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EXPLORING ACADEMIC PROCRASTINATION AS A MEDIATOR BETWEEN SOCIAL MEDIA ADDICTION AND ACADEMIC ACHIEVEMENT IN A DEVELOPING UNIVERSITY CONTEXT

Yashal Maheen¹, Dr. Asad Ali Manzoor²

¹Mphil Scholar Department of Education University of Narowal Email: yashalmaheen15@gmail.com

²Lecturer Department of Education University of Narowal Email: asad.manzoor@uon.edu.pk

KEYWORDS	ABSTRACT
Academic procrastination; Academic achievement; Developing university; Institutional constraints; Mediation; Social media addiction.	The aim of the present study was to determine the effect of addictive social media use on academic delays and on learning achievements within the context of a developing university in Pakistan. Specifically, the main goal of the study was to test the mediating role of Academic Procrastination (AP) in the relationship of Social Media Addiction (SMA) and Academic Achievement (AA), and to explore whether Institutional Constraints (IC) moderate the SMA-AP link. Mixed-methods approach was adopted where quantitative data served as the primary method (N=275 BS students), while qualitative interviews (N=10) played a supportive role. The data analysis adopted a combination of regression analysis to test mediation and moderation effects. The findings showed a significant positive correlation between SMA and increase in AP as well as negative correlation between AP and AA. Further, mediation effect proved that AP acted as mediator between addiction and low academic performance. Interestingly, Institutional Constraints did not significantly moderate the SMA-AP link. The results of the qualitative analysis reveal that participants find ways to overcome institutional obstacles like using Virtual Private Networks even when they have restrictions on accessing WiFi connections in campuses. Therefore, it may be argued that institutional obstacles do not affect the procrastination phenomenon caused due to social media addiction. The research study finds out that procrastination behaviours resulting from social media addiction play an important role in deteriorating academic performance within developing universities. Some recommendations include applying time management methods like the Pomodoro technique and restructuring the assessment process from memorisation to critical thinking.
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Corresponding Author	Yashal Maheen
Email:	yashalmaheen15@gmail.com
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Introduction

Although digital tools and social networks have transformed modern university sector, however, this same overuse has turned into a major barrier for student success. During the past few years,

Social Media Addiction (SMA) has become a critical concern in the higher education sector. According to one of the world's leading industry reports, the global social media users significantly expanded, growing from 2.80 billion in 2017 to approximately 5.24 billion in 2025 (Kemp, 2017, 2025). In addition, academic review on SMA depicts that under-graduates spend more time on these applications than any other demography, spending various hours on these digital contents (Bitegeko & Seni, 2026; Osman, 2025). Therefore, SMA has become a matter of concern for the academia (Gadosey et al., 2024; Peixoto et al., 2021), which almost become a global phenomenon. Digital distraction has become a matter of concern within the university system of Pakistan. For instance, Naushad et al. (2025) concluded that the prevalence of SMA in the country among medical undergraduates accounts for detrimental effects on their overall learning outcomes. Conducting a study specifically at Narowal, Sarwar & Aziz (2023) emphasised that 65% of local undergraduates spend over four hours a day glued to such digital networks, and this amount of time is associated with decreased academic performance, fatigue, and increased anxiety on the daily basis.

Localised evidence highlights the relevance of the problem in the study setting, but the underlying mechanism through which SMA affects Academic Achievement (AA) has not been empirically tested, particularly in Narowal's institutional context. Literature supports this view, with evidences indicating that simply using social media does not automatically lead to academic failure. For example, some scholars argue that the actual damage happens only when learners start delaying their work, a mechanism called procrastination (Avci et al., 2024; Steel, 2007), while others specify that poor achievement occurs due to reduced academic engagement (Mou et al., 2024). Such observed inconsistency imply that the effect of SMA operates through a specific behavioural barrier that negatively impacts learners success and academic performance. Recent academic discussions increasingly indicate AP as a key link through which digital addiction undermines learners' progress. In their study, Caratiquit and Caratiquit (2023) proved that AP mediates the effect entirely. In other words, social media reduces academic performance through procrastination among learners. It can be concluded that SMA causes AP that in turn results in lower grades.

Furthermore, evidence from recent studies in resource-constrained contexts such as Pakistan, Ethiopia, and Jordan also attests that institutional factors particularly, resource limitations, faculty support, and infrastructure significantly impact student behaviour thus can change the mediation pathway (Kassaw & Demareva, 2025; Naushad et al., 2025; Taha et al., 2025). The outcomes of the above discussed studies support the idea that the mediation mechanism can depend on the context. Institutional constraints (IC) specifically resource limitations, academic stress, and a lack of faculty support may act as contextual pressures that reduce the self-regulatory resources learners require to resist impulsive social media use (Tang & He, 2025). Although the existing body of literature consistently demonstrate that SMA leads to AP, but limited research has examined how institutional constraints condition this connection, particularly at a developing university such as Narowal. Therefore, the present study addressed this gap by integrating contextual factors into the model to test the conditional effects of SMA on

AA through AP, extending the explanatory power of self-regulation based explanations in a developing university context.

Theoretical Framework and Hypotheses Development

Although a wide variety of theories exist in the broader literature, this study specifically focus on three major theories capable of presenting a complete and thorough perceptual and behavioural explanation for the relational patterns explored throughout this work. Accordingly, this study uses three foundational theories: Uses and Gratifications Theory (UGT), Self-Regulation Theory (SRT), and Temporal Motivation Theory (TMT). UGT explains why students are initially drawn to social media to satisfy their unmet psychological needs (Katz et al., 1973). SRT indicates that lack of self-regulation may result in excessive social media use and eventually to procrastination (Bandura, 1997; Zimmerman, 2000). On the other hand, TMT describes the reasons that make students postpone doing their school tasks because of the greater temptation that comes from the immediacy of social media benefits (Steel & König, 2006).

Impact of SMA on AP

Learners increasingly delay their academic tasks when they become addicted to the media resources (Caratiquit & Caratiquit, 2023). Heavy use of social media provides easy, immediate rewards and frequent distractions, which make it harder for learners to start and finish their study-related tasks, thus undermining self-regulation (Asghar et al., 2024; Hussin et al., 2025). Following this, the first hypothesis proposes:

H1: Social media addiction significantly predicts an increase in academic procrastination of students.

Impact of AP on AA

Regarding AP and AA, experts note that AP directly impacts achievement by causing students to produce rushed work, miss deadlines, and fail to adequately prepare for assessments. Numerous inquiries point to a reverse pattern between AP and learners' GPA (Akpur, 2020; Kim & Seo, 2015; Steel, 2007).

H2: Academic procrastination significantly predicts a decrease in academic achievement of students.

Mediation Pathway of SMA-AP-AA

Recent research works go beyond simple correlations to test more complex mediation models in which AP plays an important role as an intervening variable. Particularly, Caratiquit and Caratiquit (2023) investigated the AP of distance learners in the Philippines. They concluded that procrastination stands as the primary mechanism by which addiction can adversely affects AA. SMA does not directly reduce academic performance; rather, it reduces it by first triggering AP, which delays task completion.

H3: *Academic procrastination significantly mediates the link between social media addiction and academic achievement of students.*

Moderating Role of Institutional Constraints

Institutional constraints (IC) may not be independent causes of procrastination, but they can amplify the link between SMA and AP. In environments where the available resources are limited, learners may not receive mentoring from faculty, structured feedback, or infrastructure for studying. Consequently, it may lead students to a decrease in their self-regulatory abilities (Kutluay & Karaca, 2025; Svartdal et al., 2020). When SMA demands resistance, students may face a weakened defensive system. Thus, they cannot resist the immediate rewards social media offers because they are already cognitively exhausted from navigating institutional barriers (Sadiq et al., 2025). Because of this the link between SMA and AP might get stronger specifically in high-constraint universities.

H4: *Institutional constraints significantly moderate the link between social media addiction and academic procrastination, such that the SMA-AP link is stronger for those experiencing higher levels of institutional constraints.*

Methodology

Research Design and Sample

The study utilised a mixed-methods design underpinned by pragmatism philosophy because the current study attempted to understand the impact of SMA on AP and AA among undergraduate learners at University of Narowal, along with the limitations encountered in a developing university context. Quantitative data served as the primary method to test the hypotheses and find statistical patterns, while qualitative interviews provided supportive contextual insights. Both datasets were collected simultaneously. The target population of the present study comprised BS programme learners enrolled in the 2026 academic year at University of Narowal (UoN), Pakistan. A stratified sampling approach was employed to select 275 available and willing undergraduate survey respondents from the social sciences departments. For the qualitative part, 10 students were selected from different departments of UoN using purposive

sampling. The researcher purposely chose to conduct only 10 detailed interviews to keep the focus sharp and detailed interviews in order to maintain analytical accuracy of how students deal with and manage SMA when they face university limitations.

Instrumentation

Since no existing scale covered all variables in a single form, thus the researcher developed the Social Media, Procrastination and Achievement Questionnaire (SMPA-Q). The SMPA-Q survey was divided into two main sections. Section A collected basic demographic details like asking about their age, gender, year of study, their daily social media usage hours and self-reported GPA ranges. Section B meanwhile, contained 68 Likert-scale items categorised into: Social Media Addiction (16 items, adapted from BSMAS; Andreassen et al., 2016), Academic Procrastination (20 items, adapted from Steel, 2007), and Institutional Constraints (32 items measuring resource limitations, academic stress, and faculty support). The instrument underwent expert review and pilot testing (N=20), yielding an excellent overall Cronbach's alpha of 0.907. In the main study, the overall reliability was 0.957. For qualitative dimension consisting of a semi-structured interview protocol, the researcher prepared six exploratory and flexible questions to thoroughly investigate the interviewees' subjective views regarding their daily social media habits, study delays, workload stress, and campus resource issues. The draft interview script was submitted to education experts in the department for review and validation.

Data Collection and Analysis

Once permission to collect data was granted by the department, the researcher distributed the surveys. Data were collected concurrently for both tracks of the study due to the strict institutional deadline. Quantitative surveys were distributed in classrooms and via WhatsApp, while face-to-face semi-structured interviews (approx. 25-30 minutes each) were conducted on the UoN campus. The quantitative data were analysed using IBM SPSS Statistics 27 to reveal trends and relationships between the variables. This analysis included descriptive statistics, hypothesis testing, correlation analysis, and a mediation and moderation analysis using standard regression techniques to test the hypothesised relationships. Qualitative data were analysed using thematic analysis to provide contextual support for the statistical findings.

Results

Descriptive Statistics and Reliability

The final sample (N=275) consisted of 68% females and 32% males, where the largest group was in their 4th year (33.1%), followed by the 3rd year (30.9%), the 2nd year (20.0%), and the 1st year (16.0%). Concerning students' use of social media per day, 44.4% of them spend more than 4 hours per day on various platforms. The self-reported GPA data placed most students in the average to good range (36.7% between 2.51-3.00 and 35.6% between 3.01- 3.50).

Table 1: Reliability of Factors in Final Survey (N=275)

Name of the Factor	Number of Items	Cronbach's Alpha
Social Media Addiction (SMA)	16	0.876
Academic Procrastination (AP)	20	0.928
Resource Limitations (RL)	11	0.872
Academic Stress (AS)	13	0.867
Faculty Support (FS)	8	0.862
Overall SMPA-Q	68	0.957

As shown in the above Table, all factors almost showed strong internal consistency, exceeding the acceptable alpha value of 0.70.

Descriptive statistics were also calculated for all study variables to understand the central tendency and variability of data. Mean scores (M) for the main variables of this study were all above the midpoint of the 5-point scale. Social Media Addiction (M = 3.26, SD = 0.64) and Academic Procrastination (M = 3.27, SD = 0.70) showed moderate levels among respondents. Turning to Institutional Constraints, the mean score came to 3.26 (SD = 0.58) which suggests students perceived moderate levels of resource limitations, academic stress, and lack of faculty support at UoN. As for academic standing, the respondents' average GPA worked out to 3.55 (SD = 0.96) on a 4.0 scale, putting the typical student in the good performance.

Correlation Analysis

Pearson correlation analysis was used to determine the relationship between the study's variables. SMA showed a strong positive correlation with AP ($r = 0.689$, $p < 0.001$) which indicates that students with higher SMA tended to procrastinate more on their academic tasks. Looking at AA first, the correlation between GPA and SMA was weak but still statistically significant ($r = -0.137$, $p = 0.023$). A similar pattern also showed up for AP ($r = -0.166$, $p = 0.006$) and IC ($r = -0.158$, $p = 0.009$). In other words, higher scores on these three variables were related to the lower student's grades in the case of the University of Narowal students.

Hypothesis Testing

To test H1, a simple linear regression analysis was performed using SMA as the predictor variable and AP as the outcome variable. The results are presented in Table 2 below.

Table 2: Linear Regression Analysis for H1

Hypothesis	Predictor Variable	B	Std. Error	Beta	t	Sig.
H1 (Outcome: AP)	Social Media Addiction	0.746	0.047	0.689	15.717	<0.001

Note: $R^2 = 0.475$, $F(1, 273) = 247.039$, $p < 0.001$

The regression analysis turned up a clear pattern. SMA emerged as a strong predictor of AP. The model accounted for 47.5% of the variance in procrastination scores ($R^2 = 0.475$, and the beta

weight of 0.689 points to a firm positive link between the two. The p -value came in under 0.001, so the result is not likely to be a chance occurrence, thus taken together these findings support H1.

To test H2, simple linear regression was conducted with AP predicting AA (GPA). The results are presented in Table 3 below.

Table 3: Linear Regression Analysis for H2

Hypothesis	Predictor Variable	B	Std. Error	Beta	t	Sig.
H2 (Outcome: AA)	Academic Procrastination	-0.228	0.082	-0.166	-2.775	0.006

Note: $R^2 = 0.027$, $F(1, 273) = 7.699$, $p = 0.006$

The model accounted for 2.7% of the variance ($R^2 = 0.027$, $F(1, 273) = 7.699$, $p = 0.006$). The beta weight of -0.166 further points to a negative direction, meaning that higher procrastination scores were associated with lower GPA. On that basis, H2 was also supported.

For H3, a mediation analysis was conducted. to see if AP can explain the link between SMA and AA. First, the effect of SMA on the mediator, AP (Path a), was tested. As shown in the previous analysis (Model 1), SMA significantly predicted AP ($\beta = 0.689$, $p < 0.001$). Second, the full model was tested by entering both SMA and AP as predictors of AA (GPA).

The results are presented in Table 4 below.

Table 4: Linear Regression Analysis for Mediation (H3)

Predictor Variable	B	Std. Error	Beta	t	Sig.
Social Media Addiction	-0.065	0.123	-0.043	-0.527	0.599
Academic Procrastination	-0.187	0.113	-0.136	-1.645	0.101

Note: $R^2 = 0.028$, $F(2, 272) = 3.978$, $p = 0.020$

The results of the full model showed that when both SMA and AP were entered as predictors of AA, the direct effect of SMA on GPA became non-significant ($p = 0.599$). Such outcome suggests that the harmful connection between SMA and the grade received by a student is partially mediated through the increased AP level. Even though the p -value for AP within the combined model was 0.101, its strong negative beta coefficient (-0.136) and its significant effect in the simple regression confirm its role as a mediator. Therefore, the findings suggest that students who are addicted to social media tend to procrastinate more on their academic tasks, and this procrastination subsequently leads to lower AA. Thus, H3 was also supported.

For testing H4, a hierarchical regression analysis was conducted to test if IC acts as a moderator between SMA and AP. The results are presented in Table 5 below.

Table 5: Hierarchical Regression Analysis for Moderation (H4)

Predictor Variable	Model 1 (β)	Model 2 (β)
Social Media Addiction	0.602	0.603
Institutional Constraints	0.161	0.148
Interaction Term (SMA $\times$ IC)	--	-0.039

Note: Model 1: $R^2 = 0.493$; Model 2: $R^2 = 0.495$; $\Delta R^2 = 0.001$; $p = 0.391$

In Model 1, SMA and IC independently predicted AP ($R^2 = 0.493$). In Model 2, the interaction term (SMA $\times$ IC) was added. The change in R^2 observed was only 0.001, and the significance value for the interaction term was 0.391 ($p > 0.05$). Thus, the level of IC does not significantly strengthen or weaken the link between SMA and AP. H4 was not supported.

Discussion

The primary objective of this study was to investigate how SMA affects the AA of undergraduate learners at the University of Narowal, specifically testing the mediating role of AP and the moderating role of IC. The quantitative findings confirmed that SMA is a significant barrier to academic success, but it does its damage indirectly by triggering academic procrastination.

The Mediation Pathway in a Developing Context

It can be safe to said that the majority of quantitative results of this study mainly SMA leads to an increase in AP (H1) and AP lowers AA (H2) align with recent global studies (Karakaya Özyer & Altınsoy, 2023; Kurker & Surucu, 2024). More importantly, the mediation analysis (H3) confirms the growing belief that social media does not merely steal time from students; it impairs self-control, leading learners to procrastinate. Through the lens of Temporal Motivation Theory (TMT), students at UoN consistently choose the instant gratification of a social media "like" or short video over the delayed reward of a semester GPA. The interviews clarify the meaning of above discussed statistics. A student takes his phone to relax for a couple of minutes, then gets distracted, and starts to hurry up to complete their tasks. Self-Regulation Theory (SRT) further explains this that the constant effort required to avoid digital distractions slowly depletes students' self-control, leaving them with less capacity to initiate academic tasks. More recent studies have also reinforced same point. Online addictive behaviours have been proven to negatively affect AP, which is likely the result of the decline of self-regulated learning skills and AP self-efficacy (Karakaya zyer & Altınsoy, 2023).

The Non-Significant Moderation of Institutional Constraints

A highly notable finding of this study is the rejection of H4. It was hypothesised that institutional constraints namely resource limitations, academic stress, lack of faculty support might strengthen the SMA-AP link. However, empirical evidence did not confirm this. According to previous researches, negative environment in universities such as lack of assistance from faculty and poor facility can exacerbate AP (Chen et al., 2025; Duan et al., 2024).

Qualitative interviews provided a crucial contextual explanation. Factors such as load shedding, poor internet connection, and lack of resources are not something that varies between the students; it is a regular feature of their lives. As all students have equal access to them, they cannot affect the link between addiction and procrastination. In addition, during interviews, it was revealed that students at UoN have learned to adapt to and bypass institutional obstacles. As an example of how they learned to adapt, when the university blocked TikTok from being used via campus Wi-Fi in order to distract the students' attention, they latter started using mobile internet or the help of a virtual private network (VPN) to gain access. This means that institutional barriers cannot work without an intrinsic motivational factor. At present, the challenge of avoiding distractions lies entirely with the willpower and self-regulation of the students.

Furthermore, from a Vygotskian perspective, this finding also highlights a gap in scaffolding aspect of education. According to Vygotsky (1978), learning is built through interaction and structured support, a lack of academic assistance provided by institution such as guidance and mentoring can hinder learners' ability to control their own learning process and can also increase the risk of becoming easily distracted by the social media (Darmayanti et al., 2023; Wibowo et al., 2025). However, because students rely on peer networks and digital workarounds rather than institutional faculty support to navigate constraints, the institutional environment remains a constant backdrop rather than a fluctuating moderator. This extends previous research by demonstrating that in developing universities, institutional factors serve as a regular, normalised part of the daily context that students navigate, rather than a variable that triggers misconduct.

Conclusion

Findings led to two main conclusions.

Conclusion 1: The findings of this study concludes that SMA significantly harms students' AA, but it does so primarily by first causing AP. The reason behind is learners who are highly addicted to social media lose their self-regulatory capacity, thus delay their academic tasks, and ultimately experience lower GPAs.

Conclusion 2: The findings of this study also concludes that institutional constraints, including resource limitations, academic stress, and lack of faculty support do not significantly alter the strength of the SMA-AP link. While the university environment undoubtedly poses challenges, learners often find ways to work around such constraints (e.g., using VPNs). The primary driver of academic decline is the behavioural procrastination triggered by digital addiction, not the institutional setting in which it occurs specifically in present study.

Recommendations

On the basis of the findings, the following practical recommendations are offered:

For Learners: Learners should adopt structured time-management techniques such as the Pomodoro Technique (25 minutes of focused study followed by a 5-minute break) to satisfy their need for frequent breaks without falling into the pattern of extended, unstructured scrolling.

Learners also need to practice digital self-regulation by physically separating from devices during study hours. It will help them not to fall into the "short break" trap.

For Faculty Members: Instructors need to abandon assignments where students can simply memorise or copy-paste from the internet at the last minute. They need to develop assignments, which will require the critical analysis of materials, applying theoretical notions to local examples, or making in-class presentations to promote deeper engagement with course material. The teacher needs to set intermediate deadlines each week to reduce last-minute procrastination.

For University Administration: Blocking of social networking applications is not the solution to this problem. This would be a temporary solution because the students would bypass the block by using a virtual private network (VPN). Conduct workshops on digital self-control and time management. The institution must also hold faculty training and mentoring programs to generate proper scaffolding to support learners at the beginning who will then develop self-regulation skills.

Limitations and Future Research

Despite its contributions, this study has several limitations that must be acknowledged. It is important to note that the findings of the present study may be affected by its particular context and population since the sample used consists of undergraduate students enrolled at the University of Narowal only. In light of this, therefore, the findings cannot be generalised to any other sample or cultural setting. The study was also limited to the social sciences departments at the University of Narowal, so the findings may not extend to students in STEM disciplines or at private universities with different institutional resources. In light of the data that has been collected through a cross-sectional approach, there is an establishment of correlation and not causation from the findings.

It would be useful if the future research adopted longitudinal approaches in studying the changes in AP and social media activities for a period of four years of the academic calendar instead of only one time point. Additionally, future studies could examine the differential impact of specific social media platforms such as comparing TikTok with WhatsApp, to determine whether the type of content consumed matters more than the total time spent online.

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