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The Effect of Academic Stress and Time Management on Academic Procrastination, with Cyberloafing as an Intervening Variable, among Students of SMKN 8 Jakarta

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Abstract

This study analyzes the effect of academic stress and time management on academic procrastination, mediated by cyberloafing, among SMKN 8 Jakarta students. Using a quantitative approach, a sample of 257 students was selected from a 715-students population (grades 10 and 11) via proportional random sampling and the Slovin formula. Data were analyzed using PLS-SEM via SmartPLS 4.0 software. Outer model tests confirmed convergent validity, discriminant validity (HTMT < 0,90), and reliability (composite reliability and cronbach's alpha > 0,70). Inner model evaluation yielded an R-Square of 0,082 for cyberloafing and 0,445 for academic procrastination. Direct effect tests proved academic stress (β = 0,402; t-value = 8,259; p-value = 0,000) and cyberloafing (β = 0,331; t-value = 4,702; p-value = 0,000) positively affect academic procrastination, while time management affects it negatively (β = -0,294; t-value = 5,651; p-value = 0,000). Academic stress positively affects cyberloafing (β = 0,238; t-value = 3,802; p-value = 0,000), whereas time management affects it negatively (β = -0,166; t-value = 2,742; p-value = 0,006). Cyberloafing positively mediates the effect of academic stress (β = 0,079; t-value = 3,558; p-value = 0,000) and negatively mediates the effect of time management (β = -0,055; t-value = 2,104; p-value = 0,035) on academic procrastination. Ultimately, cyberloafing serves as the starting point that triggers academic procrastination; whereas academic stress positively affects and time management negatively affects both variables, with cyberloafing proven to effectively mediate these relationships toward academic procrastination.

***Keywords*:** *academic stress, time management, cyberloafing, academic procrastination*

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INTRODUCTION

The strategic trajectory of Indonesia's national development relies heavily on the advancement of its educational sector, which is tasked with forging highly competitive human resources for the "Indonesia Emas 2045" vision. Despite this ambitious objective, systemic and psychological barriers persist. According to the 2026 World Population Review, Indonesia ranks 67th out of 203 surveyed nations in educational quality, lagging behind regional peers such as Singapore, Brunei Darussalam and Vietnam.

A prominent factor contributing to this suboptimal performance is the psychological and behavioral capacity of students, particularly the pervasive issue of academic procrastination. As a complex phenomenon involving the intentional and repeated delay of academic tasks, procrastination drastically undermines learning efficacy, task quality, and overall academic achievement (Adejuna & Ardi, 2024; Hayashi et al., 2025). Latifah et al., (2023) and Ramadhani et al., (2026) conceptualize this delay not merely as poor scheduling, but as a severe emotional regulation failure where students avoid tasks that provoke discomfort. At the vocational education level (*Sekolah Menengah Kejuruan* or SMK), the stakes are remarkably high. Vocational students face dual academic pressures such as mastering theoretical knowledge and fulfilling rigorous practical skill requirements.

Empirical data from SMKN 8 Jakarta, one of the leading vocational high school institutions in Jakarta, reveals a troubling prevalence of task avoidance. Preliminary research indicated that 75% to 95% of students admit to delaying critical assignments, often waiting until the deadline to commence work, and failing to execute their study schedules due to alternative activities. This widespread procrastination suggests a systemic failure in students' self-regulation. Studies by Dayantri & Netrawati, (2023), Ardan et al., (2024), and Gunawan & Hastuti, (2024) confirm that high procrastination rates are endemic across Indonesian high schools, leading to significant declines in learning outcomes (Yuhan & Yamleam, 2021; Lestari et al., 2022; Dianis et al., 2025). Furthermore, Musfirah et al., (2022) and Hutagalung et al., (2026) argue that procrastination is deeply tied to irrational beliefs about perfectionism and an inability to tolerate negative emotions.

Two critical internal factors profoundly influence academic procrastination; academic stress and time management. Academic stress emerges when students perceive educational demands, such as heavy workloads, high parental expectations, and fear of failure, as exceeding their cognitive and emotional resources (Lestari & Purnamasari, 2022; Pangestu & Mamahit, 2024; Maharani et al., 2025; Haritay et al., 2025). While traditional paradigms assume stress invariably hinders performance, literature presents contradictory findings. Anandari et al., (2024), Amel et al., (2024), and Dosista et al., (2025) argue that extreme stress triggers task avoidance as a protective mechanism. Conversely, Arwina et al., (2022) and Rahayu & Sari, (2023) suggest that stress can sometimes act as a catalyst, pushing students to quickly complete tasks to alleviate anxiety.

Simultaneously, time management as the capability to plan, organize, and prioritize tasks effectively acts as a fundamental defence against procrastination. A lack of temporal structuring leaves students vulnerable to distractions and poor prioritization (Bunda & Sano, 2023; Krisdayanti et al., 2024; Turnip et al., 2025; Aggraini & Primanita, 2025). Amandari et al., (2025), Cahyaningrum et al., (2025), and Patzak et al., (2025) highlight that effective time management involves setting priorities, scheduling, organized behavior, and perceived control over time.

Beyond these internal factors, the modern educational landscape introduces a potent external variable: cyberloafing. Defined as the unauthorized use of the internet and digital devices for non-academic purposes during designated learning periods or class hours, cyberloafing acts as an immediate, accessible emotional refuge from academic pressure, severely degrading student focus (Margaretha et al., 2022; Nuzula & Fahmawati, 2024; Asghar & Tariq, 2025).

This research proposes that cyberloafing is an active mediating mechanism. When students lack effective time management or experience overwhelming academic stress, their willpower is depleted, prompting them to seek short-term psychological relief through digital escapism (Asghar & Tariq, 2025). Based on this theoretical synthesis, the following hypotheses are formulated:

1. (H1) Academic stress has a positive effect on academic procrastination;
2. (H2) Time management has a negative effect on academic procrastination;
3. (H3) Academic stress has a positive effect on cyberloafing;
4. (H4) Time management has a negative effect on cyberloafing;
5. (H5) Cyberloafing has a positive effect on academic procrastination;
6. (H6) Academic stress positively affects academic procrastination through cyberloafing; and
7. (H7) Time management negatively affects academic procrastination through cyberloafing.

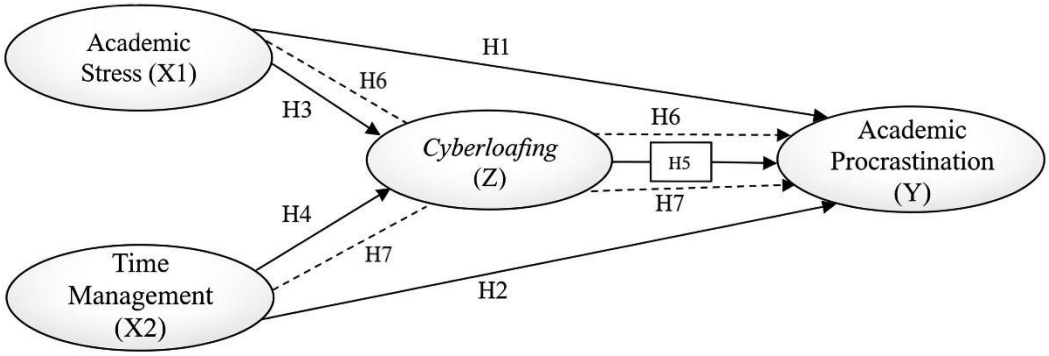


Figure 1. Conceptual Research Model

METHODS

This study employed a quantitative, cross-sectional survey design to empirically test the theoretical model and hypothesized relationships, providing a systematic approach to analyzing causality through statistical techniques (Ali et al., 2022; Dhewy, 2022) . The target population comprised 715 students from grades X and XI at SMKN 8 Jakarta, spread across various vocational programs. Grade XII students were deliberately excluded due to their distinct academic schedules involving external practical internships (PKL), which alter their stress and procrastination dynamics fundamentally compared to underclassmen. A sample size of 257 students was determined using Slovin's formula with a 5% margin of error. The selection was executed via proportional random sampling to ensure accurate representation across all classes and majors (Latifah et al., 2023; Anugraheni et al., 2023) . Data collection utilized structured digital questionnaires distributed via Google Forms. The instrument employed a 6-point Likert scale (ranging from 1 = Strongly Disagree to 6 = Strongly Agree). The deliberate omission of a neutral midpoint was implemented to force definitive responses and mitigate central tendency bias (Kusmaryono et al., 2022; Koo & Yang, 2025) .

The measurement model was constructed based on established indicators from the literatures:

1. Academic stress was measured via items evaluating pressure from study, workload, worry about grades, self-expectation, and despondency (Lestari & Purnamasari, 2022; Maharani et al., 2025; Haritay et al., 2025).
2. Time management was assessed through setting goals and priorities, planning and scheduling, preference for organization, and perceived control of time (Amandari et al., 2025; Cahyaningrum et al., 2025; Patzak et al., 2025).
3. Cyberloafing was captured via sharing, shopping, real-time updating, accessing content, and gaming activities during class (Dinarti & Satwika, 2022; Güleç & Yıldız, 2024; Fuadi et al., 2025).
4. Academic procrastination was measured by postponing both the intention to begin studying and the actual commencement of study activities, tardiness in completing assignments, study intention-behavior discrepancy and doing things other than studying (Nabila, 2023; Arlinda et al., 2025).

Prior to the main data collection, a pilot study involving 30 students was conducted to refine the instrument (Taherdoost, 2022; Subhaktiyasa, 2024). The instruments contained 60 items. The pilot study resulted in the removal of 5 items. Following the main data collection, a more rigorous refinement process was conducted, leading to the elimination of an additional 15 items with outer loadings below 0,70 after the distribution of questionnaire to the final 257 respondents. Furthermore, the "worry about grades" indicator from the academic stress variable was excluded due to the presence of critically invalid items identified after the final questionnaire distribution to the main respondents. As a result, the final research instrument consisted of 40 valid items, which were retained for subsequent tests and hypothesis testing, as presented in the following table 1 in the next section.

The quantitative data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) via SmartPLS 4.0 software to resolve complex predictive relationships involving intervening paths (Hair et al., 2022). The evaluation proceeded through a two-phase protocol starting with the measurement model (outer model) to establish construct validity and reliability (Hair et al., 2022; Subhaktiyasa, 2024). Convergent validity was assessed using outer loadings, where indicator values ≥ 0,708 are highly recommended, although loadings down to 0,50 can be retained if the Average Variance Extracted (AVE) remains above the minimum threshold of 0,50 (Hair et al., 2022; Suwastika et al., 2025). Internal consistency was determined by ensuring both cronbach's alpha and composite reliability exceed the 0,70 benchmark, while discriminant validity was verified using the Heterotrait-Monotrait Ratio (HTMT) with a critical cutoff value below 0,85, or a conservative limit below 0,90.

The second phase comprised inner model assessment, which began with collinearity testing using the Variance Inflation Factor (VIF), requiring values below 3,0 – 5,0 to rule out critical multicollinearity. Model explanation was measured through the coefficient of determination (R^2), representing weak ($R^2 >$ 0,25), moderate ($R^2 >$ 0,50), or substantial ($R^2 >$ 0,75) effects. The relative contribution of each path was evaluated using effect size (f^2), categorized as small ($f^2 >$ 0,02), medium ($f^2 >$ 0,15), or large ($f^2 >$ 0,35). Out-of-sample predictive relevance was validated via the PLSpredict algorithm following Lusyani & Ruslim, (2026), ensuring $Q^2_{predict}$ and confirming high predictive power if the Root Mean

Square Error (RMSE) or Mean Absolute Error (MAE) values from the PLS-SEM model were lower than the linear model (LM) baseline. Finally, hypothesis testing was conducted through non-parametric bootstrapping with 5.000 resamples to evaluate direct and indirect effects, where relationships are deemed statistically significant if the t-value > 1,96 and the p-value ≤ 0,05 (Hair et al., 2022).

RESULTS & DISCUSSION

Demographic Profile and Descriptive Statistics

The demographic distribution of the 257 respondents revealed a female majority (64,59%) compared to males (35,41%), reflecting the gender composition of the vocational programs (e.g., office management, accounting) at SMKN 8 Jakarta. The sample was evenly split between grade X (49,8%) and grade XI (50,2%). Descriptive analysis provided deep insights into student behavior. For academic stress, the highest average score (Mean = 4,817) was associated with the fear of disappointing parents due to poor grades, highlighting that external family expectations constitute the primary psychological burden rather than daily study routines (Mean = 2,809). In terms of time management, students showed a high awareness of seeking distraction-free environments (Mean = 4,969), but struggled significantly with executing daily task lists (Mean = 4,121). Cyberloafing behaviors were dominated by social media usage during class (Mean = 2,591), while online game purchases were minimal (Mean = 1,549). Academic procrastination was primarily driven by the preference for more enjoyable activities over academic duties (Mean = 3,117).

Outer Model

The outer model evaluation ensures the construct validity and reliability of the measurement instruments including some of calculations such as convergent, discriminant validity and composite reliability. Convergent validity was achieved after the iterative removal of items with outer loadings below the 0,7 threshold, resulting in 40 final items with robust loadings ranging from 0,701 to 0,846, as presented in Table 1 below along with the AVE results in the next table (Table 2).

Table 1. Results of Outer Loadings

Variables	Indicators		Items	Outer Loadings
Academic Stress (X1)	Pressure from study	SA1	I feel a lot of pressure in my daily study routine.	0,762
		SA3	I feel concern about my future education and career give me academic pressure.	0,730
	Workload	SA6	I feel that the burden of school assignments to be completed is very overwhelming.	0,702
	Self-expectation	SA11	I feel stressed when I fail to meet the academic standards that I set for myself.	0,703
		SA12	When I fail to meet my personal expectations, I feel my abilities are not good enough.	0,738
	Despondency	SA14	I feel a lack of confidence in the academic grades I have achieved.	0,707
Time Management (X2)	Setting goals and priorities	MW1	I break down large tasks into smaller, more manageable parts.	0,711
		MW2	I set deadlines for myself in completing tasks.	0,763

Variables	Indicators		Items	Outer Loadings
		MW3	I determine a priority scale to establish the order of tasks to be done.	0,716
		MW4	I set short-term goals regarding what I want to achieve in the next few days.	0,701
	Planning and scheduling	MW5	I make a to-do list of things to be done every day.	0,702
	Preference for organization	MW10	I always ensure the workflow of my tasks is well-organized and systematic from start to finish.	0,781
		MW11	I am able to complete tasks on time.	0,748
		MW12	I do not neglect activities that I have already scheduled to do.	0,819
	Perceived control of time	MW13	I feel capable of managing my own time well even when my schedule is very tight.	0,726
		MW14	I can limit my time spent on social media or playing games so it does not disrupt my focus while studying.	0,752
Cyberloafing (Z)	Sharing	CL1	I open social media applications (such as Instagram/TikTok, etc.) during class hours.	0,779
		CL2	I check my friends' uploads or posts on social media during class hours.	0,843
		CL3	I share content (photos, videos, etc.) on social media during class hours.	0,846
		CL4	I update my status on social media during class hours.	0,758
	Shopping	CL6	I browse products in online stores during the class hours.	0,788
	Real-time updating	CL8	I check the schedule of my favorite live streaming during class hours.	0,749
		CL9	I read the latest news on social media during class hours.	0,779
		CL10	I participate in commenting on trending topics on the internet during class hours.	0,735
	Accessing online content	CL12	I watch online videos (such as YouTube or TikTok) during class hours.	0,819
		CL13	I download non-educational applications or files during class hours.	0,738
	Gaming/gambling	CL14	I simply open game applications to check for events during school hours.	0,719
Academic Procrastination (Y)	Postponing both the intention to begin studying and the actual commencement of study activities	PA1	I often delay starting school assignments given by the teacher.	0,800
		PA2	I have a tendency to postpone completing tasks that should be done today until tomorrow.	0,808
		PA3	I often find it difficult to complete school assignments directly on time.	0,795
	Tardiness in completing assignments	PA4	I am forced to do assignments in a hurry because the deadline is approaching.	0,754
		PA5	I often feel panicked because I am chasing an approaching deadline.	0,702

Variables	Indicators	Items		Outer Loadings
		PA6	My delay in starting assignments results in suboptimal work that does not meet standards.	0,706
	Study intention-behavior discrepancy	PA7	I tend to avoid or ignore new assignments if I feel the burden of other school assignments has piled up.	0,738
		PA8	While working on assignments, my focus is often diverted to other things off-topic, hindering task completion.	0,807
		PA9	I often feel annoyed and emotionally pressured when I have to complete school assignments.	0,738
		PA10	I feel a loss of motivation to do assignments when the amount of material or tasks given by the teacher is considered too much.	0,746
	Doing things other than studying	PA11	My desire to do other more enjoyable activities often overrides my intention to start working on assignments immediately.	0,793
		PA12	I often fail to focus on completing school assignments because I prefer pursuing pleasure in other activities, such as extracurriculars unrelated to academics.	0,735
		PA13	My assignment progress is often neglected because I am too absorbed in chatting and doing other fun activities with friends.	0,772

Source: Processed by the researcher via SMARTPLS (2026)

Table 2. Results of AVE

Variables	Average Variance Extracted (AVE)
Academic Stress (X1)	0,515
Time Management (X2)	0,546
Cyberloafing (Z)	0,606
Academic Procrastination (Y)	0,579

Source: Processed by the researcher via SMARTPLS (2026)

Discriminant validity was evaluated using the Heterotrait-Monotrait Ratio (HTMT), where all values were found to be well below the stringent 0,85 threshold, indicating that each latent variable represents a distinct theoretical construct without empirical overlap, as shown in the table below.

Table 3. Results of HTMT

HTMT	Academic Stress	Time Management	Cyberloafing	Academic Procrastination
Academic Stress (X1)				
Time Management (X2)	0,150			
Cyberloafing (Z)	0,235	0,148		
Academic Procrastination (Y)	0,526	0,327	0,472	

Source: Processed by the researcher via SMARTPLS (2026)

Composite reliability was assessed using Cronbach's alpha as well as composite reliability coefficients (rho_a and rho_c), with all constructs exceeding the recommended 0,7 benchmark. Among the constructs, cyberloafing demonstrated the highest level of reliability, as presented in the table below.

Table 4. Results of Composite Reliability

Variables	*Cronbach's alpha*	*Composite reliability (rho_a)*	*Composite reliability (rho_c)*
Academic Stress (X1)	0,815	0,822	0,864
Time Management (X2)	0,911	0,924	0,923
Cyberloafing (Z)	0,936	0,952	0,944
Academic Procrastination (Y)	0,939	0,941	0,947

Source: Processed by the researcher via SMARTPLS (2026)

Inner Model

Inner model evaluation ensures the adequacy of the structural model and examines the relationships among constructs using metrics such as VIF, R^2, and f^2. In contrast, PLSpredict and Q^2 evaluated outside the inner model to confirm the constructs predictive relevance and applicability for future research. Collinearity assessment was conducted using the Variance Inflation Factor (VIF), where the inner model values ranged from 1,001 to 1,089, far below the recommended threshold of 3,0 thereby indicating the absence of critical multicollinearity among the predictor constructs, as shown in the table below.

Table 5. Results of VIF

VIF	**Academic Stress**	**Time Management**	**Cyberloafing**	**Academic Procrastination**
Academic Stress (X1)			1,001	1,062
Time Management (X2)			1,001	1,030
Cyberloafing (Z)				1,089
Academic Procrastination (Y)				

Source: Processed by the researcher via SMARTPLS (2026)

Coefficient of Determination (R^2) and Effect Size (f^2):

The model explains 44.5% (R^2 = 0,445) of the variance in academic procrastination, categorizing its explanatory power as moderate to strong. Meanwhile, 8,2% (R^2 = 0,082) of the variance in cyberloafing is explained by academic stress and time management. This indicates that while the model strongly predicts academic procrastination, its ability to explain cyberloafing is relatively weak. Academic stress and time management contribute only slightly to cyberloafing behavior, suggesting that other factors, such as digital habits, task boredom, or low self-regulation, play a more dominant role. Academic stress exerts a strong effect on academic procrastination (f^2 = 0,274), whereas time management (f^2 = 0,152) and cyberloafing (f^2 = 0,181) exert moderate effects.

Out-of-Sample Predictive Relevance (PLSpredict):

The $Q^2_{predict}$ values for cyberloafing (0,060) and academic procrastination (0,315) were greater than zero. A comparison of the Root Mean Square Error (RMSE) and Mean Absolute Error (MAE) between the PLS-SEM model and the Linear Model (LM) demonstrated that the PLS-SEM model yielded lower prediction errors across almost all indicators, confirming a high out-of-sample predictive power.

Hypotheses Testing and Discussion

The bootstrapping procedure using 5.000 subsamples provided comprehensive support for all seven proposed hypotheses, as presented in the figure and the table below.

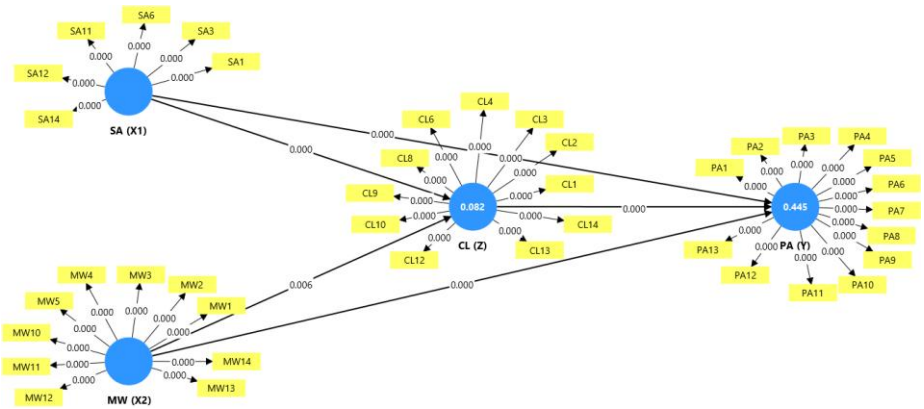


Figure 2. Bootstrapping results

Table 5. Results of Hypotheses Testing

Hypothesis	Path	Original Sample (β)	T-Value	P-Value	Decision
H1	Academic Stress → Academic Procrastination	0,402	8,259	0,000	Accepted
H2	Time Management → Academic Procrastination	-0,294	5,651	0,000	Accepted
H3	Academic Stress → Cyberloafing	0,238	3,802	0,000	Accepted
H4	Time Management → Cyberloafing	-0,166	2,742	0,006	Accepted
H5	Cyberloafing → Academic Procrastination	0,331	4,702	0,000	Accepted
H6	Stress → Cyberloafing → Academic Procrastination	0,079	3,558	0,000	Accepted
H7	Time Management → Cyberloafing → Academic Procrastination	-0,055	2,104	0,035	Accepted

Source: Processed by the researcher via SMARTPLS (2026)

Direct Effects Analysis (H1 - H5):

The analysis confirmed a robust positive relationship between academic stress and academic Procrastination (H1, $\beta = 0{,}402$, $p < 0{,}001$). This indicates that stress functions as a maladaptive psychological burden rather than a motivational catalyst. When vocational students are overwhelmed by expectations, particularly parental pressure, they resort to task avoidance as a defense mechanism to mitigate immediate psychological discomfort. This insight perfectly aligns with the findings of Amel et al., (2024), Dosista et al., (2025), and Gerald et al., (2025), who documented that the fear of failing to meet internal and external standards triggers avoidance behaviors. The cognitive exhaustion caused by demanding vocational curricula fundamentally depletes the self-regulatory resources required to initiate complex tasks (Astari & Nastiti, 2023; Sidqi et al., 2025).

Conversely, time management demonstrated a negative effect on academic procrastination (H2, β = -0,294, $p < 0,001$). Students equipped with superior organizational skills such as segmenting large tasks and setting personal deadlines exhibit higher self-efficacy, making them less susceptible to the inertia of academic procrastination. This echoes the assertions of Silalahi & Saragih, (2022) and Wahidah & Khoirunnisa, (2022) who state that structured scheduling acts as a psychological anchor, protecting students from the allure of short-term distractions.

The model also validated that academic stress drives cyberloafing (H3, β = 0,238, $p < 0,001$). This presents a crucial second-order insight: in contemporary educational environments, digital devices serve as the most accessible conduit for emotional escapism. The cognitive fatigue induced by intense learning depletes self-control, leading students to scroll through social media as a form of rapid, low-effort psychological relief (Nweke et al., 2024; Muharammi et al., 2025; Anastasya, 2025). In parallel, effective time management reduces cyberloafing (H4, β = -0,166, $p = 0,006$). Structured temporal planning eliminates the unstructured "idle time" during which students are most vulnerable to digital deviance (Korzynski & Protsiuk, 2022; Banerjee et al., 2025).

Cyberloafing itself acts as a potent catalyst for Academic Procrastination (H5, β = 0,331, $p < 0,001$). The mechanism here involves deep attention shifting and temporal distortion. When students engage in cyberloafing, the dopamine-driven feedback loops of social media distort their perception of time. A brief intended break cascades into prolonged distraction, displacing the cognitive resources required for academic task initiation (Margaretha et al., 2022; Maulidhani & Andriani, 2025).

Indirect (Mediating) Effects Analysis (H6 & H7):

The most profound insights of this study lie in the mediating role of cyberloafing. The data confirmed that cyberloafing mediates the positive relationship between academic stress and academic procrastination (H6, β = 0,079, $p < 0,001$). This establishes a clear psychological trajectory: Stress does not instantly result in task delay; rather, it creates an emotional deficit that students attempt to fill via digital escapism (cyberloafing), which subsequently consumes their productive time and causes procrastination (Güleç & Yıldız, 2024; Agrawal & Krishna, 2025).

Similarly, cyberloafing mediates the negative relationship between time management and academic procrastination (H7, β = -0,055, $p = 0,035$). Poor time management creates structural voids in a student's daily routine. These voids are swiftly occupied by unauthorized digital activities, which act as a vehicle converting mere temporal disorganization into concrete academic failure (Korzynski & Protsiuk, 2022; Asghar & Tariq, 2025).

CONCLUSION

Based on the results of data analysis, hypothesis testing, and the discussion that has been elaborated, seven main conclusions can be drawn from this research. First, academic stress (X1) is proven to have a positive effect on academic procrastination (Y) among students of SMKN 8 Jakarta, with a t-statistic value of 8,259 and a significance of 0,000, meaning that an increase in academic stress will

heighten task-delaying behavior. Second, time management (X2) is proven to have a negative effect on academic procrastination (Y) with a t-statistic value of 5,651 and a significance of 0,000, indicating that better time management skills lower the tendency of students to procrastinate. Third, academic stress is proven to have a positive effect on cyberloafing (Z) with a t-statistic value of 3,802 and a significance of 0,000, showing that high study pressure triggers students to seek digital entertainment. Fourth, time management is proven to have a negative effect on cyberloafing with a t-statistic value of 2,742 and a significance of 0,006, revealing that students with proper time organization tend to avoid digital distractions during lessons or class hours. Fifth, cyberloafing is proven to have a positive effect on academic procrastination with a t-statistic value of 4,702 and a significance of 0,000, meaning that digital entertainment disturbances exacerbate task delays. Sixth, cyberloafing is proven to positively mediate the effect of academic stress on academic procrastination, with a t-statistic value of 3,558 and a significance of 0,000. Seventh, cyberloafing is proven to negatively mediate the effect of time management on academic procrastination, with a t-statistic value of 2,104 and a significance of 0,035.

The theoretical implication of this research shows that the procrastination behavior of students is predominantly driven by the tendency to choose more enjoyable activities. The primary source of stress for students does not stem from learning routines, but rather from the fear of disappointing parental expectations. Students attempt to maintain focus by selecting comfortable learning environments, while the most dominant form of cyberloafing is social media usage in the classroom. Practically, these findings underscore the urgency for schools, educators, and parents to synergize in guiding students to manage stress, optimize time management, and implement wise gadget restrictions in the academic environment.

This research possesses several limitations that future researchers must consider. First, the study relies solely on a quantitative approach through questionnaires without direct observation or interviews, causing an incomplete exploration of the deep psychological motives of students. Second, the research population is restricted to grade X (tenth) and XI (eleventh) students in a single vocational institution in an urban area, making it difficult to generalize the results to a broader demographic. Third, the coefficient of determination for the cyberloafing variable remains relatively low (8,2%), indicating the existence of other unexamined variables. Fourth, the use of a cross-sectional approach limits the research's ability to dynamically evaluate causal relationships over time.

Future research is advised to apply a mixed-method approach to elaborate on the underlying reasons behind utilizing social media as a coping mechanism. Future researchers are also recommended to expand the research locations to various schools and more diverse regions, as well as incorporate other relevant variables such as gadget addiction, personality factors, or peer conformity. Furthermore, employing a longitudinal design is highly recommended so that the development of the academic procrastination behavior of students can be comprehensively observed across various time periods.

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