

Self-Regulated Learning as a Bridge Between Self-Leadership and Social Media Addiction Tendencies

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Abstract. The present study investigated the mediating role of self-regulated learning (SRL) in the relationship between self-leadership and social media addiction tendencies among university students. Partial least squares structural equation modelling revealed that, in a cross-sectional survey of 146 Indonesian undergraduates, self-leadership was positively related to social media addiction and to SRL, while SRL was negatively related to social media addiction. SRL was a negative mediator and had an opposite sign to the direct effect, indicating competitive mediation. The model explained 8.5% of the variance of social media addiction and the indirect effect was sensitive to one outlier respondent. Thus, self-leadership might be related to higher digital engagement and higher learning regulation. These preliminary correlational data imply that self-regulation during performance is a topic for additional longitudinal and experimental investigation.

Keywords: *self-leadership, self-regulated learning, social media addiction, university students, mediation*

Introduction

Since the COVID-19 pandemic, the use of social media as a communication medium among the Indonesian population has continued to grow. Indonesia remains one of the largest social media markets in the world: the Digital 2026 Indonesia report recorded 180 million social media user identities as of October 2025, equivalent to 62.9% of the total population, alongside an internet penetration rate of 80.5% (We Are Social & Meltwater, 2025). Complementing this, the 2026 national internet survey by the Indonesian Internet Service Providers Association found that TikTok was the most frequently accessed platform (31.8%), followed by Facebook (29.4%) and Instagram (27.7%), while only a small proportion of users (2.4%) reported spending more than four hours per day on social media (Asosiasi Penyelenggara Jasa Internet Indonesia [APJII], 2026). These figures confirm that social media has become deeply embedded in Indonesians' daily

digital behavior, particularly among the emerging-adult population that dominates higher education.

Social media is increasingly utilized in academic activities within higher education, particularly among university students who fall within the dominant age bracket of users. A systematic review and meta-analysis of 51 studies involving 35,520 university students found a pooled global prevalence of social media addiction of 18.4%, with the highest regional prevalence observed in Asia at 22.8% (Salari et al., 2025). Social media addiction is defined as an excessive attachment to social networking sites, leading to disruptions in various aspects of life, including academic, social, and psychological functioning (Andreassen et al., 2012). Addicted individuals tend to exhibit obsessive behaviors such as constantly checking and using social media, with difficulty stopping despite awareness of its negative effects (Bányai et al., 2017). Prolonged and compulsive social media exposure has been linked to several negative consequences including decreased academic performance, sleep disturbances, loneliness, and psychological stress (Keles et al., 2020).

Social media addiction significantly impacts psychological well-being and academic performance, particularly among emerging adults such as university students. Affected individuals often exhibit symptoms such as difficulty concentrating, sleep disturbances, anxiety, and reduced learning productivity (Keles et al., 2020). Compulsive social media use can divert attention from academic tasks, reduce study time, and worsen time management skills (Azizi et al., 2019). Recent evidence continues to reinforce this pattern: a 2025 study of Chinese college students found that social media addiction predicted academic procrastination both directly and indirectly through a chain of reduced self-control and heightened fear of missing out (Tang & He, 2025). Similarly, a 2025 study among Indonesian university students reported that social media addiction negatively affected self-regulated learning, which in turn predicted academic procrastination (Jatiputri et al., 2025). Excessive use may also trigger procrastination tendencies more broadly, directly impacting students' academic outcomes (Przepiorka et al., 2016).

Theoretically, social media addiction is influenced by individual, social, and structural factors of digital platforms. On the individual level, low self-control, a high need for social acceptance, and anxiety are significant predictors (Andreassen, 2015; Ryan et al., 2014). Structurally, platform features such as real-time notifications, social feedback systems (e.g., "likes"), and infinite scroll have been shown to encourage compulsive engagement (Montag et al., 2019). Therefore, strong self-regulation is essential to manage social media use and prevent addiction, which can harm academic achievement and psychological well-being.

In academic settings, self-regulated learning (SRL) is a critical competency enabling students to direct themselves toward productive media use in support of learning goals. SRL refers to students' ability to actively plan, monitor, and evaluate their learning processes (Zimmerman, 2002). Zimmerman's comprehensive model outlines three phases—forethought, performance, and self-reflection—encompassing cognitive, motivational, and behavioral aspects. Students with strong SRL skills are not only able to manage their time and learning resources but are also more adept at handling distractions, including social media use during study time (Kizilcec et al., 2017). This mediating capacity of SRL has recently gained empirical support: a study using structural equation modeling found that SRL substantially explained the relationship between students' learning approaches, fear of missing out, and smartphone addiction (Gezgin, 2025).

In regulating their learning, students must adapt to the digitalized learning context. This transformation requires them to be responsive to evolving learning systems, including digital technologies and social media as part of the academic process. Students now use social media not only for communication and entertainment but also for learning, collaboration, and self-actualization in digital spaces (Greenhow & Lewin, 2016). The ability to guide one's own thoughts and behaviors toward goal achievement is referred to as self-leadership (Neck & Houghton, 2006). Students with strong self-leadership are better at setting learning goals, controlling impulses, and maintaining consistency in the face of learning challenges, including productive use of social media (Stewart et al., 2011). Participation in digital ecosystems requires students to independently regulate themselves to avoid falling into counterproductive social media usage.

Here, the role of SRL becomes crucial in enabling them to navigate the learning process actively and effectively (Zimmerman, 2002).

The theoretical model in this study refers to Bandura's social-cognitive approach, emphasizing the interplay between personal, environmental, and behavioral factors (Bandura, 2001). Within this framework, self-leadership is positioned as a theoretically prior personal disposition that is expected to relate to SRL, which in turn is expected to relate to students' ability to manage social media use adaptively. SRL is thus proposed as a bridge connecting students' self-leadership capacities to their control over digital distractions. Recent studies have begun to establish SRL as a mediating mechanism in adjacent contexts—between social media addiction and academic procrastination (Jatiputri et al., 2025), and between learning approaches, fear of missing out, and smartphone addiction (Gezgin, 2025), confirming that SRL carries meaningful explanatory power in the addiction-academic behavior pathway. However, these studies have treated SRL primarily as an outcome or as a mediator of situational/psychological antecedents (e.g., FoMO, self-control), while the role of self-leadership, a more stable, dispositional form of self-influence distinct from momentary self-control, as an antecedent to SRL in explaining social media addiction remains unexamined, particularly within the Indonesian higher education context. Most prior research has also examined self-leadership, SRL, and social media addiction largely in isolation rather than as an integrated pathway. Therefore, this study seeks to address this gap by examining the influence of self-leadership on social media addiction through the mediating role of self-regulated learning among Indonesian university students.

Method

This study employed a quantitative approach using Partial Least Squares Structural Equation Modeling (PLS-SEM) to examine the mediating role of self-regulated learning (SRL) in the relationship between self-leadership (SL) and social media addiction (SMA) among university students.

Variable Identification

The study examined three variables:

- Independent variable – Self-leadership (SL): the extent to which students report using cognitive and behavioral strategies to steer their own thinking and actions toward academic goals, assessed with the Abbreviated Self-Leadership Questionnaire (ASLQ).
- Dependent variable – Social media addiction tendencies (SMA): students' self-reported excessive and compulsive social media use that interferes with their academic, psychological, and social lives, assessed with the Bergen Social Media Addiction Scale (BSMAS). Since no clinical cut-off was used, BSMAS scores were treated as a continuous measure of addictive tendencies, not as a diagnosis.
- Mediating variable – Self-regulated learning (SRL): students' self-reported capacity to plan, monitor, and evaluate their own learning, including keeping distractions such as social media under control, assessed with the Academic Self-Regulated Learning Questionnaire (ASRLQ).

Participants

The participants were 146 undergraduate students enrolled in various universities across Indonesia, aged between 18 and 34 years, representing the emerging adulthood stage. Respondents were recruited using purposive sampling, with criteria including active university enrollment status and regular use of social media. Participants were not screened using a BSMAS cut-off score; the sample therefore reflects the continuum of social media addiction tendencies among regular users rather than a clinically addicted group. The minimum required sample size was determined a priori using G*Power 3.1, based on a linear multiple regression model (fixed model, R^2 deviation from zero) with an anticipated effect size of $f^2 = .073$, $\alpha = .05$, statistical power $(1 - \beta) = .80$, and two predictors. This analysis yielded a critical F of 3.06 and a noncentrality parameter (λ) of 9.86, indicating a minimum required sample size of 136 participants to achieve an actual power of .80. The final sample of 146 participants therefore exceeded this minimum threshold.

Instruments

All three constructs were assessed with established self-report scales.

1. Self-Leadership (SL) was measured using the Abbreviated Self-Leadership Questionnaire (ASLQ) developed by Houghton et al. (2012). The ASLQ contains 9 items representing cognitive and behavioral self-leadership strategies, answered on a five-point agreement scale (1 = strongly disagree, 5 = strongly agree; Houghton et al., 2012). The instrument demonstrated good reliability and validity in this study, with Cronbach's $\alpha = .837$, $\rho_a = .844$, composite reliability (ρ_c) = .874, and AVE = .436.
2. Self-Regulated Learning (SRL) was measured using the Academic Self-Regulated Learning Questionnaire (ASRLQ) developed by Nambiar et al. (2022). The instrument consists of 34 items encompassing cognitive, metacognitive, and motivational strategies aligned with Zimmerman's three-phase model of forethought, performance, and self-reflection. Items were answered on a five-point agreement scale (1 = strongly disagree, 5 = strongly agree; Nambiar et al., 2022). After six items with inadequate validity were removed, the final SRL instrument consisted of 28 items. The instrument showed excellent internal consistency, with Cronbach's $\alpha = .946$, $\rho_a = .951$, composite reliability (ρ_c) = .951, and AVE = .417.
3. Social Media Addiction (SMA) was measured using the Indonesian-adapted Bergen Social Media Addiction Scale (BSMAS), a 6-item instrument assessing six core components of addiction: salience, mood modification, tolerance, withdrawal, conflict, and relapse. Each item answered on a five-point frequency scale (1 = never, 5 = always; Sumaryati et al., 2024). The instrument demonstrated good reliability and validity, with Cronbach's $\alpha = .822$, $\rho_a = .842$, composite reliability (ρ_c) = .871, and AVE = .532.

Although the AVE values for SL (.436) and SRL (.417) were below the conventional .5 threshold, both constructs demonstrated composite reliability (ρ_c) values above .85, which Hair et al. (2021) suggest can offset a lower AVE, particularly for constructs measured with a relatively large number of indicators, as is the case with the 28-item SRL scale. All three constructs were therefore retained in the structural model.

Procedure

Data were collected online through a structured Google Form questionnaire, distributed via university networks and student communities across Indonesia between February and April 2025. Prior to participation, respondents were presented with an informed consent statement embedded at the beginning of the questionnaire, outlining the purpose of the study, the voluntary nature of participation, and the confidentiality of responses; only respondents who provided electronic consent proceeded to the questionnaire items. This study did not undergo formal review by a research ethics committee; as a minimal-risk online survey of adults, it followed the ethical principles of the Indonesian Psychological Association (HIMPSI) Code of Ethics regarding informed consent, voluntary participation, and confidentiality.

Prior to analysis, the data were screened for completeness and eligibility. All 148 returned questionnaires were complete; two respondents who did not meet the inclusion criteria (one not actively enrolled and one aged 39) were excluded, leaving 146 responses with no missing values. Outliers were examined using standardized composite scores ($|z| > 3.29$) and Mahalanobis distance on the three composite scores ($\chi^2(3)$, $p < .001$). One respondent was flagged on both criteria (SRL: $z = -5.62$; $D^2 = 39.01$) and gave identical answers within each scale, suggesting careless responding. This case was retained, and a sensitivity analysis excluding it is reported in the Results.

Data Analysis

The data were analyzed in SmartPLS 4 in two steps. First, the outer model was evaluated by inspecting indicator loadings, internal consistency (ρ_a and ρ_c), convergent validity (AVE), and discriminant validity (HTMT). Second, the inner model was tested with 5,000 bootstrap resamples to obtain path coefficients, t-values, p-values, R^2 , and the indirect effect. Interpretation followed Hair et al. (2021); the type of mediation was determined using Zhao et al. (2010) and the sign-product logic of Baron and Kenny (1986), and common method bias was checked with Kock's (2015) full collinearity test.

Results

Demographic Profile of Participants

This study involved 146 undergraduate students from various academic disciplines across Indonesia. The demographic characteristics of the participants are summarized in Table 1.

Table 1
Demographic Characteristics of Participants (N = 146)

	Category	n	%
Age (years)	≤ 20	108	74.0
	21–24	28	19.2
	25–34	10	6.8
Gender	Female	110	75.3
	Male	36	24.7
Field of study	Management / Business Economics	57	39.0
	Psychology	38	26.0
	Other fields*	24	16.4
	Unspecified	27	18.5
Religion	Islam	134	91.8
	Christian / Protestant	8	5.5
	Catholic, Hindu, Buddhist	4	2.7
Social media platform used**	WhatsApp	146	100.0
	Instagram	58	39.7
	TikTok	46	31.5
	Twitter / X	11	7.5
	YouTube	6	4.1
	Others	25	17.1
Daily social media use	Less than 1 hour	4	2.7
	1–2 hours	18	12.3
	3–4 hours	51	34.9
	5–6 hours	39	26.7
	More than 6 hours	34	23.3

Note. *Communication studies, engineering and informatics, accounting, international relations, law, nursing/medical sciences, education, and agriculture. **Multiple responses were allowed; percentages therefore exceed 100%.

Overall, the results indicate that most respondents were ≤20 years old (74.0%), predominantly female (75.3%), and majoring in Management/Economics (39.0%) or Psychology (26.0%). All participants reported using WhatsApp as a social media platform, with 84.9% using social media for three hours or more daily.

Measurement Model (Outer Model) Evaluation

Outer Loadings. Most indicators demonstrated acceptable outer loadings ($\geq .50$), supporting indicator reliability. Indicator loadings across the three constructs ranged from .288 to .824. Most items exceeded the recommended minimum threshold of .40 (Hair et al., 2019). However, one Self-Regulated Learning indicator (SRL7) exhibited a relatively low loading (.288), whereas all other indicators showed acceptable loadings. Although Hair et al. (2021) recommend removing indicators loading below .40, SRL7 was retained to preserve the content coverage of the ASRLQ; a sensitivity analysis excluding SRL7 and SRL22 yielded virtually identical results (see Sensitivity Analysis). Overall, the measurement model demonstrated satisfactory internal consistency and composite reliability.

Reliability and Convergent Validity

All constructs demonstrated satisfactory internal consistency, with Cronbach's alpha values ranging from .822 to .946 and composite reliability values ranging from .871 to .951, exceeding the recommended threshold of .70. The AVE value for Social Media Addiction (.532) met the recommended criterion of .50, whereas the AVE values for Self-Leadership (.436) and Self-Regulated Learning (.417) were below the recommended threshold. Nevertheless, both constructs were retained because their composite reliability values exceeded .70, indicating acceptable convergent validity despite the relatively low AVE (Hair et al., 2021).

Discriminant Validity. Discriminant validity was assessed using the Heterotrait-Monotrait Ratio (HTMT) (Henseler et al., 2015). It is considered a more sensitive criterion than the traditional Fornell-Larcker approach for detecting a lack of discriminant validity in variance-based structural equation modeling.

Table 2.
Heterotrait-Monotrait Ratio (HTMT) Results

Construct Pair	HTMT	Status (< .85)
Self-Leadership ↔ SRL	.729	Met
Social Media Addiction ↔ SRL	.246	Met
Social Media Addiction ↔ Self-Leadership	.186	Met

As shown in Table 2, all HTMT values were well below the conservative threshold of .85 (Henseler et al., 2015). The highest ratio was observed between Self-Leadership and SRL (HTMT = .729), which is theoretically expected given the conceptual proximity between the two self-regulatory constructs, followed by Social Media Addiction–SRL (HTMT = .246) and Social Media Addiction–Self-Leadership (HTMT = .186). These results confirm that, despite their conceptual closeness, Self-Leadership and SRL remained empirically distinct constructs, supporting adequate discriminant validity across the measurement model.

Structural Model

Collinearity (VIF). Indicator-level VIF values ranged from 1.337 to 5.071. Except for one Self-Regulated Learning indicator (SRL22; VIF = 5.071), all indicators showed VIF values below the recommended threshold of 5.0, whereas SRL22 marginally exceeded it. Because SRL is a reflective construct, high inter-item correlations are expected, and the VIF < 5 criterion applies primarily to formative indicators and structural predictors (Hair et al., 2021). Collinearity among the structural predictors was low (inner VIF = 1.78); SRL22 was therefore retained.

Common Method Bias. Full collinearity VIFs (Kock, 2015), calculated from the latent variable correlations, were 1.87 (Self-Leadership), 1.94 (SRL), and 1.09 (Social Media Addiction), all below 3.3, suggesting that common method bias was not a serious concern.

Coefficient of determination (R^2). The structural model explained 43.8% of the variance in Self-Regulated Learning ($R^2 = .438$; adjusted $R^2 = .434$), indicating that self-leadership accounted for a substantial proportion of students' self-regulated learning. In contrast, the model explained 8.5% of the variance in Social Media Addiction ($R^2 = .085$; adjusted $R^2 = .072$), which represents weak explanatory power ($f^2 = .09$), partly because the opposing direct and indirect paths yielded a near-zero total effect of Self-Leadership on Social Media Addiction (.027); its implications are discussed below.

Table 3.
Path Coefficients and Hypothesis Testing (Direct Effects)

Path	β (O)	M	STDEV	t-value	p
Self-Leadership → Social Media Addiction	.283	.305	.134	2.113	.035
Self-Leadership → SRL	.662	.677	.044	15.031	.000
SRL → Social Media Addiction	-.387	-.401	.127	3.043	.002

As shown in Table 3, Self-Leadership significantly and positively predicted Social Media Addiction ($\beta = .283$, $t = 2.113$, $p = .035$), supporting Hypothesis 1. Self-Leadership also significantly and positively predicted SRL ($\beta = .662$, $t = 15.031$, $p < .001$), supporting Hypothesis 2. In contrast, SRL significantly and negatively predicted Social Media Addiction ($\beta = -.387$, $t = 3.043$, $p = .002$), supporting Hypothesis 3 and indicating that stronger self-regulated learning is associated with lower levels of social media addiction.

Table 4.
Mediation Analysis (Indirect Effect)

Path	β (O)	M	STDEV	t-value	p
Self-Leadership → SRL → Social Media Addiction	-.256	-.271	.088	2.898	.004

The indirect effect of Self-Leadership on Social Media Addiction through SRL was significant and negative ($\beta = -.256$, $t = 2.898$, $p = .004$; 95% CI $[-.424, -.067]$). Because the direct effect of Self-Leadership on Social Media Addiction remained significant and positive ($\beta = .283$, $p = .035$) after SRL was introduced into the model, and the indirect effect was significant but opposite in sign, the results indicate a form of competitive (inconsistent) mediation rather than simple partial mediation (Zhao et al., 2010). The direct path is positive, whereas the indirect path through SRL is negative. The product $a \times b \times c' = (+.662) \times (-.387) \times (+.283)$ is negative, so the pattern is competitive mediation (Baron & Kenny, 1986; Zhao et al., 2010), a kind of partial mediation in which the two pathways partially cancel each other out rather than reinforce each other, resulting in a near-zero total effect (.027).

Sensitivity Analysis

The model was re-estimated (5,000 bootstrap subsamples) excluding SRL7, SRL22, and the outlier case. When the two indicators were dropped, the results were almost same (e.g., SRL → SMA: $\beta = -.386$, $p = .002$; indirect effect: $\beta = -.255$, $p = .004$, 95% CI $[-.420, -.069]$). Without the outlying case ($N = 145$), SL → SRL ($\beta = .685$, $p < .001$) and SRL → SMA ($\beta = -.323$, $p = .024$) were significant, the direct path became marginal ($\beta = .280$, $p = .049$), and the indirect effect weakened ($\beta = -.221$, $p = .033$) with a 95% CI marginally including zero $[-.424, .004]$. R^2 decreased to .059. Thus, the indirect influence should be considered with caution.

Correlation Among Dimensions of Self-Leadership and Self-Regulated Learning

As a supplementary analysis, Pearson correlations were examined between total social media addiction scores and the sub-dimensions of Self-Leadership (TF = Total Focus/behavior-focused strategies; TR = Total Reward/natural reward strategies; TC = Total Constructive/constructive thought pattern strategies) and Self-Regulated Learning (TFHT = Total Forethought; TP = Total Performance; TRFN = Total Reflective), following Houghton et al.'s (2012) three-dimensional model of self-leadership and Zimmerman's (2002) three-phase model of self-regulated learning, respectively.

Table 5.
Pearson Correlations Among Social Media Addiction and Self-Leadership/SRL Dimensions

Total Addiction	TF	TR	TC	TFHT	TP	TRFN
Total Addiction —	-.097	.134	.040	-.156	-.224**	-.104
TF	—	.454***	.480***	.481***	.513***	.477***
TR		—	.559***	.434***	.494***	.472***
TC			—	.412***	.471***	.549***
TFHT				—	.715***	.693***
TP					—	.731***
TRFN						—

Note. TF = Total Focus (behavior-focused strategies); TR = Total Reward (natural reward strategies); TC = Total Constructive (constructive thought pattern strategies); TFHT = Total Forethought; TP = Total Performance; TRFN = Total Reflective. ** $p < .01$, *** $p < .001$.

As shown in Table 5, among the six Self-Leadership and SRL sub-dimensions, only the Performance dimension of SRL (TP) showed a statistically significant correlation with total social media addiction ($r = -.224$, $p < .01$), while the remaining five dimensions (TF, TR, TC, TFHT, TRFN) were not significantly correlated with addiction at the bivariate level. This suggests that the negative association between SRL and social media addiction identified in the structural model (Table 3) may be driven primarily by students' performance-phase self-regulation, that is, their capacity to monitor and control their behavior during actual study activity, rather than by their forethought (planning) or self-reflection processes alone. All six sub-dimensions were strongly and significantly intercorrelated ($r = .412$ to $.731$, $p < .001$), including correlations between Self-Leadership dimensions and SRL dimensions, which is consistent with the strong structural path from Self-Leadership to SRL reported earlier ($\beta = .662$, $p < .001$).

Discussion

This study examined whether self-regulated learning (SRL) mediates the relationship between self-leadership and social media addiction among Indonesian university students. Three findings stand out and warrant closer interpretation: (1) self-leadership showed a direct positive relationship with social media addiction, (2) self-leadership was a strong positive predictor of SRL, and (3) SRL, once introduced into the model, negatively predicted social media addiction, resulting in a competitive mediation pattern in which the direct and indirect effects of self-leadership on addiction ran in opposite directions.

A Developmental Perspective on the Model

The hierarchical ordering of constructs in this model—self-leadership preceding SRL, which in turn precedes social media addiction—reflects a theoretical rather than an empirically established temporal order and can be understood through a developmental lens. Self-leadership is conceptualized as a general capacity for self-influence that develops progressively across the life course, well before students enter higher education (Neck & Houghton, 2006). As students enter the academic context, this general capacity is called upon to take a more domain-specific form: self-regulated learning, the ability to plan, monitor, and evaluate one's own academic

behavior (Zimmerman, 2002). Within contemporary digital environments, effective self-regulated learning may help students manage competing demands, including excessive engagement with social media (Montag et al., 2019).

This developmental reading may also help explain why, among the six sub-dimensions examined, only the Performance dimension of SRL showed a significant protective association with addiction (Table 5). Forethought and self-reflection are regulatory capacities that tend to mature relatively early, often reinforced through years of schooling that emphasize planning and retrospective evaluation. Performance-phase regulation—the capacity to monitor and redirect one's own behavior in the moment, while a distraction is actively present—may be comparatively later-developing and more variable across individuals, even among those with otherwise strong self-leadership and SRL profiles. Social media, with its immediate and intermittent reward structure, may therefore represent a distinctly modern test of this later-developing, in-the-moment regulatory capacity, rather than of self-regulation in general.

Self-Leadership and Social Media Addiction: A Dual Pathway

The positive direct effect of self-leadership on social media addiction may initially appear counterintuitive, given that self-leadership is typically framed as a self-regulatory competency that supports adaptive functioning (Neck & Houghton, 2006). However, this finding is consistent with the broader literature on social media motivations, which shows that active, goal-directed platform use, rather than passive or purposeless use, is often the more habit-forming pattern (Ryan et al., 2014). Students high in self-leadership may deliberately use social media as a tool for networking, information-seeking, and self-presentation in pursuit of academic or personal goals; the very intentionality and behavioural engagement that characterize self-leadership (Goldsby et al., 2021) may therefore be accompanied by more frequent and sustained platform use, which over time carries a risk of habitual or compulsive engagement (Andreassen et al., 2012).

This interpretation aligns with the structural and design-based accounts of social media addiction discussed in the Introduction, wherein features such as notifications and social feedback systems capitalize on active user engagement rather than idle use (Montag et al., 2019).

Because the data are cross-sectional, this interpretation remains speculative; heavier social media users may equally develop, or report, stronger self-management strategies.

At the same time, self-leadership showed a strong positive association with SRL, the largest effect observed in the model. This finding is consistent with Bandura's (2001) social-cognitive premise that personal agency, the capacity to intentionally direct one's own cognition and behaviour, provides the foundation for regulatory processes in specific life domains, in this case academic learning. It is also consistent with the theoretical link proposed in the Introduction between self-leadership as a general disposition toward self-influence (Neck & Houghton, 2006) and SRL as its domain-specific expression in the academic context (Zimmerman, 2002).

The Protective Role of Self-Regulated Learning

Once SRL was introduced into the model, it significantly and negatively predicted social media addiction ($\beta = -0.387$, $p = 0.002$), indicating that students with stronger self-regulated learning skills reported lower levels of addictive social media use. This finding is consistent with recent evidence linking SRL to reduced addictive and procrastinatory behaviour. Jatiputri et al. (2025) found that social media addiction was negatively associated with SRL, which in turn predicted greater academic procrastination among Indonesian students. Gezgin (2025) similarly demonstrated that SRL substantially explained the relationship between learning approaches, fear of missing out, and smartphone addiction. The present study extends this line of research. It shows that SRL does more than simply correlate with addiction outcomes. SRL emerged as a statistically significant, although not fully robust, indirect pathway linking a relatively stable personal disposition, self-leadership, to lower addictive tendencies, although the cross-sectional design does not allow this pathway to be interpreted as a causal mechanism.

These findings are consistent with dual-system theories, suggesting that addiction symptoms represent a struggle between deliberate self-regulation and automatic, habit-based processes (Osatuyi & Turel, 2018). Models that incorporate impulsive and habitual components explain a lot more variance; for example, low self-control, habitual checking, and pleasure explained over 40% of the variance in Facebook procrastination (Meier et al., 2016). Self-

leadership and SRL only capture the reflective side. The current model does not include habit strength, fear of missing out (FoMO), and sensitivity to platform incentives (Montag et al., 2019), which may explain both its moderate explanatory power and the favourable direct path.

Because the direct effect of self-leadership on addiction was positive while the indirect effect through SRL was negative, the overall pattern reflects competitive (inconsistent) mediation (Zhao et al., 2010) rather than straightforward partial mediation. Statistically, self-leadership is related with stronger addictive tendencies through the direct channel but with reduced inclinations through SRL. In this sample the two paths virtually cancelled out. The net effect on addiction, then, depends on the relative strength of these two pathways for a given student. Interventions that strengthen the SRL pathway specifically, rather than trying to reduce self-leadership or social media use in general, may be a more promising target for prevention efforts, a proposition that requires experimental testing.

Which Dimension of SRL Matters Most

The supplementary dimension-level analysis (Table 5) offers a more precise account of this protective association. Among the six sub-dimensions examined, only the Performance dimension of SRL (TP) was significantly correlated with lower addiction. This dimension reflects students' capacity to monitor and control their behavior during actual study activity, consistent with the performance phase of Zimmerman's (2002) three-phase model. Neither the Forethought (planning) nor Reflective (self-evaluation) phases showed a significant association. Nor did any of the three Self-Leadership dimensions individually (Focus, Reward, and Constructive strategies) (Houghton et al., 2012). This suggests that the protective association is not distributed evenly across all facets of self-regulation. Instead, it appears to be concentrated in students' moment-to-moment behavioral self-monitoring during study, the specific skill of noticing and redirecting attention away from social media while a learning task is in progress. This refinement is theoretically meaningful, but it rests on a single bivariate correlation of small magnitude and should be regarded as preliminary. If replicated, it would suggest that broad self-leadership training alone may be insufficient to reduce addictive social media use and that interventions

might more usefully target in-the-moment self-monitoring and attention-control strategies during study sessions.

Explanatory Power of the Structural Model

The structural model explained a substantial proportion of the variance in Self-Regulated Learning, indicating that Self-Leadership was an important predictor of students' self-regulated learning. In contrast, the model explained only a modest proportion of the variance in Social Media Addiction, suggesting that although Self-Leadership and Self-Regulated Learning are significantly associated with social media addiction, most of its variance is explained by other factors. This finding is consistent with previous literature indicating that social media addiction is a multifactorial phenomenon influenced by psychological, social, and platform-related characteristics, such as fear of missing out, self-control, and persuasive platform design (Montag et al., 2019; Ryan et al., 2014). Future studies should therefore incorporate additional predictors to improve the explanatory power of the model.

This is of limited explanatory capacity, and this fact has three ramifications. First, self-leadership and SRL should be viewed as some of the numerous indicators of social media addiction, not the main factors, and neither should be used in isolation to identify students at risk. Second, the low R^2 is partially a product of competitive mediation: the opposing routes cancel each other out, and therefore the model adds less to prediction than it does to uncovering two processes that are buried in total effects. Third, the unscreened sample may have limited the range of addiction scores. possibly, the model excludes emotional and reflexive factors, FoMO, habit strength, and trait self-control, that may possibly influence the current relationships. For instance, SRL may be protective only when habitual checking is weak. Including them would probably add to the explanatory power.

Theoretical and Practical Implications

The decision to position SRL as a mediator, rather than as a parallel predictor alongside self-leadership, reflects a deliberate theoretical stance rather than a purely statistical one. Following Bandura's (2001) social-cognitive premise, personal agency does not act directly upon

specific behavioural outcomes, it operates through more domain-specific regulatory processes (Bandura, 2001). Self-leadership, as a general disposition toward self-influence (Neck & Houghton, 2006), would therefore be expected to shape addictive tendencies only indirectly, through its translation into concrete academic self-regulation (Zimmerman, 2002). Had SRL been modelled as a parallel predictor instead of a mediator, the analysis would have obscured this translational process, yielding only a combined estimate of how strongly both constructs correlate with addiction without revealing how one construct relates to the other's protective association. The competitive mediation pattern identified in this study, a positive direct effect of self-leadership alongside a negative indirect effect through SRL, could only emerge under a mediation framework; it would remain invisible in a model where SRL and self-leadership were treated as co-equal, independent predictors. This methodological choice therefore carries theoretical weight: it suggests that the association between self-leadership and addictive social media use is not uniform, but is partially offset by the domain-specific regulatory capacity with which self-leadership is associated.

Theoretically, this study contributes to the literature by empirically testing self-leadership as a dispositional antecedent to SRL in the context of social media addiction, a pathway that, as discussed in the Introduction, had not been directly examined in prior research on SRL as a mediator (Gezgin, 2025; Jatiputri et al., 2025). The finding of competitive mediation also nuances the common assumption that self-regulatory traits uniformly protect against addictive digital behaviour; instead, it suggests that the association between self-leadership and addiction comprises two distinguishable and partially opposing pathways.

General self-leadership programs may not in themselves reduce problematic social media use, in practice, and with caution due to the cross-sectional design and modest R^2 . Programs that also train performance-phase self-regulation, self-monitoring, attention control, and in-task correction, should be evaluated in intervention studies.

Limitations and Future Research

There are a number of restrictions to notice. First, the cross-sectional design does not allow for causal inference; all pathways should be interpreted as associations. Second, the use of self-report opens the door to social desirability and common method bias, although the comprehensive collinearity test did not suggest substantial bias. Third, individuals were not screened using a BSMAS cut-off; hence, the sample describes addiction tendencies among frequent users rather than a clinically addicted group. Fourth, the selective sample of mostly young, female undergraduates in Indonesia restricts generalisability. Fifth, the a priori power analysis did not account for the indirect impact, which often needs bigger samples (Fritz & MacKinnon, 2007). So lesser indirect effects might have been missed. Sixth, SRL7 and SRL22 were psychometrically poor, and the AVE values for self-leadership and SRL were less than .50. Seventh, no official ethical approval was requested. Eighth, the indirect impact was minimal when we removed one straight-lining respondent. Finally, the model accounted for just 8.5% of the variation in social media addiction.

Future research should screen participants using a validated cut-off score for BSMAS (e.g., ≥ 19 ; Bányai et al., 2017), determine the sample size a priori for the indirect effect (Schoemann et al., 2017), use longitudinal or experimental designs, include attention-check items and objective usage data, obtain ethical clearance, and include FoMO, habit strength, and self-control as predictors or moderators.

Impact and Implication in a Psychological Setting. This study shows that self-leadership and social media addiction tendencies among university students are linked through two opposing pathways: a positive direct association and a negative indirect association via self-regulated learning. For psychologists and university counselors, the findings suggest that strengthening general self-management alone may not reduce problematic use, and that performance-phase self-regulation, monitoring and redirecting attention during study, deserves attention in student support programs. Given the modest explanatory power and correlational design, these implications should guide further research and program evaluation rather than immediate intervention.

Conclusion

This study suggests that self-regulated learning forms a statistically significant but modest indirect pathway between self-leadership and social media addiction tendencies among Indonesian university students, though not in a simple protective sense. Self-leadership was directly and positively associated with addiction tendencies, yet also with higher SRL, which was associated with lower tendencies. Because these paths largely offset each other, the indirect effect was sensitive to one atypical respondent, and the model explained only 8.5% of the variance, the findings are preliminary and point to performance-phase self-regulation as a target for future longitudinal and experimental research.

Suggestion

Based on the finding that performance-phase self-regulation, rather than self-leadership or self-regulation in general, appears most closely associated with lower social media addiction, future efforts in higher education may, tentatively, benefit less from prescribing a single, uniform study technique and more from strengthening students' capacity to adaptively regulate their own study behavior. Structured, cyclical techniques such as the Pomodoro method are sometimes proposed for this purpose, yet recent evidence comparing Pomodoro-style breaks with self-regulated breaks suggests that student-determined pacing can perform as well as, or better than, fixed external schedules, with Pomodoro breaks associated with faster fatigue onset in some cases (Smits et al., 2025). This is consistent with the core premise of self-regulated learning itself: it is not a fixed procedure to be imposed, but a personally adaptive capacity to be cultivated (Zimmerman, 2002). Accordingly, interventions may be better directed at helping students develop and personalize their own performance-phase strategies, whatever form these take, rather than adopting any single prescribed technique. As the present study is correlational in nature, future research employing experimental or longitudinal designs is needed to test how such personally adaptive regulation strategies relate to reductions in social media addiction among university students.

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