

## THE IMPACT OF TIKTOK ADDICTION ON ACADEMIC PERFORMANCE AMONG UNIVERSITY STUDENTS: ACADEMIC PROCRASTINATION AS A KEY MEDIATOR

Zulfa Irawati<sup>1</sup>, Imam Riefly Aditomo<sup>\*2</sup>, Yashinta Anisa Sari Ayuningtyas<sup>3</sup>  
<sup>1,2,3</sup>Management Study Program, Faculty of Economics and Business,  
Universitas Muhammadiyah Surakarta, Indonesia

\* Corresponding Author: [ira197@ums.ac.id](mailto:ira197@ums.ac.id)

### ARTICLE INFO

#### Article history:

Received : Sep 03, 2025  
Revised : Nov 28, 2025  
Accepted : Dec 23, 2025  
Available online : Dec 31, 2025

#### Keywords:

Academic procrastination, TikTok  
addiction, academic performance, social  
media, and college students.

### ABSTRACT

This study investigates the relationship between TikTok addiction and academic performance among university students, with academic procrastination examined as a mediating variable. Grounded in self-escape theory, the research explores how excessive TikTok use may act as a maladaptive coping mechanism that contributes to procrastinatory behaviors, ultimately affecting academic outcomes. This study used a cross-sectional design and data collected from 287 students at Universitas Muhammadiyah Surakarta through an online questionnaire. The analysis was conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM). The results indicate that TikTok addiction has no significant direct effect on academic performance.

However, it significantly increases academic procrastination, which in turn negatively affects academic performance. The mediation analysis confirmed that academic procrastination plays a key intermediary role in the relationship between TikTok use and academic success.

This is an open access article under the [CC BY-NC](https://creativecommons.org/licenses/by-nc/4.0/) license.

Copyright © 2025 by Author. Published by Universitas Bina Bangsa Getsempena



### INTRODUCTION

Following its establishment, social media such as Facebook, Twitter, TikTok, Instagram, and YouTube have been present as a place to interact for people around the world, especially teenagers in the age range of 18-22 years old, the majority of whom use it intensively (Hill et al., 2024). Social media is able to provide opportunities for people from various places to communicate and exchange various kinds of information through the community in it (Pekpazar et al., 2021). Social media users continue to increase every year. Based on data obtained from Data Reportal, social media users have increased by almost 6% from 2023 and currently 5.17 billion users (Kemp, 2024). The increase in social

---

media users from time to time is inseparable from its role for various purposes such as messaging, sending emails, sharing knowledge, chatting, advertising, buying and selling goods, booking plane and hotel tickets, and as a means of learning (Gulzar et al., 2021).

Since its launch in 2016 in China, TikTok has become a new phenomenon in social media, especially for the younger generation (Hill et al., 2024). TikTok is becoming a social media loved by the younger generation with a total of 1 billion monthly active users and placing TikTok in the top six most used social media worldwide (Kemp, 2025). TikTok can be accessed through smartphones with Android and iOS operating systems that allow users to share and interact with each other through short-duration videos (Rogowska & Cincio, 2024). The unique algorithm system in regulating content and interaction between users and supported by superior features such as FYP (For You-Page) makes the addiction to TikTok experienced by users more severe than other social media (Montag et al., 2021; Qin et al., 2022; Rogowska & Cincio, 2024).

On the other hand, excessive use of social media can lead to addiction (Pekpazar et al., 2021). Social media addiction is the excessive use of social media and the habit of checking social media that encourages people to ignore other activities (Zivnuska et al., 2019). People who have experienced social media addiction will find it difficult to limit their time using social media which can affect them in doing other activities (Rogowska & Cincio, 2024). For students, this can affect in various aspects, one of which is academic performance (Hou et al., 2019; Pekpazar et al., 2021). Performance is an abstract concept so it must have certain indicators (Fausi & Irawati, 2021).

The adverse effects of TikTok, specifically regarding academic procrastination, require more comprehensive investigation, highlighting a gap in the academic literature (Shi et al., 2021). Existing research indicates that academic procrastination negatively impacts academic performance, with individuals who procrastinate often experiencing lower achievement levels (Suhadianto et al., 2021). The self-escape theory posits that individuals may engage in procrastination as a means of escaping from stressors or anxieties associated with academic responsibilities (Bakar & Khan, 2016; García-Ros et al., 2022). This theory suggests that TikTok addiction could serve as a maladaptive coping mechanism, where students retreat into the distraction of social media rather than confronting their academic tasks, leading to further procrastination and ultimately diminished academic performance (Lu & Zhao, 2018; Malkoç & Mutlu, 2018).

Thus, understanding TikTok addiction within the framework of self-escape theory provides insight into the dynamics between digital behavior, procrastination, and

---

academic outcomes. Research indicates that a significant proportion of students reported engaging in excessive social media usage during this period, correlating with increased procrastination and, consequently, lower academic achievements (Daryani et al., 2021; Gayary & Kalita, 2025). Therefore, it is imperative to dissect these connections further to illuminate how TikTok addiction, as a diversion from academic obligations, fosters procrastination, ultimately mediating its negative effects on academic performance. This research aims to contribute to the understanding of academic procrastination as a mediator in the relationship between TikTok addiction and academic success among college students. By leveraging the self-escape theory, the study seeks to provide clarity on how digital distractions influence academic behaviors and outcomes, thus addressing an important gap in current academic literature.

## **LITERATURE REVIEW**

### **TikTok Addiction**

TikTok addiction, a specific manifestation of social media addiction, is increasingly becoming a subject of research due to its rapid rise in popularity among various demographics, especially younger users. It can be defined as a pathological psychological dependency characterized by excessive and problematic usage of the TikTok app, which interferes with daily responsibilities and social interactions (Akhtar & Islam, 2023; Ali, 2023). This form of addiction can lead individuals to engage with the app compulsively, seeking to escape from real-world stresses and emotional issues, highlighting the integral role of escapism in social media usage (Yang et al., 2023). Research suggests that TikTok's design, particularly its advanced algorithm, perpetuates addictive behaviors by creating a feedback loop of continuous engagement through tailored content that captivates users (Galanis et al., 2024; Qin et al., 2022).

### **Academic Procrastination**

It is defined as the tendency to postpone intended tasks, such as studying or completing assignments, often resulting in increased stress and diminished academic performance (Onwuegbuzie, 2004; Popova & Pronenko, 2023; Prihadi et al., 2023). According to Chen et al., academic procrastination can be viewed as a failure in self-regulation, where individuals struggle to monitor and control their thoughts, emotions, and task-related behaviors, leading to chronic postponement of academic responsibilities (Chen et al., 2024). Williams and Edwards provide a formal definition of academic

---

procrastination, describing it as the voluntary delay of an intended course of action related to academic work, despite an expectation of worse outcomes as a result of such delay (Williams & Edwards, 2021). Thus, understanding and addressing academic procrastination is vital for fostering better academic environments and enhancing students' academic performance.

### Academic Performance

Academic performance is generally defined as the level of achievement demonstrated by students in their academic endeavors, typically measured through various indicators such as grades, test scores, and overall educational outcomes (Mašková & Kučera, 2021; Poropat, 2009). This performance can reflect a student's understanding of material taught, their ability to apply knowledge, and the quality of their work across different subjects or disciplines (Saeedi et al., 2019). Additionally, Mašková and Kučera note that academic performance is often assessed using Grade Point Average (GPA) as a common metric, indicating the extent to which a student meets or exceeds academic expectations (Mašková & Kučera, 2021).

Based on the description of the literature and previous studies, the hypotheses are presented as follows:

H1: TikTok addiction has a negative impact on academic performance.

H2: TikTok addiction is positively associated with academic procrastination.

H3: Academic procrastination negatively affects academic performance.

H4: Academic procrastination mediates the relationship between TikTok addiction and academic performance.

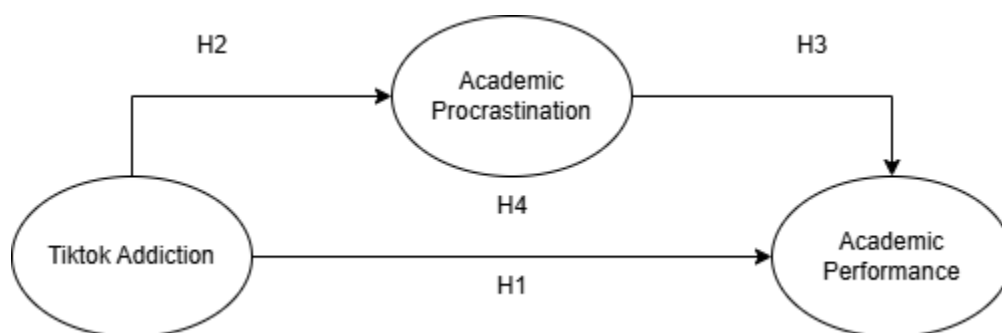


Figure 1. Research Framework

### RESEARCH METHOD

This study was conducted with a cross-sectional quantitative approach. Samples were collected using purposive sampling technique. The sample criteria for this study are

---

active students of the Management Study Program, Faculty of Economics and Business, University of Muhammadiyah Surakarta, in the even semester of the 2024/2025 academic year, and using the TikTok application. The minimum rule of sample size required is 10 times the number of indicators of the maximum number of arrows pointing to the latent variable in the PLS path model (Hair et al., 2022). The online survey was conducted using *Google Forms* and distributed via *WhatsApp*. After the distribution of the questionnaire from March 3 to April 12, 2025, 287 respondent's data were obtained. This amount is in accordance with the minimum number of samples required.

The analysis method used in this study is partial least squares structural equation modeling (PLS-SEM) using *Smart PLS 4*. In carrying out PLS-SEM, there are two main processes, namely testing the measurement model (outer model) and testing the structural model (inner model) (Hair et al., 2022). In the testing of the outer model, validity and reliability tests were carried out. The validity test is carried out through two processes, namely the convergent validity test and the discriminant validity test. According to Hair et al., key indicators for evaluating convergent validity are the loading factors and the Average Variance Extracted (AVE) (Hair, Risher, et al., 2019). The loading factors of the indicators on their respective constructs should ideally exceed 0.70, though some scholars argue that values above 0.50 may be acceptable in certain contexts where constructs are newly developed or where the sample size is relatively small (Richter et al., 2016; Ringle et al., 2018). In terms of AVE, Hair et al. suggest that a construct must achieve a minimum AVE of 0.50 to confirm that it captures more than 50% of the variance of its indicators (Hair, Risher, et al., 2019). Regarding discriminant validity, two primary methods are widely recommended: the Fornell-Larcker criterion and the Heterotrait-Monotrait (HTMT) ratio. The HTMT ratio criterion, a more recent approach, posits that for adequate discriminant validity, the HTMT value should ideally be less than 0.85 (Hair, Black, et al., 2019). For reliability, the two primary indices utilized in PLS-SEM are Composite Reliability (CR) and Cronbach's Alpha. A minimum value of 0.70 for CR and Cronbach's Alpha is commonly recommended (Hair, Black, et al., 2019).

Once the measurement model is validated, the second phase involves structural model assessment, where hypotheses regarding the relationships between constructs are tested (Sarstedt et al., 2022). This phase focuses on examining the path coefficients, which represent the strength and significance of relationships between variables. The bootstrapping procedure is used to assess the significance of the path coefficient and evaluate its value (Hair, Risher, et al., 2019). Hair et al. posit that a significance level (p-

---

value) of less than 0.05 supports the existence of a relationship, while the path coefficients should ideally reflect substantial practical significance (Hair et al., 2014). Researchers also examine the  $R^2$  and effect size ( $f^2$ ), with adequate  $R^2$  values generally suggested to be above 0.10, which highlights the amount of variance in dependent variables explained by independent variables (Sarstedt et al., 2022). The effect size ( $f^2$ ) is a measure used to quantify the strength and importance of an independent variable's contribution to explaining the variance of a dependent variable. According to Cohen's conventions, effect sizes are classified as small (0.02), medium (0.15), and large (0.35) (Cohen, 1992; Kock & Hadaya, 2016).

Finally, the predictive performance of this PLS-SEM model was evaluated using the PLSpredict approach. One of the key metrics within PLSpredict is  $Q^2$ , which quantifies the predictive relevance of a model. A  $Q^2$  value greater than zero signifies that the model can predict outcomes better than the mean of the target variable, while a  $Q^2$  value that is less than zero indicates that the model performs poorly (Shmueli et al., 2019). Root Mean Square Error (RMSE) is another critical statistic within PLSpredict, measuring the average differences between the predicted and actual values of the target variable. The minimum criteria for RMSE in PLSpredict involve a comparative analysis against a Linear Model (LM) benchmark, which serves as a naive prediction model for similar constructs (Jayeola et al., 2022). The RMSE calculated from the PLS-SEM model should be lower than that from the LM. If the PLS-SEM RMSE is consistently lower across all indicators compared to the LM RMSE, it suggests that the model has high predictive power (Deng & Yu, 2023; Hengevoss & Schnurbein, 2022; Jayeola et al., 2022). Conversely, suppose most indicators show higher RMSE values compared to LM. In that case, the model can be considered to have low predictive power, whereas if there is most of the indicators show low RMSE, the model can be categorized as having medium predictive power (Manfrin et al., 2019; Weedige et al., 2019).

## **RESULT AND DISCUSSION**

### **Demographics of the respondents**

As shown in Table 1, the demographic profile of the respondents ( $N = 287$ ) indicated that the majority were female (69.34%), while males accounted for 30.66% of the sample. In terms of academic background, most participants were enrolled in the Management program (76.66%), followed by Accounting (12.20%) and Economics Development (11.15%). In terms of TikTok usage, entertainment was the primary reason

cited by respondents (84.32%), while only 8.01% reported using the platform for academic assignments and 7.67% for work-related purposes. Analysis of usage duration indicated that 30.66% of respondents used TikTok for four or more hours daily, 25.44% for three to four hours, and 33.10% for one to two hours. Only 10.80% reported usage of one hour or less. These results suggest that TikTok is predominantly utilized for entertainment and is widely integrated into the daily routines of students.

**Table 1.** Demographics of the respondents

Category	Amount	Percentage
<b>Gender</b>		
Male	88	30,66%
Female	199	69,34%
Grand Total	287	100,00%
<b>Study Program</b>		
Accounting	35	12,20%
Economics Development	32	11,15%
Management	220	76,66%
Grand Total	287	100,00%
<b>Reason using TikTok</b>		
Entertainment	242	84,32%
Work-related	22	7,67%
Assignment	23	8,01%
Grand Total	287	100,00%
<b>Duration using TikTok (daily)</b>		
≤ 1 hour	31	10,80%
1-2 hours	73	33,10%
3-4 hours	88	25,44%
≥ 4 hours	95	30,66%
Grand Total	287	100,00%

### Measurement Model Analysis

As shown in Table 2, the result of convergent validity and reliability meets the recommended criteria for measurement model adequacy. The factor loadings for all indicators measuring Academic Procrastination and TikTok Addiction exceeded the ideal threshold of 0.70. Specifically, the loading values for Academic Procrastination ranged from 0.774 to 0.856, while those for TikTok Addiction ranged from 0.821 to 0.871. These values indicate that each item has a strong association with its respective latent construct and contributes meaningfully to the construct's measurement. The average variance extracted (AVE) for both constructs was above the threshold of 0.50, demonstrating that a substantial proportion of the variance in the observed indicators is explained by the underlying latent variables. Academic Procrastination had an AVE of 0.676, while TikTok Addiction achieved a slightly higher AVE of 0.726, indicating good convergent validity for both constructs.

**Table 2.** Convergent Validity and Reliability Result

Variable	Ind.	M	SD	Loading factors	Cronbach's alpha	Composite reliability (CR)	Average variance extracted (AVE)
<b>Academic Performance</b>	AP	2,780	0,414	1,000			
<b>Academic Procrastination</b>	PR.1	2,537	1,197	0,835	0,881	0,912	0,676
	PR.2	2,226	1,105	0,807			
	PR.3	2,770	1,205	0,774			
	PR.4	2,258	1,164	0,836			
	PR.5	2,404	1,152	0,856			
<b>TikTok Addiction</b>	TTA.1	3,578	1,172	0,851	0,925	0,941	0,726
	TTA.2	3,537	1,200	0,871			
	TTA.3	3,523	1,165	0,821			
	TTA.4	3,345	1,087	0,832			
	TTA.5	3,073	1,174	0,868			
	TTA.6	3,150	1,184	0,866			

Regarding internal consistency, Cronbach's alpha values were well above the acceptable cutoff of 0.70. Academic Procrastination yielded an alpha of 0.881, and TikTok Addiction recorded a higher alpha of 0.925, reflecting strong reliability in the measurement instruments. The constructs also demonstrated excellent composite reliability (CR), with values of 0.912 for Academic Procrastination and 0.941 for TikTok Addiction. These CR scores further confirm the internal consistency and reliability of the constructs used in the study.

**Table 3.** Discriminant validity (HTMT)

Variable	Academic Performance	Academic Procrastination	TikTok Addiction
Academic Performance	-	-	-
Academic Procrastination	0,718	-	-
TikTok Addiction	0,191	0,264	-

Discriminant validity was assessed using the Heterotrait-Monotrait Ratio (HTMT) criterion, as presented in Table 3. According to established guidelines, HTMT values below 0.85 indicate adequate discriminant validity between constructs. The HTMT value between Academic Procrastination and Academic Performance was 0.718, which falls below the threshold and thus confirms sufficient discriminant validity between these two constructs. Similarly, the HTMT values between TikTok Addiction and Academic Performance (0.191), as well as between TikTok Addiction and Academic Procrastination (0.264), were substantially lower than 0.85, further supporting the presence of discriminant validity among all constructs examined.

## Structural Model Analysis

The  $R^2$  values, as depicted in Figure 2, represent the proportion of variance explained in the endogenous constructs of the model. Specifically, the  $R^2$  for PR is 0.054, indicating that only 5.4% of the variance in academic procrastination can be explained by TikTok addiction. This suggests a weak predictive power of TikTok addiction on procrastination behavior. In contrast, the  $R^2$  for AP is 0.489, meaning that 48.9% of the variance in academic performance is explained by both TikTok Addiction and Academic Procrastination. This demonstrates a moderate level of explanatory power for the model in predicting academic outcomes.

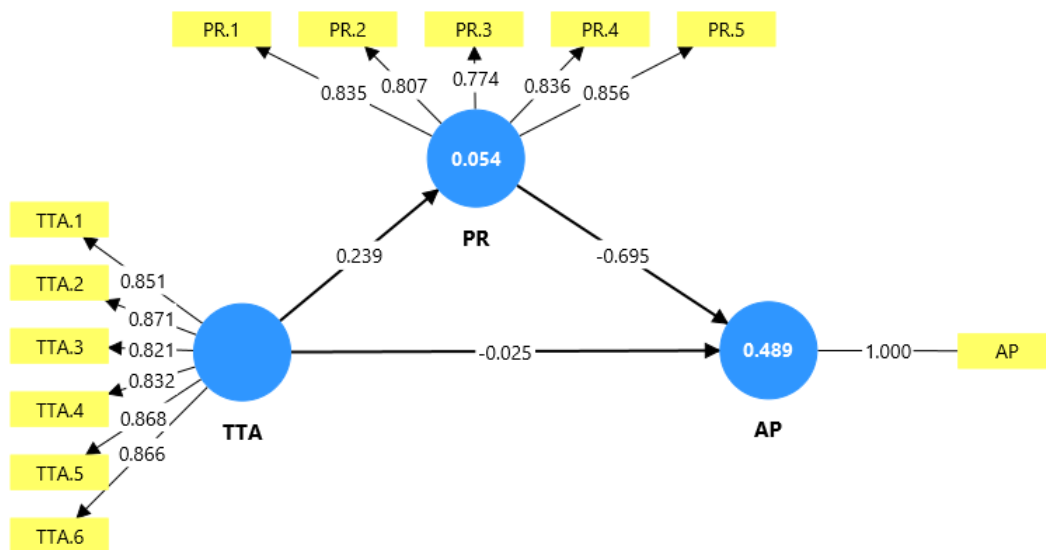


Figure 1. PLS Algorithm Result

The hypothesis testing results using bootstrapping analysis are summarized in Table 4. The direct path from TikTok addiction to AP (H1) was not statistically significant ( $\beta = -0.025$ ,  $p = 0.286$ ,  $f^2 = 0.001$ ), indicating that TikTok addiction does not have a meaningful direct impact on students' academic performance. Thus, H1 is not supported. Conversely, H2, which posits a positive relationship between TikTok addiction and Academic Procrastination, was supported with a significant path coefficient ( $\beta = 0.239$ ,  $p = 0.000$ ,  $f^2 = 0.060$ ), suggesting that higher levels of TikTok addiction are associated with increased procrastination behavior.

Furthermore, the direct effect of Academic Procrastination on Academic Performance (H3) was found to be significant and negative ( $\beta = -0.695$ ,  $p = 0.000$ ,  $f^2 = 0.898$ ), providing strong evidence that academic procrastination substantially reduces academic performance. Finally, H4, which tested the indirect effect of TikTok addiction on

AP through PR, revealed a significant negative mediation effect ( $\beta = -0.166$ ), confirming that academic procrastination mediates the relationship between TikTok addiction and academic performance.

**Table 4.** Bootstrapping Result and Hypothesis Testing

Hypothesis	Direct	Indirect	f <sup>2</sup>	P values	Status
H1 TikTok addiction -> AP	-0,025	-	0,001	0,286	Not supported
H2 TikTok addiction -> PR	0,239	-	0,060	0,000	Supported
H3 PR -> AP	-0,695	-	0,898	0,000	Supported
H4 TikTok addiciton -> PR -> AP	-	-0,166	-	0,000	Supported

As shown in Table 5, the PLS<sub>predict</sub> analysis reveals that all Q<sup>2</sup>predict values are positive, with values ranging from 0.018 (PR.1) to 0.047 (PR.5). This confirms that the PLS-SEM model has predictive relevance, meaning it performs better than a naïve benchmark in predicting new data points. The AP indicator recorded a Q<sup>2</sup>predict value of 0.028, indicating a small yet acceptable level of predictive power. When comparing prediction errors, the PLS-SEM\_RMSE values are generally lower or slightly better than those of the linear regression model (LM\_RMSE) for all indicators. Notably, indicators PR.2 (1.088 vs. 1.092), PR.3 (1.188 vs. 1.204), PR.4 (1.153 vs. 1.167), and PR.5 (1.129 vs. 1.140) demonstrate improved predictive accuracy under the PLS-SEM model. These results indicate that the PLS-SEM model offers acceptable and high predictive power.

**Table 5.** PLS<sub>predict</sub> Result

Indicators	Q <sup>2</sup> predict	PLS-SEM_RMSE	LM_RMSE
AP	0,028	0,410	0,413
PR.1	0,018	1,191	1,209
PR.2	0,035	1,088	1,092
PR.3	0,036	1,188	1,204
PR.4	0,026	1,153	1,167
PR.5	0,047	1,129	1,140

The findings of this study provide important insights into the relationship between TikTok addiction, academic procrastination, and academic performance among university students. Contrary to the initial hypothesis (H1), the direct effect of TikTok addiction on academic performance was found to be statistically insignificant. This suggests that while excessive TikTok use is prevalent among students, it does not directly and significantly impair academic outcomes when considered in isolation. This result aligns with prior studies that highlight the complexity of the digital media-academic performance nexus,

---

where negative effects are often mediated by psychological or behavioral variables (Rogowska & Cincio, 2024).

In contrast, the second hypothesis (H2) was supported, demonstrating that TikTok addiction significantly predicts higher levels of academic procrastination. This aligns with the self-escape theory, which posits that individuals may resort to digital distractions as a coping mechanism to avoid stress or academic responsibilities (Bakar & Khan, 2016; García-Ros et al., 2022). The immersive and algorithm-driven nature of TikTok appears to facilitate such avoidance behavior, fostering procrastination as students seek temporary relief from academic demands.

The third hypothesis (H3), which posited a negative relationship between academic procrastination and academic performance, also received strong empirical support. This is consistent with existing literature that identifies procrastination as a detrimental academic behavior, often linked to lower GPA, reduced learning efficiency, and higher stress (Popova & Pronenko, 2023; Suhadianto et al., 2021). The strength of this relationship in the current study underscores procrastination as a critical factor mediating the impact of digital addiction on academic outcomes.

Most notably, the fourth hypothesis (H4) confirmed the mediating role of academic procrastination in the relationship between TikTok addiction and academic performance. This highlights that while TikTok addiction does not directly reduce academic achievement, it indirectly impairs performance by increasing procrastinatory behavior. This result is supported by findings Avci et al. yang provided evidence that academic procrastination serves as a crucial intermediary variable, whereby social media addiction precipitates procrastination behaviors, which in turn negatively affect academic performance (Avci et al., 2024). This finding is significant as it emphasizes the need to address behavioral mediators rather than solely focusing on screen time or app usage.

## **CONCLUSION**

This study concludes that while TikTok addiction does not directly affect academic performance, it significantly increases academic procrastination, which in turn negatively impacts academic outcomes. These findings highlight academic procrastination as a key mediating factor and support the self-escape theory, which suggests that students may use digital platforms like TikTok as a form of avoidance from academic stressors. The research contributes to the literature by offering empirical evidence on the academic consequences of TikTok addiction, extending the application of self-escape theory, and

---

demonstrating the utility of PLS-SEM and PLSpredict in modeling behavioral mediation. However, the relatively low explanatory power for academic procrastination indicates that other influencing factors, such as personality traits or self-regulation, should be explored in future studies. Moreover, to enhance generalizability and validity, future research should include more diverse populations across different academic disciplines and institutions, and adopt longitudinal or experimental designs to better establish causal inferences.

## ACKNOWLEDGEMENT

The authors would like to thank **Higher Education Council for Research and Development (Diktilitbang) of the Central Executive of Muhammadiyah (Majelis Pendidikan Tinggi Penelitian dan Pengembangan (Diktilitbang) Pimpinan Pusat Muhammadiyah)** for funding this research through a scheme **Funding and Implementation of Muhammadiyah National Research Grants (RisetMu) Batch VIII of 2024 (Pendanaan dan Pelaksanaan Hibah Riset Nasional Muhammadiyah (RisetMu) Batch VIII Tahun 2024)** with contract **Number: 0258.600/I.3/D/2025**.

## REFERENCES

- Akhtar, N., & Islam, T. (2023). Unveiling the Predictors and Outcomes of TikTok Addiction: The moderating Role of Parasocial Relationships. *Kybernetes*, 54(1), 300–329. <https://doi.org/10.1108/k-04-2022-0551>
- Ali, A. (2023). Assessing the Role of Sports Participation as Protecting Factor Against Tiktok Addiction Among University Students. *Journal of Development and Social Sciences*, 4(III). [https://doi.org/10.47205/jdss.2023\(4-iii\)05](https://doi.org/10.47205/jdss.2023(4-iii)05)
- Avcı, S., Çakır, M., & Akıncı, T. (2024). Examining Social Media Addiction as a Predictor of Academic Achievement and Academic Procrastination: A Cohort of Undergraduate Students. *Journal on Efficiency and Responsibility in Education and Science*, 17(4), 286–298. <https://doi.org/10.7160/eriesj.2024.170402>
- Bakar, Z. A., & Khan, M. U. (2016). Relationships Between Self-Efficacy and the Academic Procrastination Behaviour Among University Students in Malaysia: A General Perspective. *Journal of Education and Learning (Edulearn)*, 10(3), 265–274. <https://doi.org/10.11591/edulearn.v10i3.3990>
- Chen, X., Wu, M., Dong, G., Cui, L., Qu, B., & Zhu, Y. (2024). Social Support and Academic Procrastination in Health Professions Students: The Serial Mediating Effect of Intrinsic Learning Motivation and Academic Self-Efficacy. *Advances in Health Sciences Education*. <https://doi.org/10.1007/s10459-024-10394-4>
- Cohen, J. (1992). A power primer. *Psychological Bulletin*, 112(1), 155–159. <https://doi.org/10.1037/0033-2909.112.1.155>
- Daryani, D. P., Nugrahayu, E. Y., & Sulistiawati, S. (2021). The Prevalence of Academic Procrastination Among Students at Medicine Faculty Mulawarman University. *Jurnal Ilmu Kesehatan*, 9(2), 118–126. <https://doi.org/10.30650/jik.v9i2.3109>

- 
- Deng, X., & Yu, Z. (2023). An Extended Hedonic Motivation Adoption Model of TikTok in Higher Education. *Education and Information Technologies*, 28(10), 13595–13617. <https://doi.org/10.1007/s10639-023-11749-x>
- Fausi, C. I. A., & Irawati, Z. (2021). Pengaruh Motivasi, Gaya Kepemimpinan Situasional, Pelatihan, Kepuasan Karyawan, dan Kompetensi Terhadap Kinerja Karyawan (The Influence of Motivation, Situational Leadership Style, Training, Employee Satisfaction, and Competence on Employee Performance). *SEIKO: Journal of Management & Business*, 7(2), 724–744. <https://doi.org/10.37531/sejaman.v7i1.7001>
- Galanis, P., Katsiroumpa, A., Moisoglou, I., & Konstantakopoulou, O. (2024). The TikTok Addiction Scale: Development and validation. *AIMS Public Health*, 11(4), 1172–1197. <https://doi.org/10.3934/publichealth.2024061>
- García-Ros, R., Pérez-González, F., Tomás, J. M., & Sancho, P. (2022). Effects of Self-Regulated Learning and Procrastination on Academic Stress, Subjective Well-Being, and Academic Achievement in Secondary Education. *Current Psychology*, 42(30), 26602–26616. <https://doi.org/10.1007/s12144-022-03759-8>
- Gayary, M., & Kalita, S. (2025). Relationship Between Academic Procrastination and Academic Achievement of Postgraduate Students. *Journal of Education and Health Promotion*, 14(1). [https://doi.org/10.4103/jehp.jehp\\_435\\_24](https://doi.org/10.4103/jehp.jehp_435_24)
- Gulzar, M. A., Ahmad, M., Hassan, M., & Rasheed, M. I. (2021). How social media use is related to student engagement and creativity: investigating through the lens of intrinsic motivation. *Behaviour and Information Technology*. <https://doi.org/10.1080/0144929X.2021.1917660>
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). *Multivariate Data Analysis, Eighth Edition* (8th ed.). Cengage Learning EMEA. [www.cengage.com/highered](http://www.cengage.com/highered)
- Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2022). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM) Third Edition*. SAGE Publications, Inc.
- Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to Use and How to Report the Results of PLS-SEM. *European Business Review*, 31(1), 2–24. <https://doi.org/10.1108/eb-11-2018-0203>
- Hair, J. F., Sarstedt, M., Hopkins, L., & Kuppelwieser, V. G. (2014). Partial Least Squares Structural Equation Modeling (PLS-SEM). *European Business Review*, 26(2), 106–121. <https://doi.org/10.1108/eb-10-2013-0128>
- Hengevoss, A., & Schnurbein, G. von. (2022). Is Peer Regulation Perceived as an Effective Mediator to Strengthen the Mission Orientation of INGO Leaders? *Nonprofit Management and Leadership*, 33(3), 609–631. <https://doi.org/10.1002/nml.21542>
- Hill, K., Xie, J., Gallo, K., Wood, S., Parlow, M., Hynes, J., & Stewart, S. (2024). The role of a major social media platform on students' academic performance: Perception versus reality. *European Journal of Interactive Multimedia and Education*, 5(1), e02401. <https://doi.org/10.30935/ejimed/14135>
- Hou, Y., Xiong, D., Jiang, T., Song, L., & Wang, Q. (2019). Social media addiction: Its impact, mediation, and intervention. *Cyberpsychology*, 13(1). <https://doi.org/10.5817/CP2019-1-4>
- Jayeola, O., Sidek, S., Sanyal, S., Hasan, S. I., An, N. B., Ajibade, S.-S. M., & Phan, T. T. H. (2022). Government Financial Support and Financial Performance of SMEs: A Dual Sequential Mediator Approach. *Heliyon*, 8(11), e11351. <https://doi.org/10.1016/j.heliyon.2022.e11351>
- Kemp, S. (2024, July 31). *Digital 2024 July Global Statshot Report*. <https://datareportal.com/reports/digital-2024-july-global-statshot>

- 
- Kemp, S. (2025, March 12). *TikTok Users, Stats, Data & Trends*. <https://Datareportal.Com/Essential-Tiktok-Stats>.
- Kock, N., & Hadaya, P. (2016). Minimum Sample Size Estimation in PLS-SEM: The Inverse Square Root and Gamma-exponential Methods. *Information Systems Journal*, 28(1), 227–261. <https://doi.org/10.1111/isj.12131>
- Lu, Q., & Zhao, F. (2018). Academic Stress, Academic Procrastination and Academic Performance: A Moderated Dual-Mediation Model. *Journal on Innovation and Sustainability Risus*, 9(2), 38. <https://doi.org/10.24212/2179-3565.2018v9i2p38-46>
- Malkoç, A., & Mutlu, A. K. (2018). Academic Self-Efficacy and Academic Procrastination: Exploring the Mediating Role of Academic Motivation in Turkish University Students. *Universal Journal of Educational Research*, 6(10), 2087–2093. <https://doi.org/10.13189/ujer.2018.061005>
- Manfrin, A., Apampa, B., & Parthasarathy, P. (2019). A Conceptual Model for Students' Satisfaction With Team-Based Learning Using Partial Least Squares Structural Equation Modelling in a Faculty of Life Sciences, in the United Kingdom. *Journal of Educational Evaluation for Health Professions*, 16, 36. <https://doi.org/10.3352/jeehp.2019.16.36>
- Mašková, I., & Kučera, D. (2021). Performance, Achievement, and Success in Psychological Research: Towards a More Transparent Use of the Still Ambiguous Terminology. *Psychological Reports*, 125(2), 1218–1261. <https://doi.org/10.1177/0033294121996000>
- Montag, C., Yang, H., & Elhai, J. D. (2021). On the Psychology of TikTok Use: A First Glimpse from Empirical Findings. In *Frontiers in Public Health* (Vol. 9). Frontiers Media S.A. <https://doi.org/10.3389/fpubh.2021.641673>
- Onwuegbuzie, A. J. (2004). Academic Procrastination and Statistics Anxiety. *Assessment & Evaluation in Higher Education*, 29(1), 3–19. <https://doi.org/10.1080/0260293042000160384>
- Pekpazar, A., Kaya Aydın, G., Aydın, U., Beyhan, H., & Ari, E. (2021). Role of Instagram Addiction on Academic Performance among Turkish University Students: Mediating Effect of Procrastination. *Computers and Education Open*, 2, 100049. <https://doi.org/10.1016/j.caeo.2021.100049>
- Popova, D., & Pronenko, E. (2023). Academic Procrastination in the Context of Meaning Structures of Personality: Why Is It Important for the Formation of Sustainable Behavior. *E3s Web of Conferences*, 376, 05058. <https://doi.org/10.1051/e3sconf/202337605058>
- Poropat, A. E. (2009). A Meta-Analysis of the Five-Factor Model of Personality and Academic Performance. *Psychological Bulletin*, 135(2), 322–338. <https://doi.org/10.1037/a0014996>
- Prihadi, K. D., Yew, V. G. W., & Purwaningtyas, E. K. (2023). Are Lecturers Responsible for Students' Academic Procrastination? *International Journal of Evaluation and Research in Education (Ijere)*, 12(1), 245. <https://doi.org/10.11591/ijere.v12i1.23812>
- Qin, Y., Omar, B., & Musetti, A. (2022). The addiction behavior of short-form video app TikTok: The information quality and system quality perspective. *Frontiers in Psychology*, 13. <https://doi.org/10.3389/fpsyg.2022.932805>
- Richter, N., Sinkovics, R. R., Ringle, C. M., & Schlägel, C. (2016). A Critical Look at the Use of SEM in International Business Research. *International Marketing Review*, 33(3), 376–404. <https://doi.org/10.1108/imr-04-2014-0148>
- Ringle, C. M., Sarstedt, M., Mitchell, R., & Gudergan, S. P. (2018). Partial Least Squares Structural Equation Modeling in HRM Research. *The International Journal of Human Resource Management*, 31(12), 1617–1643. <https://doi.org/10.1080/09585192.2017.1416655>

- 
- Rogowska, A. M., & Cincio, A. (2024). Procrastination Mediates the Relationship between Problematic TikTok Use and Depression among Young Adults. *Journal of Clinical Medicine*, 13(5). <https://doi.org/10.3390/jcm13051247>
- Saeedi, M., Rafii, F., & Parvizy, S. (2019). Academic Motivation in Nursing Students: A Hybrid Concept Analysis. *Iranian Journal of Nursing and Midwifery Research*, 24(5), 315. [https://doi.org/10.4103/ijnmr.ijnmr\\_177\\_18](https://doi.org/10.4103/ijnmr.ijnmr_177_18)
- Sarstedt, M., Hair, J. F., Pick, M., Liengaard, B. D., Radomir, L., & Ringle, C. M. (2022). Progress in Partial Least Squares Structural Equation Modeling Use in Marketing Research in the Last Decade. *Psychology and Marketing*, 39(5), 1035-1064. <https://doi.org/10.1002/mar.21640>
- Shi, M., Zhai, X., Li, S., Shi, Y., & Xiang, F. (2021). The Relationship Between Physical Activity, Mobile Phone Addiction, and Irrational Procrastination in Chinese College Students. *International Journal of Environmental Research and Public Health*, 18(10), 5325. <https://doi.org/10.3390/ijerph18105325>
- Shmueli, G., Sarstedt, M., Hair, J. F., Cheah, J., Ting, H., Vaithilingam, S., & Ringle, C. M. (2019). Predictive Model Assessment in PLS-SEM: Guidelines for Using PLSpredict. *European Journal of Marketing*, 53(11), 2322-2347. <https://doi.org/10.1108/ejm-02-2019-0189>
- Suhadianto, Arifiana, I. Y., Rahmawati, H., Hanurawan, F., & Eva, N. (2021). Stop Academic Procrastination During Covid 19: Academic Procrastination Reduces Subjective Well-Being. *Kne Social Sciences*. <https://doi.org/10.18502/kss.v4i15.8220>
- Weedige, S. S., Ouyang, H., Gao, Y., & Liu, Y. (2019). Decision Making in Personal Insurance: Impact of Insurance Literacy. *Sustainability*, 11(23), 6795. <https://doi.org/10.3390/su11236795>
- Williams, M. N., & Edwards, S. R. (2021). Conceptual Replication of Seo (2008), "Self-Efficacy as a Mediator in the Relationship Between Self-Oriented Perfectionism and Academic Procrastination." *Current Issues in Personality Psychology*, 10(2), 98-111. <https://doi.org/10.5114/cipp.2021.110948>
- Yang, Y., Adnan, H. M., & Sarmiti, N. Z. (2023). The Relationship Between Anxiety and TikTok Addiction Among University Students in China: Mediated by Escapism and Use Intensity. *International Journal of Media and Information Literacy*, 8(2). <https://doi.org/10.13187/ijmil.2023.2.458>
- Zivnuska, S., Carlson, J. R., Carlson, D. S., Harris, R. B., & Harris, K. J. (2019). Social media addiction and social media reactions: The implications for job performance. *Journal of Social Psychology*, 159(6), 746-760. <https://doi.org/10.1080/00224545.2019.1578725>