Social Network Sites (USNSs) tool indicates excellent internal consistency across all subscales, with Cronbach's Alpha values ranging from 0.965 to 0.979, demonstrating a highly reliable instrument. Specifically, Facebook (α = 0.965), WhatsApp (α = 0.969), Instagram (α = 0.979), Twitter (α = 0.979), and TikTok (α = 0.974) all exhibit excellent reliability, ensuring consistent measurement of social media usage behaviors. The overall USNSs scale, with a Cronbach's Alpha of 0.917, further confirms the tool's robustness. These results suggest that the USNSs instrument reliably captures accurate data on students' social media usage patterns in the study.

Validity of the Research Tools:

Content Validity

The research instrument used for this study was improved by the consistent guidelines and input of five different experts in the field of Educational research. Their views and observations were obtained for judging validity of the instrument.

Construct Validity

Construct validity refers to the extent to which a measurement tool accurately represents the theoretical construct it is intended to measure. In other words, it assesses whether the instrument truly measures the abstract concept or trait it claims to evaluate. Construct validity is crucial in research because it ensures that the results obtained from a tool reflect the underlying theoretical concept rather than other variables or biases.

Exploratory Factor Analysis (EFA)

Exploratory Factor Analysis (EFA) is a statistical technique used to assess **construct validity** by examining the underlying structure of a set of observed variables. It identifies how closely related items group together to represent different dimensions or factors of a theoretical construct. EFA is particularly useful in the early stages of research to determine whether the items on a questionnaire or survey align with the expected theoretical framework.

Factor Analysis of Big Five Personality Traits Tool

Table 3: KMO and Bartlett's Test Result of BFPTs

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		**.896**
Bartlett's Test of Sphericity	Approx. Chi-Square	30021.346
	Df	630
	Sig.	.000

The KMO and Bartlett's Test results for the Big Five Personality Traits (BFPTs) indicate strong suitability for factor analysis. The KMO value of 0.896 reflects excellent sampling adequacy, suggesting that the data has sufficient inter-item correlations for identifying underlying factors. Additionally, Bartlett's Test of Sphericity is highly significant ($p < 0.001$), indicating that the correlation matrix is not an identity matrix and that meaningful relationships exist among the items. Together, these results confirm that the dataset is appropriate for Exploratory Factor Analysis (EFA), supporting the instrument's construct validity by ensuring that the BFPTs tool reliably captures the intended personality traits.

Table 4: Rotated Component Matrix of BFPTs

Rotated Component Matrix[a]					
	Component				
	1	2	3	4	5
E5			.927		
E6			.874		
E11			.818		
E12			.858		
E13			.777		
E14			.800		
E15			.843		
A6		.898			
A7		.909			
A8		.868			
A9		.885			
A10		.866			
A11		.921			
A12		.892			
C1	.818				
C2	.839				
C3	.935				
C4	.869				
C5	.900				
C6	.932				
C7	.903				
C9	.855				
C10	.933				
C12	.935				
N1				.873	
N4				.878	
N10				.937	

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N12		.941
N14		.915
O5	.877	
O6	.820	
O8	.782	
O9	.769	
O10	.806	
O11	.798	
O12	.859	

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 5 iterations.

The **Rotated Component Matrix** shows that the Big Five Personality Traits items are clearly grouped into five distinct components, supporting the construct validity of the instrument. Each item loads strongly on its corresponding factor, indicating that the underlying dimensions of **Extraversion (E), Agreeableness (A), Conscientiousness (C), Neuroticism (N),** and**Openness (O)** are well-defined. For example, items related to **Extraversion (E5, E6, E11-E15)** load highly on Component 2, while **Agreeableness items (A6-A12)** load on Component 1. Similarly, **Conscientiousness items (C1-C12)** load on Component 3, **Neuroticism items (N1, N4, N10, N12, N14)** on Component 4, and **Openness items (O5, O6, O8-O12)** on Component 5. The strong factor loadings (all above 0.75) and the clear separation between components indicate that the questionnaire reliably measures the intended personality traits, confirming the robustness and validity of the tool for assessing the Big Five dimensions among secondary school students.

Factor Analysis of Usage of Social Network Sites (USNSs)

Table 1: KMO and Bartlett's Test Result of USNSs

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		**.868**
Bartlett's Test of Sphericity	Approx. Chi-Square	36885.894
	Df	406
	Sig.	.000

The **KMO and Bartlett's Test** results indicate that the data is suitable for **Exploratory Factor Analysis (EFA)**. The **KMO value of 0.868** suggests that the sampling adequacy is good, as values above 0.6 are considered acceptable for factor analysis, with values closer to 1.0 being excellent. The **Bartlett's Test of Sphericity** shows a **Chi-Square value of 36,885.894**, with **406 degrees of freedom** and a **significant p-value of 0.000**. This result confirms that the correlation matrix is not an identity matrix and that there are significant correlations between the variables, validating the use of factor analysis to explore the underlying structure of the data.

Table 2: Rotated Component Matrix of USNSs

Rotated Component Matrix [a]

	Component				
	1	2	3	4	5
F1					.927
F2					.904
F3					.954
F4					.914
F5					.956
W1				.917	
W2				.948	
W3				.950	
W4				.933	
W5				.940	
W6				.897	
I1		.911			
I2		.959			
I3		.958			
I4		.947			
I5		.968			
I6		.890			
T1	.919				
T2	.960				
T3	.957				
T4	.944				
T5	.966				
T6	.926				
TT1			.906		
TT2			.955		
TT3			.954		
TT4			.933		
TT5			.968		
TT6			.905		

Extraction Method: Principal Component Analysis.
 Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 5 iterations.

The **Rotated Component Matrix** reveals the distinct grouping of social media usage items into five components, which reflect different social media platforms or usage behaviors. Each item shows strong loadings on its respective component, indicating clear associations between item and the underlying factors. For example, **Facebook (F1-F5)** items load highly on Component 1, with loadings ranging from 0.904 to 0.956, indicating a strong correlation between the items measuring Facebook usage. **WhatsApp (W1-W6)** items load on Component 2, with loadings between 0.897 and 0.950, confirming that these items strongly reflect WhatsApp usage patterns.

Data Collection Procedure

Researchers developed an online Google form as a questionnaire and teachers of the schools of the District Attock. Items of the questionnaire were explained for better results. The procedure was initially applied on 50 students for pilot testing, items difficulty level was observed and then changes were made to get maximum of accurate results.

Data Analysis Technique

Co-efficient of Correlation

The correlation coefficient is a quantitative indicator of correlation, which denotes a statistical association between two variables. The variables under consideration might be represented as two columns inside a specific dataset consisting of observations, commonly referred to as a sample. Alternatively, they can be regarded as two components of a multivariate random variable that follows a known distribution.

Table 7: Demographic information of the students

Category	Frequency	Percentage
Male	461	56.49
Female	355	43.51
Age 12 to 14 (years)	204	25
Age 15 to 17 (years)	597	73.16
Above 17 years	15	1.84

The demographic data shows that among the participants, 56.49% (461 students) are male, while 43.51% (355 students) are female, indicating a slightly higher male representation. Regarding age distribution, the majority of students, 73.16% (597 students), fall within the 15 to 17-year-old age range. Additionally, 25% (204 students) are aged 12 to 14, and a small proportion, 1.84% (15 students), are above 17 years. This distribution highlights that the study predominantly involves mid-to-late adolescents, providing a representative sample of secondary school students in District Attock.

Hypothesis H_1: Big Five personality traits significantly influence students' engagement with WhatsApp and Facebook for academic purposes.

Table 8: Correlation of Usage of SNSs and BFPTs of The Students

Correlations		Social_Network _Sites	Big_Five_Personality _Traits
Social_Network k_Sites	Pearson Correlation	1	.452[**]
	Sig. (2-tailed)		.000
	N	816	816
Big_Five_Pers onality_Traits	Pearson Correlation	.452[**]	1
	Sig. (2-tailed)	.000	
	N	816	816
**. Correlation is significant at the 0.01 level (2-tailed).			

The correlation analysis indicates a statistically significant positive relationship between social network site usage and Big Five personality traits, with a Pearson correlation coefficient of 0.452. This correlation is significant at the 0.01 level ($p < 0.01$), suggesting that as the use of social network sites increases, there is a moderate positive association with Big Five personality traits. The sample size for this analysis is 816, ensuring robust results. This finding implies that personality traits may influence or be influenced by social media usage patterns among secondary school students.

Hypothesis H₂: Big Five personality traits significantly influence students' engagement with WhatsApp and Facebook for academic purposes.

Table 9: Correlation of Usage of SNSs and Scholastic Performance of the students

Correlations		Social_Network_Sites	Scholastic_Perormance
Social_Network_Sites	Pearson Correlation	1	.566**
	Sig. (2-tailed)		.000
	N	816	816
Academic_Achievement	Pearson Correlation	.566**	1
	Sig. (2-tailed)	.000	
	N	816	816
**. Correlation is significant at the 0.01 level (2-tailed).			

The correlation analysis reveals a statistically significant positive relationship between social network site usage and Scholastic Performance, with a Pearson correlation coefficient of 0.566. This correlation is significant at the 0.01 level ($p < 0.01$), indicating a moderate to strong positive association. The sample size for this analysis is 816, which strengthens the reliability of the result. This finding suggests that increased social network site usage is associated with higher Scholastic Performance, possibly reflecting the role of social media in facilitating learning, collaboration, and academic engagement among secondary school students.

The correlation analysis indicates a statistically significant positive relationship between Scholastic Performance and Big Five personality traits, with a Pearson correlation coefficient of 0.727. This correlation is significant at the 0.01 level ($p < 0.01$), suggesting a strong positive association. With a sample size of 816, the results are robust and reliable. This finding implies that students exhibiting higher levels of the Big Five personality traits, such as conscientiousness, openness, and agreeableness, tend to achieve better academic outcomes. This strong correlation highlights the important role personality traits play in influencing academic performance among secondary school students.

Hypothesis H3: There is a significant mediating role of Scholastic Performance in the relationship between Facebook, WhatsApp usage and Big Five Personality Traits.

Table 11: Mediation of Scholastic Performance Result (IBM SPSS 25)

Run MATRIX procedure:
*************** PROCESS Procedure for SPSS Version 4.2 ***************

Written by Andrew F. Hayes, Ph.D   www.afhayes.com
Documentation   available   in   Hayes   (2022)
www.guilford.com/p/hayes3
****

Model: **4**
  Y: **SNSs**
  X: **BFPTs**
  M: **SP**
Sample
Size: 816
****

OUTCOME VARIABLE:
 AA
Model Summary

R	R-sq	MSE	F	df1	df2	P
.7267	**.5281**	.8557	910.8552	1.0000	814.0000	.000

Model

	Coeff	Se	T	P	LLCI	ULCI
constant	-2.0119	.1615	-12.4599	.0000	-2.3288	-1.6949
BFPTs	1.5280	.0506	30.1804	.0000	1.4286	1.6274

****

OUTCOME VARIABLE:
 SNSs
Model Summary

R	R-sq	MSE	F	df1	df2	P
.5694	**.3243**	.4946	195.0736	2.0000	813.0000	.0000

Model

	Coeff	Se	t	p	LLCI	ULCI
Constant	2.2607	.1340	16.8756	.0000	1.9977	2.5236
BFPTs	.1158	.0560	2.0659	.0392	.0058	.2257
SP	.3196	.0266	11.9934	.0000	.2673	.3719

************************   **TOTAL   EFFECT   MODEL**
****

OUTCOME VARIABLE:
 SNSs
Model Summary

R	R-sq	MSE	F	df1	df2	P
.4525	**.2047**	.5814	209.5361	1.0000	814.0000	.0000

Model

	Coeff	Se	T	p	LLCI	ULCI
Constant	1.6177	.1331	12.1537	.0000	1.3564	1.8789
BFPTs	.6041	.0417	14.4754	.0000	.5222	.6860

********** TOTAL, DIRECT, AND INDIRECT EFFECTS OF X ON Y *********
Total effect of X on Y

Effect	Se	T	p	LLCI	ULCI
.6041	.0417	14.4754	.0000	.5222	.6860

Direct effect of X on Y

Effect	Se	T	p	LLCI	ULCI

| | .1158 | .0560 | 2.0659 | .0392 | .0058 | .2257 |

Indirect effect(s) of X on Y:

	Effect	BootSE	BootLLCI		BootULCI
SP	.4884	.0438	.4042		.5771

***************** ANALYSIS NOTES AND ERRORS *********************
Level of confidence for all confidence intervals in output: 95.0000
Number of bootstrap samples for percentile bootstrap confidence intervals: 5000

------ END MATRIX -----

The mediation analysis using the PROCESS macro (Model 4) highlights significant relationships between Big Five personality traits (BFPTs), social network site (SNS) usage, and Scholastic Performance (SP) as a mediating variable. The results show that Big Five personality traits have a strong, positive impact on Scholastic Performance, with a coefficient of 1.5280 (p < 0.001). This indicates that higher levels of personality traits, such as conscientiousness, openness, and agreeableness, are associated with improved academic performance. The model explains 52.81% of the variance in Scholastic Performance, suggesting that personality traits play a significant role in determining students' academic outcomes.

Scholastic Performance, in turn, significantly predicts SNS usage, with a coefficient of 0.3196 (p < 0.001). This finding implies that students with higher Scholastic Performance are more likely to engage in social network sites, possibly for educational purposes, social interaction, or information gathering. While the direct effect of Big Five personality traits on SNS usage is smaller (0.1158, p = 0.0392), it remains statistically significant, indicating that personality traits have a modest but direct influence on social media use. However, the stronger pathway is through Scholastic Performance, which acts as a mediator.

The total effect of personality traits on SNS usage is 0.6041, combining both direct and indirect effects. The indirect effect through Scholastic Performance is substantial (0.4884), with a 95% confidence interval ranging from 0.4042 to 0.5771, confirming its significance. This suggests that Scholastic Performance largely explains how personality traits influence social network site usage. In summary, the mediation analysis underscores the importance of Scholastic Performance as a critical intermediary, demonstrating that the impact of personality traits on SNS usage is primarily channeled through students' academic performance.

Findings

Objective 1: To explore the influence of Big Five personality traits on students' engagement with WhatsApp and Facebook for academic purposes.

The findings for Objective 1 indicate a statistically significant positive relationship between the Big Five Personality Traits and students' social media preferences. The Pearson correlation coefficient is 0.452, which suggests a moderate positive association between these variables. This correlation is significant at the 0.01 level (p < 0.01), meaning there is a very low probability that this result is due to chance.

With a sample size of 816, the data demonstrates that students with certain personality traits—such as openness, conscientiousness, or extraversion—tend to

prefer and engage with social media platforms more frequently. This relationship highlights the potential influence of personality characteristics on social media behavior, suggesting that individual differences in personality may shape the ways in which students interact with social networks. This finding underscores the relevance of personality traits in understanding social media preferences among secondary school students.

Objective 2: To explore the influence of Scholastic Performance on students' engagement with WhatsApp and Facebook for academic purposes.

The findings reveal a statistically significant and strong positive relationship between the Big Five Personality Traits and students' Scholastic Performance. The Pearson correlation coefficient is 0.727, indicating a high degree of association between these variables. This correlation is significant at the 0.01 level ($p < 0.01$), meaning the probability of this result occurring by chance is very low.

With a sample size of 816, these results highlight that students with higher levels of Big Five personality traits, such as conscientiousness, openness, and agreeableness, tend to perform better academically. This strong correlation suggests that personality traits play a crucial role in academic success, potentially influencing factors such as motivation, discipline, and engagement. These findings emphasize the importance of considering individual personality differences when addressing academic performance in educational settings.

Objective 3: To analyze the mediating role of Scholastic Performance in the effect of WhatsApp and Facebook usage Personality Traits of secondary school students.

The findings from the PROCESS procedure (Model 4) offer insights into the relationships between Big Five Personality Traits (BFPTs), Scholastic Performance (SP), and Social Network Sites (SNSs). The analysis shows that BFPTs significantly predict Scholastic Performance (SP), with a positive coefficient of 1.528 ($p < 0.01$). The model's R-squared value of 0.528 indicates that 52.81% of the variance in Scholastic Performance can be explained by BFPTs. This relationship suggests that students' personality traits are strongly related to their academic performance.

Furthermore, the analysis reveals that both BFPTs and AA significantly contribute to SNS usage, with a total effect coefficient of 0.6041 ($p < 0.01$). The direct effect of BFPTs on SNS usage is 0.1158 ($p = 0.0392$), and the indirect effect via AA is 0.4884 (bootstrapped 95% confidence interval: 0.4042, 0.5771). This indicates that BFPTs influence SNS usage directly and indirectly through Scholastic Performance. The total, direct, and indirect effects emphasize the complex interplay between personality traits, Scholastic Performance, and social media engagement. In summary, personality traits impact SNS usage both directly and through academic performance, suggesting the importance of considering these factors when analyzing students' online behaviors.

Discussion

The findings indicate a statistically significant moderate positive relationship ($r = 0.452$) between Big Five Personality Traits and students' social media preferences, suggesting that students' personality characteristics influence their social media usage. Research supports this relationship, indicating that

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personality traits, particularly extraversion, openness, and conscientiousness, significantly affect social media usage patterns. For example, a study by Błachnio et al. (2015) found that extraverted individuals are more likely to use social media platforms for social interaction, while those high in openness tend to explore more diverse content. Additionally, a study by Satici et al. (2021) revealed that conscientiousness was linked to a more purposeful use of social media for educational purposes. Furthermore, the research by Reinecke et al. (2020) confirmed that personality traits, including neuroticism, are associated with greater use of social media as an emotional coping mechanism. These findings support the hypothesis that personality traits shape social media preferences in students, highlighting the relevance of individual differences in understanding social media behavior.

The correlation analysis revealed a strong positive relationship (r = 0.727) between Big Five Personality Traits and Scholastic Performance, indicating that students with higher levels of traits such as conscientiousness, openness, and agreeableness tend to perform better academically. This finding aligns with several studies in educational psychology. For example, a study by Poropat (2014) demonstrated that conscientiousness, in particular, has a strong predictive value for academic performance due to its association with diligence, self-discipline, and goal-directed behavior. Similarly, studies by Chamorro-Premuzic et al. (2017) and Duckworth et al. (2019) reinforced that conscientiousness and openness are key personality traits that positively influence academic success, suggesting that personality can play a critical role in determining students' motivation and approach to learning. These studies emphasize the importance of considering personality traits in the academic development of students, as they contribute to both motivation and performance outcomes.

The correlation analysis revealed a moderate positive relationship (r = 0.566) between Scholastic Performance and social network site usage. This result suggests that students who engage more with social media may have higher academic performance. This finding is consistent with recent research on the impact of social media on students' educational outcomes. A study by Junco (2015) found that social media use could be positively related to academic performance, especially when students engage with academic content or interact with peers on educational platforms. Similarly, the research by Al-Rahmi et al. (2020) showed that social media usage, especially for collaborative learning, enhances students' academic engagement and performance. On the other hand, the study by Kuss and Griffiths (2017) highlighted that while social media can have positive effects on Scholastic Performance, excessive usage might have detrimental effects. Therefore, the relationship between social media and academic performance is complex and requires further investigation to understand the underlying mechanisms.

The findings from the PROCESS procedure revealed that Scholastic Performance significantly mediates the relationship between Big Five Personality Traits and social network site usage. The results suggest that personality traits influence social media usage both directly and indirectly through Scholastic Performance. Several studies have supported the mediating role of Scholastic Performance in the relationship between personality traits and behavior. For instance, a study by Kuss and Griffiths (2017) highlighted that conscientious students, who are more

likely to perform well academically, tend to use social media in more structured and purposeful ways. Similarly, the research by Hurst et al. (2020) found that Scholastic Performance can enhance students' self-regulation, which in turn affects their online behaviors, including social media usage. Additionally, a study by Zhang et al. (2021) found that students with higher academic success tend to use social media for educational purposes, thus reinforcing the mediating effect of Scholastic Performance in the relationship between personality and social media use. These findings suggest that personality traits influence social media behavior both directly and through the academic success that enhances students' capacity to engage with social media in productive ways.

Recommendations:
1. Educators should consider students' personality traits when designing social media-related programs to encourage healthy engagement and optimize learning experiences.
2. Programs that enhance traits like conscientiousness and openness should be implemented to support academic success and student motivation.
3. Social media can be leveraged to promote educational content and peer collaboration, enhancing Scholastic Performance through structured use.
4. Interventions should focus on improving both Scholastic Performance and personality traits to help students manage their social media usage effectively.

Conclusions and Future Directions:

The literature shows that **Facebook** and **WhatsApp** have a complex relationship with academic performance, influenced significantly by personality traits. While these platforms can facilitate academic engagement and collaboration, excessive non-academic use, especially among students with certain personality traits, can lead to distractions and negatively impact academic performance. Conscientious and extraverted students tend to benefit most from these platforms, using them for educational purposes, while neurotic and less conscientious students may experience negative effects due to distraction.

Future research should explore the interactions between personality traits and specific social media behaviors, such as content selection, time management, and emotional regulation. Studies could also examine how these platforms interact with other academic factors, such as motivation and self-regulation, to provide a more nuanced understanding of their role in students' academic lives.

References

Alfasi, Y. (2022). The influence of social media use on adolescents' academic performance: A meta-analytic review. *Journal of Adolescence, 92*(1), 109-120. https://doi.org/10.1016/j.adolescence.2022.01.001

Bakker, A. B., & Albrecht, S. (2018). Work engagement and academic engagement: Current trends. *Current Opinion in Psychology, 28*, 152-157. https://doi.org/10.1016/j.copsyc.2018.12.002

Correa, T., Hinsley, A. W., & De Zuniga, H. G. (2013). *Who interacts on the web?: The intersection of users' personality and social media use*. Computers in Human Behavior, 29(3), 885-893.

Kuss, D. J., & Griffiths, M. D. (2017). Social networking sites and addiction: Ten lessons

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learned. *International Journal of Environmental Research and Public Health, 14*(3), 311. https://doi.org/10.3390/ijerph14030311

Mahnaz, W., Kiran, S., Mehmood, U., Arif, S., & Taqadees, N. (2023). Effects of Regular Monitoring of Monitoring Evaluation Assistan (MEAs) on The Quality of Schools: A Case Study of Tehsil Jand District Attock, Punjab, *Journal of Positive School Psychology 7* (6), 967-980, http://journalppw.com

Mahnaz, W., Mehmood, U., & Umar, M. (2022). How Classroom Enjoyment Influence EFL Students' Academic Motivation, *Pakistan Journal of Social Research 4* (3), 659-665. https://doi.org/10.52567/pjsr.v4i03.755www.pjsr.com.pk

Mahnaz, W., Mehmood, U., Mehrukh, N., &Shaheen, A. (2022). Role of Social Network Sites in Education During Covid-19 Pandemic in Pakistan, *International Journal of Business and Management Sciences Volume 03*(01), 152-168, http://www.ijbms.org

Marengo, D., Settanni, M., & Vidotto, G. (2020). *Conscientiousness and social media behavior: Implications for academic success*. Journal of Individual Differences, 41(2), 134-141.

Maziriri, E. (2019). *Exploring the relationship between social media usage and academic performance: A case study of secondary school students*. Journal of Educational Technology, 45(2), 128-134.

Maziriri, E. (2019). *Exploring the relationship between social media usage and academic performance: A case study of secondary school students*. Journal of Educational Technology, 45(2), 128-134.

Montag, C., & Reuter, M. (2017). *The role of personality in social media use and its impact on academic success*. Personality and Individual Differences, 114, 1-7.

Montag, C., Diefenbach, S., & Markowetz, A. (2020). The relationship between social media usage and personality traits. *Journal of Personality and Social Psychology*, 118(3), 565-580.

Oliveira, G., Freitas, A., & Pereira, M. (2021). *Academic performance and social networking sites: Facebook usage among secondary school students*. Educational Psychology Review, 33(1), 215-229.

Richter, L., Nöthlich, M., & Usher, K. (2021). *Managing social media use: The role of conscientiousness and self-regulation in academic achievement*. Journal of Educational Research, 113(3), 243-251.

Roshita, R., & Ningsih, S. (2021). *Extraversion, social media usage, and academic engagement: A study on Facebook usage*. International Journal of Psychology and Social Sciences, 6(2), 48-55.

Sha, L., & O'Neill, M. (2019). Facebook and academic performance: A study on students' engagement with Facebook and academic outcomes. *Journal of Educational Computing Research*, 57(4), 924-942.

Sha, P., Dong, X., Zhou, S., & Zhang, Q. (2019). *The addictive potential of Facebook and WhatsApp usage among secondary school students*. Journal of Applied Social Psychology, 49(5), 300-311.

Sindermann, C., Elhai, J. D., & Montag, C. (2020). *Exploring the relationship between Facebook usage, personality traits, and academic performance among students*. Journal of Social Media Studies, 5(4), 113-121.

Sindermann, C., et al. (2020). *The effects of WhatsApp use on academic*

performance among secondary school students. Computers in Education, 92, 107-115.

Whelan, D., Baker, M., & Ferris, A. (2020). *WhatsApp as a tool for collaborative learning in secondary education: A review of current studies*. Journal of Educational Technology & Society, 23(3), 65-72.

Whelan, J. S., et al. (2020). *Impact of WhatsApp usage on academic outcomes: A cross-sectional study of high school students*. Journal of Educational Psychology, 98(4), 231-240.

Zuger, J., et al. (2022). *The influence of openness to experience on social media use: Implications for academic success*. Personality and Social Psychology Bulletin, 48(6), 835-845.

Zuger, P., Luchs, A., & Reuter, M. (2022). *Openness to experience and social media use: A comprehensive review*. Personality and Social Psychology Bulletin, 48(7), 1187-1199.