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The Influence of Social Support, Motivation and Self-Regulation on Academic Achievement of Generation Z Students

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Abstract - Social media has become an integral part of modern life, particularly for Generation Z as digital natives who actively engage with platforms such as Instagram, TikTok, and WhatsApp. While social media offers opportunities for interaction, information access, and self-expression, its impact on academic achievement remains paradoxical, as it can both support learning and create distractions. This study examines the influence of social support, motivation, and self-regulation on academic achievement, with social media usage patterns as mediating variable. Grounded in Uses and Gratifications Theory and Self-Determination Theory, this research employs a quantitative explanatory approach using PLS-SEM. Data were collected through a questionnaire from 300 undergraduate students at private universities in Jakarta. The findings indicate that social support, intrinsic and extrinsic motivation, and self-regulation significantly influence academic achievement, with self-regulation as the strongest predictor. Furthermore, the intensity and purpose of social media use significantly mediates these relationships, showing that academic outcomes depend on how students align social media use with learning goals. This study highlights that social media can function as a supportive academic tool when used purposefully. The novelty lies in integrating UGT and SDT with behavior constructs of self-regulation and social support to explain how mediated social media use shapes academic achievement among Generation Z students in Jakarta.

Keywords: Social Support; Motivation; Self-Regulation; Social Media Usage; Academic Achievement

Introduction

Social media has emerged as a backbone of everyday digital engagement, especially for Generation Z (1997–2012). They are considered "digital natives", who have come to define their identity through digital life (APJII, 2025). According to the recent data survey, internet penetration among Generation Z was 87.02% in early 2024, representing 34.4% of Indonesia's total internet users. By early 2025, the number of active social media accounts in Indonesia exceeded 143 million, representing 50.2% of the population (Data Reportal, 2025). This phenomenon highlights how social media has become a dominant source for students to access information, not only for entertainment but also for learning.

The transition from analog to digital systems is essential as it enhances efficiency and effectiveness in performance. This shift affects not only educators and administrative staff but also requires students to adjust their learning approaches in response to ongoing digital advancements (Akbari & Pratomo, 2022).

Platforms such as YouTube, LinkedIn, TikTok, and Instagram are no longer used solely for entertainment. YouTube gives students access to lectures, tutorials, and background data; LinkedIn is beneficial for networking and career-related learning; and TikTok presents shorter, more practical education videos that suit the current generation (Kalam et al., 2023). Yet, modern patterns of social media use also pose many challenges. Behaviors such as doomscrolling (the habit of continuous scrolling) and the Fear of Missing Out (FOMO) have been shown to encourage excessive and unfocused use, often at the expense of study time and academic concentration (Kyaw et al., 2024; Mosharrafa et al., 2024).

Motivation is the most important factor that affects the way students use social media. According to Uses and Gratifications theory (UGT), individuals make deliberate media-selection decisions to fulfill certain psychological and social needs (Nurussa'adah & Astari, 2025; Quan-Haase & Young, 2010; Sukmayadi et al., 2024). These needs may be based on intrinsic motivation (curiosity and learning interest) or extrinsic motivation (social recognition and external rewards). Academically-motivated students are more likely to use social media to access learning resources, share ideas, and participate in social academic discussions. Whereas, students motivated by entertainment or validation-seeking behaviors might follow patterns that negatively influence academic performance (Gloria & Akbar, 2019). This distinction is further enhanced by the Self-Determination Theory (SDT), emphasizing the type and quality of motivation that significantly influences how social media engagement affects learning outcomes (Ryan & Deci, 2020).

Beyond motivation, students' social media involvement is influenced by algorithm-based content. Based on findings by Google for Education (2023), where 72% of students in Southeast Asia use YouTube to self-learn, yet more than half of them are easily distracted by non-academic, unrelated content recommended by the system algorithms. Specific to Indonesia, this concern is amplified by the evidence showing that nearly one-quarter of Generation Z spends more than six hours per day on social media, leading to challenges for effective time management and productive academic activities (APJII, 2025).

During the Covid-19 pandemic, social media became an integral part of online learning activities, both online and blended. Applications like WhatsApp, Telegram, and Discord were also leveraged to facilitate communication related to academia, including class discussions, assigning assignments, as well as distributing learning materials. However, the integration of academic and entertainment content within the same platforms often results in an overlap of functional boundaries. Students' concentration may be interrupted by continuous academic and non-academic notifications, as well as algorithm-based content recommendations. This adds to the challenge for students to focus on their learning experience (Asia Foundation, 2023).

These demonstrate the importance of analysing the relationships between motivation, social media use patterns, and self-regulation on the academic achievement of Generation Z students. Motivation serves as the initial drive for engagement, while social media usage patterns represent how this motivation is reflected in action, portraying the intended academic outcome. However, when social media use is poorly regulated, it can disrupt the process at multiple levels, leading to negative effects on students' academic performance.

Multiple studies focused on the correlation between social media use and academic achievement (Gloria & Akbar, 2019; Kyaw et al., 2024), yet with limited exploration of underlying mechanisms. Kalam et al. (2023) examined on motivation and academic performance, to the exclusion of the mediating effect of patterns of usage of social media. The literature also lacked discussion of how algorithmic recommendations, short-video phenomena (TikTok, Shorts, Reels), or digital multitasking might have affected students' academic performance. Studies conducted on the combination of UGT and SDT in theory were found few, especially in Indonesia.

In response to the research gaps, this study aims to cover three primary objectives. *First*, it examines the direct influence of motivation (both intrinsic and extrinsic), social support, and self-regulation on students' academic achievement. *Second*, it investigates the mediating role of social media

usage patterns in the relationship between motivation, social support, and academic outcomes. *Third*, it evaluates the negative effects of excessive social media use on academic achievement.

The novelty lies in the integration of both Uses and Gratification Theory (UGT) and Self-Determination Theory (SDT) to develop a comprehensive conceptual model. This study also positions social media usage patterns distinctively as a mediator, examining the negative effects of excessive social media use, and focuses the model within the context of Generation Z students in Jakarta, whose social media habits may be influenced by algorithm-driven distractions.

As explained above, social media has evolved into a dynamic communication environment where students interact, exchange information, and participate in digitally mediated learning and social practices shaped by platform algorithms and continuous connectivity. Although extensive research has been conducted to examine the relationship between social media use and academic achievement, previous studies have largely focused on the direct correlation between usage intensity and learning outcomes, with limited attention to the behavioral mechanisms explaining how communication practices on social media influence academic performance.

Specifically, previous research has rarely examined the mediating role of social media usage patterns alongside self-regulation and social support within an integrated theoretical framework. Therefore, the significance of this study lies in providing a communication-centered explanation of how motivational and social factors shape students' media engagement behaviors in algorithm-driven digital environments. This manuscript aims to examine the direct effects of motivation, social support, and self-regulation on academic achievement, as well as the mediating role of social media usage patterns in shaping academic outcomes among Generation Z students in Jakarta.

Theoretical Framework

Utilizing an integration of UGT and SDT, this study considers the links between motivation, social media use behavior, self-regulation, social support, and academic performance. These theories help establish the reasons that students use social media and help us understand how this can affect their learning.

Uses and Gratifications Theory (UGT)

UGT considers media users as 'active agents' who purposefully select and consume media to satisfy certain needs. For instance, in a more complex social media environment, UGT demonstrates that people use social media for more than just entertainment, connectivity, seeking information, creating socialization and identity (Quan-Haase & Young, 2010).

For students, social media is not merely seen for recreational use but also for academic use. Therefore, students also have easy accessibility to course-related information, engagement, discussion, and browsing educational resources. It also indicates how motivational drivers, both academic and entertainment-oriented, can translate to whether particular use styles can make students perform better or worse in their academic work.

Self-Determination Theory (SDT)

SDT focuses on the quality of motivation and its consequences for behavior and learning outcomes (Ryan & Deci, 2020). It differentiates between intrinsic motivation, which is generated by one's curiosity, personal interest, and enjoyment in learning; and extrinsic motivation, which is motivated by rewards, recognition, or social norms.

Another aspect covered by SDT is the fundamental necessity of self-regulation, part of the human need for autonomy. Students can manage the duration and reasons for how much information to use, filter academic from non-academic content properly, and reduce distractions. Thus, this theory suggests that motivation directs behavior, while self-regulation determines whether social media use can positively or negatively contribute to students' academic achievements.

Social Support and Social Media Usage Patterns

Social support has been a determinant of academic motivation and engagement (Chen, 2023). The study showed that support from family, peers, and educational environments strengthens students' academic achievements, fosters positive behaviors, including productive social media use.

Similarly, Vargas-Madriz and Konishi (2021) found that social support enhances a sense of belonging, which leads to the connection between support and academic involvement. Students who feel socially supported are more likely to use social media as a learning tool rather than purely for entertainment.

Social Support and Academic Achievement

A strong influence between social support and students' academic performance was found. Yasin and Dzulkifli (2011) reported that there is a strong correlation ($r = 0.85$, $p < 0.01$) between social support and academic achievement, indicating that emotional support and structural support contribute greatly to learning. Meanwhile, another study emphasized that moral support from families, peers, and institutions fosters confidence and resilience in students, which also improves their academic achievements in the long run (Saeed et al., 2023). Wu et al. (2023), through a meta-analysis, found social support to have a positive influence on student engagement and learning, and therefore further strengthened the relationship between the two.

Extrinsic Motivation and Social Media Usage Patterns

According to UGT, one of the motivations that people have for using social media is to fulfill external or extrinsic needs, like entertainment, social recognition, or self-expression. For university students, extrinsic motivations can drive a more intense push in their social media usage patterns but are minimal on the academic side. Students who are driven by the desire for validation or popularity, for example, are more likely to use social media to share viral content or display self-presentations explicitly, rather than using them for learning purposes.

Extrinsic Motivation and Academic Achievement

Kalam, Goi, and Tiong (2023) showed that the influence of extrinsic motivation on academic achievement does not happen directly, but rather through social media usage patterns. In other words, external motivation, such as the desire for recognition or rewards, can create a positive impact if manifested in productive social media use, such as exploration for learning materials or participation in online academic forums. This finding emphasized the need for direction and purpose in social media usage to fill the gap between social motivation and academic success.

Intrinsic Motivation and Social Media Usage Patterns

Intrinsic motivation was established by directing social network use to educational interests, i.e., peer discussions, studying course material, and referring resources This aligns consistently with SDT, which emphasizes that intrinsic motivation, such as curiosity, personal interest, or learning satisfaction, can guide individuals toward more constructive and self-directed behaviors, including the purposeful and intentional use of social media for educational purposes.

Intrinsic Motivation and Academic Achievement

Walsh et al. (2013) found that social media use for academic activities, such as exploring academic information or collaborative learning, had contributed positively to students' academic achievements. This trend highlights intrinsic motivation deeply, which further strengthens the argument that it is primarily internal motivation that is the motivating factor for student academic success, particularly when social media can serve as a useful learning tool.

Social Media Usage Patterns and Academic Achievement

A study from Mosharrafa et al. (2024) reported that social media can enhance psychological well-being, such as social connections or emotional motivation. These positive psychological conditions and feelings were found to result in better academic results. It is thought that healthy, meaningful, and goal-fulfilling behavior in the use of social media that respects the psychological needs of the students would facilitate the children academically.

On the other hand, Gordon and Ohannessian (2024) found that students with extensive non-academic social media use, particularly in adolescence and early university, tend to have lower academic grades. Research has found that excessive and uncontrolled social media use interferes with focus and study time, lowering students' academic performance.

Self-Regulation and Social Media Usage Patterns

Reinecke et al. (2022) identified that self-regulation skills, particularly time management and impulse control, play a crucial role in promoting healthy social media use. When students have greater self-awareness, they are able to use social media more purposefully while not sacrificing learning time. This enables them to utilize social media more purposefully without compromising their learning time.

Tekin (2024) also emphasized that academic discipline serves as a significant mediator between social media addiction and academic achievement. This suggests that even when individuals exhibit tendencies toward excessive social media use, a strong study discipline can mitigate the negative impacts on academic achievement. The indicators for excessive social media use in this research are using social media for more than 3 hours and checking social media several times a day, as well as feeling unable to reduce daily social media usage. Collectively, these results demonstrate the significance of cultivating self-regulation skills in the digital learning setting.

Self-Regulation and Academic Achievement

Sahranavard (2018) demonstrated that students with strong self-regulation skills, including study plan, time management, and self-evaluation, tend to show better academic performance. Planning and reflection regarding learning outcomes contribute to our development of effective and sustainable academic achievement.

Furthermore, prior studies indicated that self-regulation plays a crucial role in mitigating the adverse effects of social media use on academic achievement. Students can maintain their attention on learning despite the distractors of the notifications, entertaining content and multitasking temptations. Therefore, self-regulation serves as a cognitive protection mechanism, preventing academic activities from being disrupted by unrelated or non-academic social media stimuli.

Table 1. Summary of Literature Gaps

No.	Research Theme	Previous Research Findings	Research Gap
1	The Influence of Social Media on Academic Achievement	The majority of studies show a correlational relationship between the intensity of social media use and academic achievement (Gloria & Akbar, 2019; Kyaw et al., 2024).	There have not been many studies that explain mediating mechanisms such as productive or unproductive usage patterns as a mediating pathway for their influence on achievement.
2	The Role of Motivation in Social Media Use	(Kalam et al., 2023) state that extrinsic motivation indirectly affects achievement through social media use.	There has been no comprehensive integration of UGT and SDT theories to explain how motivation (intrinsic and extrinsic) simultaneously influences patterns and academic outcomes.
3	The Role of Social Media Usage Patterns as Mediators	Some studies mention the importance of the context of use (productive vs. entertainment), but have not systematically tested the mediating role of usage patterns (Walsh et al., 2013).	The role of social media usage patterns as a mediating variable has rarely been explicitly tested in complex structural models.
4	Self-Regulation in Digital Context	Studies such as Reinecke et al. (2022) and Tekin (2024) emphasize the importance of self-control in social media use.	There have not been many studies that place self-regulation as a predictor variable in social media usage models and its relationship with academic achievement in the digital age.
5	The Context of Generation Z as Digital Natives	APJII (2025) and We Are Social (2024) show very high social media usage among Gen Z.	Empirical studies specifically examining Generation Z students with an Indonesian cultural background in the context of social media use and

No.	Research Theme	Previous Research Findings	Research Gap
			academic achievement are still very limited.
6	Theoretical Integration in Research Models	The majority of studies use a single theory (UGT or SDT), not combining the two.	There is a lack of research that simultaneously integrates Uses and Gratifications Theory and Self-Determination Theory in understanding digital behavior and academic achievement.

The relationships between variables in this model demonstrate a close link between psychological factors, digital behavior, and academic student outcomes. Social support has been shown to improve academic motivation and self-confidence, encouraging structured use of social media in support of learning. Extrinsic motivation typically pushes for heightened social media consumption, but a methodical and productive usage pattern can positively impact social media usage. Conversely, intrinsic motivation encourages learning-focused social media use, thus directly supporting academic achievement.

The patterns of use of social media can have an important mediating role, because depending on the extent of social media use, they can strengthen or weaken the association of social support, motivation, and academic achievement. Here, self-regulation is seen as important. Self-disciplined students can suppress distractions, balance their study time, and focus despite tempting and distracting situations. Therefore, fostering intrinsic motivation, enhancing self-regulation, and creating strong social support are essential in shaping a positive social media usage pattern that boosts their academic success.

The conceptual framework below explains how motivations for social media use, both intrinsic and extrinsic, influence students' social media usage patterns and shape their academic achievement. Use behavior serves as a mediator through which motivation becomes a positive effect if social media is used intentionally and effectively.

Furthermore, the environment indirectly and directly influences students and their academic performances. Self-regulation, the capacity to control time and attention, represents the most important regulation to reduce excessive use and is related to the motivation–achievement relationship.

This model is rooted in UGT and SDT and reflects the reality of digital native students living in the era of technology and information, as shown in Figure 1:

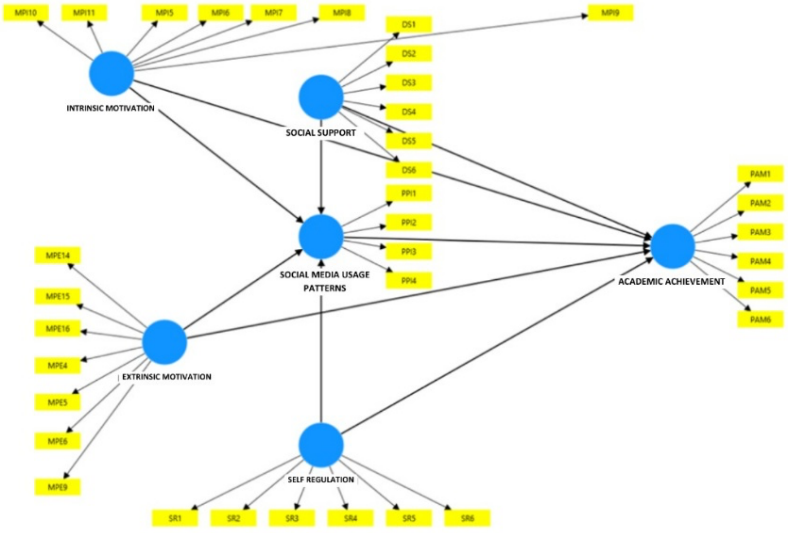


Figure 1. Conceptual Model of Social Media Connectedness and Academic Achievement of Digital Native Students

Research Hypothesis

H1: Motivation for social media use has a positive effect on students' academic achievement.
H2: Motivation for social media use has a positive effect on social media usage patterns.
H3: Social media usage patterns influence students' academic achievement.
H4: Social media usage patterns mediate the relationship between motivation for social media use and
academic achievement.
H5: Excessive social media use is negatively related to students' academic achievement.

Material and Methodology

Research Design

This research utilized a quantitative approach applying an explanatory research design that employed Structural Equation Modeling based on Partial Least Squares (SEM-PLS). This approach was applied to investigate the causation between latent factors and the mediating effect of social media use behavior in variables-linked motivation, self-regulation and academic performance. The research model was developed through the integration of UGT and SDT, which enables a comprehensive analysis of students' motivation factors, digital behavior, and academic outcomes.

The use of SEM-PLS is suitable, given that the model contains many latent variables with reflection characteristics that do not involve normally distributed data.

This study adopted a cross-sectional design, with data collected through an online questionnaire distributed to active undergraduate students from various private universities in Jakarta. Data collection was conducted using Google Forms, as the platform was seen as practical and well-aligned with the current students' digital usage habits.

Sampling

The study population was active undergraduate students from 14 private universities in Jakarta that were selected through purposive sampling based on universities with A accreditation, and members of Generation Z (born in 1997-2012). This population was selected because Generation Z represents the dominant user of social media in Jakarta, with demography within the higher education category. Respondents were recruited through a questionnaire distributed online.

The purposive sampling technique was done with the following inclusion criteria: (1) active undergraduate students (S1), (2) aged between 18 and 26 years, and (3) actively use social media, at least one hour per day. These criteria were applied to ensure that the respondents were relevant to the issues and research objectives being studied.

This study is in line with Hair et al. (2021) for SEM-PLS, which suggests a minimum sample size of 10 times the number of indicators for the most significant variable. With a total of 30 indicators in the research model, the minimum number of respondents was calculated to 300. Accordingly, this study obtained 300 valid responses as per the number of respondents mentioned, followed by a data screening and validation process. All students, as participants, have given their consents before participating in this research.

Measuring Instruments

The research instrument was developed in the form of a structured questionnaire using a 5-point Likert scale (ranging from 1 = strongly disagree to 5 = strongly agree). The constructs were also assessed by adapted and adjusted indicators from previous studies that had shown validity and reliability.

Social Support (SS) was measured through the scale developed by Yasin & Dzulkifli (2011) and Wu et al. (2023), with measures encompassing emotional, informational, and instrumental support provided by family, friends, peers, and institutions, with a total of 6 items.

Extrinsic Motivation (EM) and Intrinsic Motivation (IM) refer to the SDT framework (Ryan & Deci, 2020), used scales that evaluate motivations based on external stimuli (values, recognition, etc.), also internal variables (interest and personal satisfaction), consisting 16 and 13 items respectively.

Social Media Usage Patterns (SMUP) reflect the frequency, duration, and purpose of social media use and were measured from indicators in the UGT (Quan-Haase & Young, 2010) and a study by Walsh et al. (2013), with 10 items.

Self-Regulation (SR) was assessed by using the measures of planning, time control, and self-evaluation skills, adapted from Sahranavard (2018)and Reinecke (2022), consisting 6 items.

Academic Achievement (AA) was measured using 6 items using scales of perceived academic achievement, learning motivation, and learning satisfaction, as well as the most recent GPA report as reported by the respondents.

Data Analysis Techniques

The collected data were analyzed using the Structural Equation Modeling-Partial Least Squares (SEM-PLS) approach with the assistance of SmartPLS software. The analysis procedures included: (1) Measurement Model Evaluation (Outer Model): Includes testing indicator validity (factor loading > 0.7), construct validity (AVE > 0.5), and reliability (Cronbach's Alpha and Composite Reliability > 0.7); (2) Structural Model Evaluation (Inner Model): Includes testing R-square, f-square, and model predictions for the dependent variable; (3) Significance Test and Path Coefficients: Using bootstrapping (5,000 re-samplings) to determine the direct, indirect (mediation), and total effects between variables by examining the t-statistic (>1.96) and p-value (<0.05); (4) Mediation Test: Using the indirect effect approach to measure the contribution of usage patterns as a mediator; (5)The goodness-of-fit of the model was assessed using SRMR (<0.08) and NFI values.

The following table explains the Operationalization of Variables and their indicators:

Table 2. Operationalization of Variables and Indicators

Variable	Definition	Indicators	Source	Scale	Cronbach's α
Social Support (Dukungan Sosial/DS)	Students' perceptions of emotional and informational support from their social environment.	Support from family, friends, and institution.	Safree et al (2011); Wu et al. (2023)	Likert 1–5	0.840
Extrinsic Motivation (Motivasi Ekstrinsik/MPE)	External motivations for using social media, such as social recognition or achievement.	Achievements, recognition, social validation.	Ryan & Deci (2020); Kalam et al. (2023)	Likert 1–5	0.885
Intrinsic Motivation (Motivasi Intrinsik/MPI)	Internal motivations for learning and exploration due to personal interests.	Curiosity, interest in learning, personal satisfaction.	Ryan & Deci (2020); Walsh et al. (2013)	Likert 1–5	0.900
Social Media Usage Patterns (Pola Penggunaan Media Sosial/PPMS)	How and why students use social media in their daily activities.	Duration of use, frequency, academic vs. non-academic goals.	Quan-Haase & Young (2010); Kalam et al. (2023)	Likert 1–5	0.784
Self-Regulation (SR)	Students' ability to manage time, plan their studies, and control distractions.	Time management, achievement	Sahranavard (2018); Reinecke (2022)	Likert 1–5	0.865

Variable	Definition	Indicators	Source	Scale	Cronbach's α
		evaluation, task planning.			
Academic Achievement (Prestasi Akademik/PA)	Students' perceptions of their academic achievement, including grades and learning satisfaction.	GPA, academic satisfaction, achievement of learning goals.	Walsh et al. (2013); Gloria & Akbar (2019)	Likert 1–5	0.836

Result and Discussion

Respondents Characteristics

Table 3 shows the demographic characteristics of respondents, including their gender, age, Grade Point Average (GPA), monthly expenditure level, social media preferences, and daily usage duration. This data is essential to provide a contextual overview of respondents' backgrounds, serving as the basis for interpreting their digital behavior patterns and academic achievements.

Table 3. Respondent Characteristics

Demographic		Frequency	Percentage (%)
Gender	Men	93	31
	Women	207	69
Age	< 20 years	43	14.33
	20 - 25	226	75.33
	> 25 years	31	10.33
GPA (Grade Point Average)	< 2,0	0	0
	2,0 - 2,49	4	1.33
	2,5 - 2,99	6	2
	3,0 - 3,49	78	26
	3,5 - 4,0	212	70.67
Monthly Expenses (Transport, Food, Internet, Shopping)	< Rp500.000	23	7.67
	≥ Rp500.000 - Rp1.000.000	61	20.33
	> Rp1.000.001 - Rp2.000.000	53	17.67
	> Rp2.000.001 - Rp3.000.000	52	17.33
	> Rp3.000.001	111	37

Most Frequently Used Social Media	Instagram	111	37
	TikTok	140	46.67
	YouTube	30	10
	X (Twitter)	18	6
	Facebook	1	0.33
Time spent on social media per day	< 30 minutes	5	1.67
	≥ 30 minutes - 1 hour	29	9.67
	> 1 - 2 hours	40	13.33
	> 2 - 4 hours	76	25.33
	> 4 - 6 hours	81	27
	> 6 hours	69	23

The respondents consist of female students (69%) and male students (31%). The data shows that the population is female-dominant, reflecting an overrepresentation in the study participation.

For age, 75.33% of respondents are between 20 and 25 years, which is comparable to the general characteristics of active undergraduate students. 14.33% of respondents are also under 20 years, and 10.33% are over 25 years.

For GPA, 70.67% respondents had scores between 3.5 and 4.0, and 26% of them had scores between 3.0 and 3.49. This indicates that most respondents are considered academically high achievers. Very few were classified as having scores less than 3.0 and none under 2.0, thus a typical profile of a student that proved to be effective.

In terms of monthly expenditure, 37% of the respondents exceeded IDR 3,000,000 per month, followed by 20.33% who spent IDR 500,000-1,000,000. This suggests variety in the economic abilities of respondents, the majority of whom have relatively high expenditure as a part of the urban student life.

On the use of social media, TikTok was recorded as the most dominant platform with 46.67% of respondents, followed by Instagram at 37%, and YouTube at 10%. Only a small number used X (Twitter) or Facebook. This suggests that higher learning students prefer visual content and short-clip entertainment platforms.

On the daily use of social media, 27% of respondents utilize social media 4-6 hours/day, followed by 25.33% 2-4 hours, and 23% greater than 6 hours/day. This suggests a significant amount of social media use from students that could influence their learning practices and academic performance according to behavior and goals.

These demographic data show that Generation Z students are digitally active, have access to good internet, and are high achievers. But the exposure of their daily social media is relatively high. Thus, these findings highlight the urgent need to investigate the extent to which their studies progress at school differs as a function of their social media usage habits, motivation, as well as self-regulation.

PLS Algorithm Results

The model fit in Figure 2 shows that the Standardized Root Mean Square Residual (SRMR) of 0.081 is close to the ideal limit of <0.08, indicating a good model fit, although not perfect. The d_ULS (4.367) and d_G (1.249) values are found to be similar between the saturated and estimated models, indicating the structural stability of the model. Although the chi-square value (2115.524) is high, this is considered normal in the context of a large sample and does not immediately indicate a poor fit.

However, the NFI of 0.692 is still far from the ideal standard (≥ 0.90), indicating that the model is not optimal in representing the data. Overall, the model is classified as a moderate fit and still has room for further improvement.

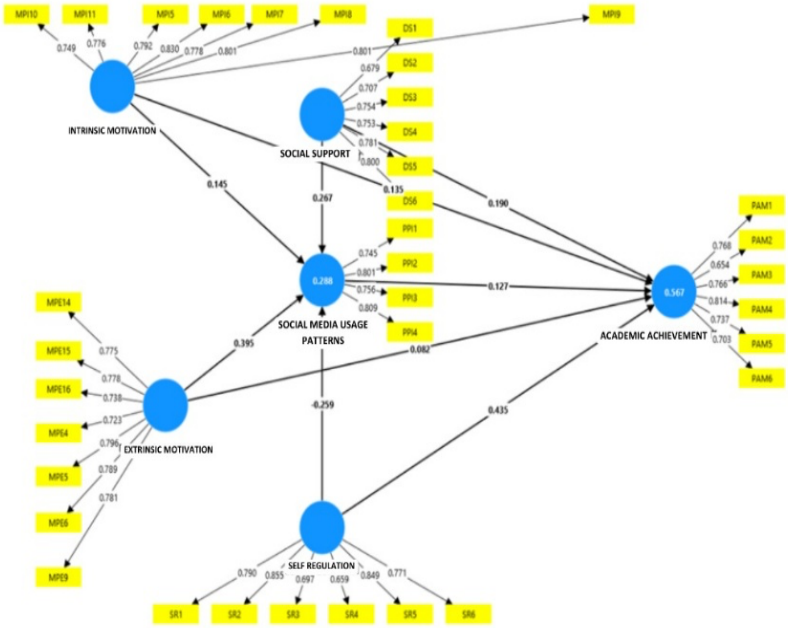


Figure 2. Structural Model of the Influence of Motivation, Social Support, Usage Patterns, and Self-Regulation on Academic Achievement of Digital Native Students through Social Media

The structural model analyzed using the PLS algorithm revealed a significant relationship between the constructions of motivation, social support, social media usage patterns, self-regulation, and academic achievement of digital native students.

The coefficient of determination (R-square) value for social media usage patterns is 0.288, indicating that the combination of social support, extrinsic motivation, intrinsic motivation, and self-regulation explains 28.8% of the variance. In contrast, academic achievement showed an R-square value of 0.567, suggesting that more than half of the variance in students' academic achievements can be explained by all independent and mediating variables in this model.

The path coefficient between extrinsic motivation and usage patterns was 0.395, indicating a strong positive relationship. This finding confirms that students driven by external motivations, such as social achievement, recognition, or entertainment, tend to engage with social media more intensively. However, such intensity does not necessarily translate into productivity; therefore, it is important to examine the role of usage patterns in channeling these extrinsic motivations toward positive academic outcomes.

Intrinsic motivation also showed a positive influence on the social media usage patterns, with a coefficient value of 0.145. Although the effect was weaker than extrinsic motivation, these findings support the notion that internally-driven learning motivation encourages students to use social media in the orientation of academic needs, such as learning discussions, reference searches, and knowledge exploration.

Additionally, social support from family, peers, and educational institutions significantly influenced usage patterns (β = 0.267) and had a positive direct effect on academic achievement (β = 0.190). These findings align with the literature, suggesting that students who receive emotional and instrumental support tend to be more confident in managing their social media use and demonstrate better academic performance.

The following is a Direct Effect Analysis table based on research data:

Table 4. Direct Effect Analysis on Academic Performance via Social Media Use Pattern

Pathway Variables	Path Coefficient	T-Values	P-Values	Conclusion	Interpretation
Social Support → Social Media Use Pattern	0.267	3.697	0.000	Significant	Social support increases social media usage patterns.
Social Support → Academic Performance	0.224	4.017	0.000	Significant	Direct social support improves students' academic performance.
Extrinsic Motivation → Social Media Use Pattern	0.395	5.582	0.000	Significant	External motivation encourages more active social media usage.
Extrinsic Motivation → Academic Performance	0.132	2.552	0.011	Significant	Although not significant, external motivation has an effect on performance.
Intrinsic Motivation → Social Media Use Pattern	0.145	2.396	0.017	Significant	Intrinsic motivation encourages directed social media usage patterns.
Intrinsic Motivation → Academic Performance	0.154	2.835	0.005	Significant	Internal motivation impacts academic achievement.
Social Media Use Pattern → Academic Performance	0.127	2.764	0.006	Significant	Productive social media usage patterns support academic achievement.
Self-Regulation → Social Media Use Pattern	-0.259	3.584	0.000	Significant (Neg.)	High self-regulation reduces the intensity of social media usage.
Self-Regulation → Academic Performance	0.402	7.832	0.000	Highly Significant	Self-regulation is the strongest predictor of student academic achievement.

An interesting finding was that self-regulation showed a negative effect on social media usage patterns ($\beta = -0.259$), indicating that the higher a student's ability in time management and focus control, the lower the intensity of their social media usage. This suggests that self-regulated students are better at resisting distractions or algorithmic stimuli that lead to excessive engagement with social media. Conversely, self-regulation showed a strong effect on academic achievement ($\beta = 0.435$), emerging as the most significant predictor in the model. Students who effectively manage their study time, set priorities, and avoid procrastination demonstrate higher academic achievement.

Social media usage patterns, when examined as a mediator, showed a positive contribution to academic achievement with a coefficient of 0.127. Furthermore, intrinsic motivation demonstrated both

direct and indirect effects on academic achievement. The direct effect of intrinsic motivation on academic achievement was 0.135, while the indirect effect through social media usage patterns was 0.018 (0.145 × 0.127), resulting in a total effect of 0.153. Similarly, extrinsic motivation showed a direct effect of 0.082 and an indirect effect of 0.050 (0.395 × 0.127), resulting in a total effect of 0.132.

These findings indicate that social media does not always undermine academic performance but rather, when used productively and purposefully for learning activities, it can enhance students' academic outcomes. In addition, the role of self-regulation further strengthens this interpretation. The findings show that the second indicator of self-regulation (SR2), which reflects students' ability to plan their weekly study time, has the highest loading factor (0.855).

This suggests that effective time management is a key component of self-regulation in controlling social media use. Students who are able to organize and allocate their study time are more likely to use social media in a controlled and purposeful manner, thereby reducing the risk of excessive use and its potential negative impact on academic performance. This is consistent with prior research indicating that self-regulation helps weaken the heightened effect of social media addiction on study-related conflict and self-esteem (Khan et al., 2021).

Overall, these results confirm that motivation, both intrinsic and extrinsic, and social support contribute to improved academic achievement, both directly and indirectly through social media usage patterns as a mediator. On the other hand, students' self-regulation skills are a key factor in maintaining a balance between social media use and academic commitments. These findings underscore the need for interventions that not only foster learning motivation but also strengthen self-regulation skills and cultivate supportive social environments for digital-native students.

Conclusions

This study concludes that motivation, social media usage patterns, social support, and self-regulation significantly influence the academic achievement of Generation Z students, with all hypotheses supported. Intrinsic and extrinsic motivations positively affect achievement and shape goal-oriented social media use, while social media usage patterns contribute directly ($\beta = 0.127$) and mediate this relationship.

Intrinsic motivation shows a total effect of 0.153, and extrinsic motivation 0.132, indicating that motivation must be accompanied by constructive usage patterns. However, excessive and unfocused use, linked to weak self-regulation, undermines performance. Self-regulation emerges as the key factor, particularly through time management (SR2 = 0.855), suggesting that students who effectively plan their study time are more likely to use social media purposefully. This supports prior findings that self-regulation mitigates the negative effects of social media addiction (Khan et al., 2021).

Theoretically, this study integrates Uses and Gratifications Theory (UGT) and Self-Determination Theory (SDT), highlighting that academic outcomes are shaped not only by motivation but also by how students engage with digital media. Practically, the findings suggest that higher education institutions should reposition social media as a structured learning tool, foster motivation, strengthen social support systems, and prioritize the development of self-regulation skills, particularly time management and digital control.

Accordingly, institutions are encouraged to implement digital literacy programs that integrate technical and psychological competencies, while students are advised to use social media more consciously for academic purposes. Future research should expand the model by incorporating external factors and applying longitudinal or objective data approaches to better capture the dynamics of social media use and academic performance.

Ethical clearance

This research has received approval from the Faculty of Communication, LSPR Institute of Communication and Business. All respondents provided voluntary consent. The researchers guarantee that data confidentiality and anonymity will be maintained throughout the research process.

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