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Original Article

Academic Procrastination in College Students: Do Academic Burnout and Smartphone Addiction Matter?

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Abstract. Academic procrastination is a behavior commonly exhibited by college students. The objective of this study was to investigate the impact of academic burnout and smartphone addiction on academic procrastination, both partially and simultaneously. A cross-sectional survey design was employed, involving 214 students from a state university in Jambi Province, Indonesia. We adapted the Short Form of the Academic Procrastination Scale, the Oldenburg Burnout Inventory – Student Version (OLBI-S), and the Smartphone Addiction Scale - Short Version (SAS-SV) for data collection. The data were analyzed using simple and multiple linear regression. The findings suggest that academic burnout and smartphone addiction are predictors of academic procrastination, with a stronger effect observed from smartphone addiction on academic procrastination. This research has significant implications for addressing academic procrastination by reducing academic burnout and smartphone addiction. Interventions targeting self-regulation could also be pursued, as they have proven effective across all variables examined. The implementation of guidance and counseling programs in higher education institutions should be optimized to cultivate an effective student lifestyle.

Keywords: Academic procrastination; academic burnout; smartphone addiction.

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Introduction

Procrastination is a condition where an individual believes that they need to complete a specific task but lacks self-motivation to do so within the set timeframe (Curtis, 2017). It is a self-defeating negative habit that essentially represents a failure of self-regulation (Sirois & Pychyl, 2016). This behavior is commonly observed across various settings, for instance, among employees (Wan et al., 2014; Zhang et al., 2022), leaders (Haesevoets et al., 2021), the general public (Harriott & Ferrari, 1996), educators (Hen & Goroshit, 2018), and notably, students (Shi et al., 2019; Ulya et al., 2020; Wang et al., 2021; Yang et al., 2021).

Procrastination also poses a frequent issue among students. Academic procrastination is the tendency to delay academic tasks even though such behavior may lead to negative consequences (Zacks & Hen, 2018). It occurs when students postpone the completion of activities, projects, and assignments deemed unnecessary. Such delays can cause stress and anxiety as they rush to complete tasks at the last minute before a deadline.

Research into procrastination has been approached from two perspectives: a) as an avoidance behavior that follows a particular task, culminating in task postponement; b) as a

personality trait, becoming a chronic and pervasive pattern where postponement and avoidance are typical responses in various situations (H. Schouwenburg, 2004). Procrastination emerges as a gap between the intention to act and action implementation, causing individuals to delay their initial intentions (Talask & Carvalho, 2017).

Academic procrastination can also be explained using Bandura's social learning theory. According to this theory, procrastination is explained by a self-regulation model. An individual prone to procrastination possesses low self-regulation and self-efficacy beliefs (Bandura, 1977). Although at times self-efficacy may appear similar to self-esteem (for instance, both are components of self-referent thought), Bandura argues that they are distinctly different constructs. Self-efficacy pertains to an individual's assessment of how well they can execute a specific behavior in a given context (Bandura, 1977). Bandura defined two interrelated but distinct components of self-efficacy: efficacy expectations and outcome expectations. Efficacy expectations are beliefs about one's ability to accomplish certain tasks. Outcome expectations refer to beliefs about the likelihood that a particular behavior will lead to desired outcomes. Bandura suggested that, given adequate capability and motivation, self-efficacy influences both the initiation of tasks and one's persistence (Bandura, 1977). Weak efficacy can contribute to the avoidance of a behavior, while strong efficacy can encourage the initiation and persistence of behavior (Bandura, 1977). Based on this theory, scholars have formulated various dimensions that serve as the basis for constructing the procrastination scale used in this study.

The academic procrastination practiced by students can lead to highly detrimental consequences. This behavior must be prevented and addressed so as not to negatively impact many academic aspects. Several studies have linked academic procrastination with other negative consequences, such as cheating behavior (Patrzek et al., 2015), low academic achievement (Kim & Seo, 2015), and the intention to drop out of school (Scheunemann et al., 2021). As deadlines approach and work accumulates, academic procrastination can cause high levels of stress and anxiety. Prolonged academic procrastination may also contribute to mental health problems such as depression and low self-esteem (Ferrari & Díaz-Morales, 2014; Stead et al., 2014).

Despite the negative impacts of academic procrastination on various aspects, in reality, this behavior is still frequently practiced by nearly all students with varying intensities. A survey revealed that there are 7.69% of students engaging in high-level academic procrastination and 53.85% of students doing so at a moderate level (Sujadi, 2023). A survey conducted by Janssen found that 49% of the student respondents experienced high levels of academic procrastination (Janssen, 2015). Furthermore, a study by Vargas reported that as many as 91% of respondents admitted to experiencing academic procrastination (Vargas, 2017).

Several factors influence procrastination. One study revealed that there are five major factors affecting procrastination, including neuroticism, extraversion, agreeableness, openness, and conscientiousness (H. C. Schouwenburg & Lay, 1995). Other factors include self-regulation (Loeffler et al., 2019), coping strategies (Sujadi & Martunus, 2018; Ulya et al., 2020), and academic anxiety (Sujadi et al., 2020, 2021). Moreover, academic burnout also influences academic procrastination (Farkhah et al., 2022; P. Simbolon & Simbolon, 2021).

The concept of burnout originally developed in the workplace. Burnout is defined as a syndrome resulting from chronic workplace stress that has not been successfully managed (WHO, 2019). Burnout can also occur within the scope of educational organizations. Academic burnout refers to students who have low interest, lack motivation, and experience exhaustion in learning (Lian et al., 2014). Academic burnout consists of identical phases, including emotional exhaustion related to school, cynicism and feelings of inefficacy as a student (Munko, 2017). According to the 11th Revision of the International Classification of Diseases (ICD-11), there are three dimensions of burnout: a) feelings of energy depletion or exhaustion; b) increased mental distance from one's job; and 3) reduced professional efficacy

(WHO, 2019). Other dimensions include exhaustion and disengagement (Demerouti et al., 2010).

A study by Zarrin *et al*. 2019 revealed that the three subscales of academic procrastination-emotional exhaustion, skepticism and pessimism, and academic self-efficacy have significant relationships with academic procrastination. The regression analysis results also indicated that emotional exhaustion can predict academic procrastination (Zarrin et al., 2019). Furthermore, the study by Lee & Choi showed that academic stress correlates with procrastination and academic burnout, and academic delay also correlates with academic burnout (Lee & Choi, 2014).

Smartphone addiction has also been shown to significantly affect procrastination (Albursan et al., 2022; Liu et al., 2022). Recent advancements in smartphone technology have transformed the landscape of communication and information, altering the interests, values, and desires of many users, and sparking global concerns about overuse and addiction (Panova & Carbonell, 2018). Several studies indicate that college students are particularly susceptible to smartphone addiction (Aker et al., 2017; Alosaimi et al., 2016; Matar Boumosleh & Jaalouk, 2017; Mok et al., 2014).

Although excessive smartphone use is not currently recognized as a formal clinical disorder in the DSM-V or the International Classification of Diseases (ICD-10), many behavioral aspects are similar to other behavioral addictions (Ting & Chen, 2020). To date, the DSM-V classifies addictive behaviors such as "internet gaming," "sex addiction," "exercise addiction," or "shopping addiction" as impulse control disorders (APA, 2013). Problematic or addictive smartphone use, characterized by excessive and time-consuming use, includes indicators such as disruption of daily life, positive anticipation, withdrawal, cyber-oriented relationships, excessive use, and tolerance (Kwon et al., 2014).

It is evident from previous theories and studies that academic procrastination is influenced by academic burnout and smartphone addiction. Students experiencing burnout may become disengaged, lose motivation, and feel overwhelmed by their academic responsibilities. Similarly, those with smartphone addiction are likely to spend excessive time on their devices, potentially neglecting their studies and specific tasks.

Although past research has tested the same structural models, studies focusing on college students, especially within the sample group of this research, are still infrequent. It is crucial to evaluate the roles of academic burnout and smartphone addiction in academic procrastination to develop strategic measures to address these issues. Thus, the purpose of this study is to investigate the effects of academic burnout and smartphone addiction on academic procrastination among college students.

Method

Participants

This study employed a cross-sectional survey design to evaluate the impact of academic burnout and smartphone addiction on academic procrastination. Data collection was conducted online from September to November 2022. We utilized the social media platform WhatsApp to disseminate a link containing the research scale for participants to fill out. Respondents were asked to provide some non-identifiable personal information, followed by completing the research scale. This procedure was carried out in accordance with research ethics. Moreover, in the context of sensitive research, anonymity can be a key factor in securing honest participation. Over the course of approximately three months, a total of 214 students from the Faculty of Islamic Economics and Business at IAIN Kerinci participated as respondents in the study.

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Sampling Procedures

The sample size was determined using Krejcie & Morgan's table, which is based on the formula: $s = \chi^2NP(1-P)/(d^2(N-1) + \chi^2P(1-P)$ (Krejcie & Morgan, 1970). Krejcie & Morgan used the Chi-Square value to determine the proportional sample size. Based on calculations using this formula, a total of 214 students were obtained as research respondents. Subsequently, the sampling was conducted using the Simple Random Sampling technique to ensure that every individual or element within the population had an equal chance of being selected. The demographic characteristics of the respondents can be seen in the table 1.

Table 1. Demographic Characteristics of Research Respondents

Variables	Category	F	%
Gender	Male	92	42,99
	Female	122	57,01
Daily smartphone usage time	1-3 hours	11	5,14
	4-6 hours	85	39,72
	7-9 hours	98	45,79
	> 9 hours	20	9,34
Quality of internet service	Good	85	39,72
	Moderate	116	54,21
	Poor	13	6,07

Table 1 illustrates that the majority of the survey respondents were female, totaling 122 individuals or 57.01%, followed by 92 males or 42.99%. Furthermore, based on the characteristic of time spent accessing the internet daily via smartphones, the majority falls within the 7-9 hour range, accounting for 98 individuals or 45.79%, followed by 4-6 hours comprising 85 individuals or 39.72%, >9 hours with 20 individuals or 9.34%, and 1-3 hours with 11 individuals or 5.14%.

Additionally, concerning the quality of internet service at the place of residence, most respondents live in areas with moderate network coverage, numbering 116 individuals or 54.21%, followed by areas with good network coverage comprising 85 individuals or 39.72%, while only 13 individuals or 6.07% reported residing in areas with poor network coverage.

Materials and Apparatus

Short Form of the Academic Procrastination Scale

We adapted the Short Form of the Academic Procrastination Scale (Yockey, 2016) for this study. This scale was selected based on its time efficiency aspect, as students typically find lengthy scales tedious to complete. Furthermore, this scale is highly suitable for use with university students. It consists of only five items with response options ranging from 1 = agree to 5 = disagree. This scale is a shortened version of the original 25-item scale (Yockey, 2016). Higher scores on this scale indicate a greater tendency to procrastinate on academic tasks. Specifically, for the short form as a unidimensional measure of academic procrastination, it has shown good internal consistency reliability with a Cronbach's alpha of 0.87 among 282 students. The scale also demonstrates good convergent validity, with moderate to high correlations with the Procrastination Assessment Scale–Students and the Tuckman Procrastination Scale (Yockey, 2016). Our internal consistency testing using Cronbach's alpha yielded a score of 0.855.

Oldenburg Burnout Inventory – Student Version (OLBI-S)

The OLBI was originally developed to measure burnout, comprising 16 statements covering two dimensions: exhaustion and disengagement (Demerouti et al., 2010). This scale was later adapted to measure academic burnout (Reis et al., 2015). Respondents were asked to respond to the scale items on a scale ranging from 1 (strongly agree) to 4 (strongly disagree). Its internal consistency ranged from 0.97 to 0.99. We employed this scale due to its relevance to our research respondents. Our Cronbach's alpha testing also resulted in a satisfactory score of 0.920.

The Smartphone Addiction Scale - Short Version (SAS-SV)

The Smartphone Addiction Scale-Short Version (SAS-SV) is a research instrument developed to measure smartphone addiction among adolescents (Kwon et al., 2014). The SAS-SV is formulated from the Smartphone Addiction Scale (SAS), which consists of 6 factors and 33 items with a six-point Likert scale (1: strongly disagree to 6: strongly agree). These factors include daily life disturbance, positive anticipation, withdrawal, cyberspace-oriented relationships, overuse, and tolerance. The SAS-SV consists of 10 questions. We selected this scale for the efficiency and effectiveness of measuring the smartphone addiction variable. Moreover, it is also appropriate for student respondents. Internal consistency and concurrent validity were established using Cronbach's alpha, recorded at 0.911 (Kwon et al., 2014). Our testing yielded a Cronbach's alpha score of 0.889.

Procedures

This study encompasses three research variables: academic burnout and smartphone addiction as independent variables, and academic procrastination as the dependent variable. The research process commenced with a formal request for approval to the Dean of the Faculty of Economics and Business Islam. Once granted, the research instruments were distributed to a predefined sample of 214 students. An informed consent procedure was undertaken to confirm their willingness to participate in the study. All 214 students designated as respondents consented to partake in the research. Subsequently, the respondents were instructed to complete each item of the research scale online via Google Forms, facilitating a swift and accurate data collection process. Participants were urged to carefully read and follow all provided instructions.

Design or Data Analysis

All data will be analyzed using SPSS version 25.00. This software was chosen for its user-friendly interface and the specific objectives of the research. Descriptive analysis will be utilized to depict the respondents' scores on the variables of academic procrastination, academic burnout, and smartphone addiction, both overall and based on certain characteristics (e.g., gender, daily smartphone usage duration, and network quality). Further, to examine the influence of academic burnout and smartphone addiction on academic procrastination, both partially and simultaneously, simple and multiple regression analyses will be employed.

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Result

Descriptive Analysis

Table 2 presents the academic procrastination of students viewed from the characteristics of gender, daily smartphone usage time, and quality of internet service. The analysis indicates that, generally, the respondents' scores are low, suggesting that the students participating in the survey do not experience significant levels of academic procrastination. However, according to the table, there are still a few respondents categorized as moderate, high, or even very high in academic procrastination, albeit in low percentages.

Table 2. Description of Academic Procrastination Based on Specific Characteristics

Characteristics	Total (%)	Mean (SD)	Level				
			Very low	Low	Moderate	High	Very high
Gender							
Male	92 (42,99)	12,87 (3,04)	25 (27,17)	52 (56,52)	12 (13,04)	3 (3,26)	0 (0)
Female	122 (57,01)	12,01 (3,24)	18 (14,75)	95 (77,87)	7 (5,74)	2 (1,64)	0 (0)
Daily smartphone usage time							
1–3 hours	11 (5,14)	10,88 (3.21)	2 (18,18)	8 (72,73)	1 (0,91)	0 (0)	0 (0)
4–6 hours	85 (39,72)	11,76 (3.16)	15 (17,65)	65 (76,47)	4 (4,70)	1 (1,17)	0 (0)
7-9 hours	98 (45,79)	12,68 (3.15)	15 (15,79)	75 (76,53)	6 (6,12)	2 (2,04)	1 (1,02)
> 9 hours	20 (9,34)	12,88 (3.52)	5 (25,00)	10 (50,00)	2 (10,00)	3 (15,00)	0 (0)
Quality of internet service							
Goog	85 (39,72)	12,03 (2.93)	14 (16,47)	68 (80,00)	2 (2,35)	1 (1,17)	0 (0)
Moderate	116 (54,21)	12,45 (2.79)	21 (18,10)	86 (74,14)	5 (4,31)	4 3,45)	0 (0)
Poor	13 (6,07)	11,10 (3.02)	3 (23,07)	10 (76,92)	0 (0)	0 (0)	0 (0)

Hypotesis Testing

Several prerequisites are required for hypothesis testing using regression, including normality, linearity, and multicollinearity. The linear regression model is frequently utilized to explore the relationships between a continuous outcome and independent variables (Schmidt & Finan, 2018). This test necessitates the condition of data normality (Schmidt & Finan, 2018). Below are the results of the normality test for each variable:

Table 3. Normality Test Results

Variables	Asym. Sig	Decision
Academic procrastination	0.061	Normal distribution
Academic burnout	0.200	Normal distribution
Smartphone addiction	0.065	Normal distribution

The table 3 indicates that the Asymp. Sig values are greater than 0.05; thus, all variables are categorized as having a normal distribution. Furthermore, another requirement for linear regression testing is the assumption that the relationship between variables is linear. Table 5 indicates a linear relationship between the variables. The scores resulting from the influence of academic burnout on academic procrastination are 0.199, and the influence of smartphone addiction on academic procrastination is 0.673. These values are > 0.05, indicating a linear relationship between the variables.

Table 4. Linearity Test Results

Variables	Deviation from linearity	Significance Level	Decision
Academic burnout on academic procrastination	0,199	0,05	Linear relationship
Smartphone addiction on academic procrastination	0,673	0,05	Linear relationship

Furthermore, multicollinearity testing was conducted to determine whether there is a relationship between the independent variables. The criterion used is to examine the Variance Inflation Factor (VIF); if the VIF is not greater than 10.00, then multicollinearity is not an issue (Franke, 2010). Based on Table 5, the VIF value is 1.328, which is less than 10.00. Therefore, it can be concluded that there is no multicollinearity among the independent variables.

Table 5. Multicollinearity Testing

Model	Tolerance	VIF
Academic burnout	.753	1.328
Smartphone addiction	.753	1.328

After meeting all the requirements for regression testing, hypothesis testing was conducted using simple regression to examine the influence of independent variables on the dependent variable partially and multiple regression to test the simultaneous influence of academic burnout and smartphone addiction on academic procrastination.

There are two partial influence hypotheses to be tested, namely: 1) there is an influence of academic burnout on academic procrastination; and 2) there is an influence of smartphone addiction on academic procrastination. The results of the testing can be seen in Table 6.

Table 6. Results of Partial Hypothesis Testing

Variables	t-value	Sig.	Decision
Influence of academic burnout on academic procrastination	2.706	0.007	Hypothesis accepted
Influence of smartphone addiction on academic procrastination	4.228	0.000	Hypothesis accepted

The table 6 shows that the t-value for the influence of academic burnout on academic procrastination is 2.706 with a significance of 0.007, and the t-value for the influence of smartphone addiction on academic procrastination is 4.228 with a significance of 0.000. The significance values obtained are < 0.05, so both hypotheses are accepted.

Next, the third hypothesis in this study is that there is an influence of academic burnout and smartphone addiction on academic procrastination. The results of testing this hypothesis can be seen in Table 7.

Table 7. Results of Simultaneous Hypothesis Testing

Variables	F-Value	Sig.	Decision
The effect of *academic burnout* and *smartphone addiction* on *academic procrastinaton*	9.217	0.000	Hypothesis accepted

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Based on the table 7, it can be seen that the F-value is 9.217 at a significance level of 0.000. The significance value of 0.000 is less than 0.05, indicating that there is a significant influence of academic burnout and smartphone addiction on academic procrastination.

Discussion

Academic procrastination is a common issue among students. It refers to students' tendency to delay tasks that should be completed earlier. Procrastination can occur when individuals fail in self-regulation, making them unable to resist social temptations for more enjoyable activities, activities with immediate rewards, or when academic preparations are still far off (Rabin et al., 2013).

The issue of procrastination remains a topic of debate to this day, with some arguing that delaying studying can provide students with the opportunity to use their study time more effectively (Chu & Choi, 2015). However, others argue that procrastination can lead to negative consequences (Ojo, 2019). Choi & Moran discuss what they refer to as "active procrastination," which consists of four distinct characteristics. While active procrastination tends to have positive outcomes, it occurs under specific conditions when individuals have good self-regulation. Therefore, in the author's view, academic procrastination should be avoided as much as possible to achieve better academic performance (San et al., 2016).

The research results show that respondents' level in the academic procrastination variable vary based on specific characteristics such as gender, the duration of smartphone use per day, and network quality. Based on gender, males scored higher than females. This is consistent with the findings of Sureda Negre *et a*l. which showed that males have significantly higher levels of academic procrastination than females and are more likely to copy assignments (Sureda Negre et al., 2015). Other studies also found similar results, indicating that procrastination differs by gender, with male students being more prone to procrastinating their academic work (Pala et al., 2011).

The hypothesis testing in this study has proven that academic burnout has an influence on academic procrastination. This finding suggests that the higher the level of academic burnout experienced by students, the higher their tendency to procrastinate academic activities. Research on the relationship between academic burnout and academic procrastination is an intriguing subject within the field of psychology. Many studies have been conducted to explore the relationship between these two variables. For instance, Ocal revealed that academic burnout, academic self-efficacy, and academic achievement are significant predictors of procrastination. In fact, burnout seems to be the strongest predictor explaining 32.3% of the variance in procrastination (Ocal, 2016). Similar findings were also reported in a study by Tekkurşun Demir *et al*. (Tekkurşun Demir et al., 2017). A longitudinal study conducted by Hall, Lee, & Rahimi also provided causal evidence that burnout is an antecedent of self-efficacy and procrastination (Hall et al., 2020). More specific findings were revealed by Çakır *et al*. indicating that course burnout and family-induced burnout lead to student procrastination (Çakır et al., 2014). These studies indicate that academic burnout can affect an individual's motivation, time management, and ability to cope with academic tasks, ultimately leading to academic procrastination.

However, a reverse relationship has also been found in the association between burnout and academic procrastination. Some studies suggest that academic burnout serves as a predictor of academic procrastination. For example, research indicates that academic procrastination can statistically predict emotional exhaustion and cynicism (Balkis, 2013). Similar findings were reported by Shareinia et al., suggesting that academic procrastination significantly influences academic burnout (Shareinia et al., 2019). Furthermore, other studies

have shown that academic procrastination, along with academic achievement, affects burnout (Mosavi hesari & Solgi, 2020).

Furthermore, the hypothesis testing also found that smartphone addiction has an influence on academic procrastination. The study on the relationship between these two variables has become a crucial research subject due to the negative impact of smartphone addiction on students' academic aspects. To date, studies on this topic have continued to show significant developments. These findings are highly relevant to several earlier studies. Li et al.'s study showed that smartphone addiction is positively related to academic procrastination while negatively related to academic self-efficacy. Mediation analysis proved that smartphone addiction has an indirect predictive effect on academic procrastination through academic self-efficacy, controlling for age, gender, and academic year (Li et al., 2020). Studies conducted during the COVID-19 pandemic also revealed a significant positive relationship between academic procrastination and smartphone addiction, as well as a significant negative relationship with quality of life (Albursan et al., 2022). Another study also found that respondents experienced smartphone addiction, leading to delays in their lives (Behzad, 2021). A similar finding regarding Indonesian student respondents was revealed by Simbolon & Daulay, stating that high smartphone addiction had an impact on increased academic procrastination (P. A. Simbolon & Daulay, 2022). From these studies, it can be observed that the strength of the relationship between these two variables varies significantly among research respondents, depending on the level of smartphone addiction experienced by the students, which may disrupt their academic activities.

There are several limitations in this study. First, the measurement of each research variable was done using self-report scales, whereas each variable should be investigated more thoroughly by professionals. There is a possibility of bias in data collection. Therefore, for future research, more in-depth measurements, such as interviews and observations, can be conducted. Second, the respondents were limited to students from one faculty, so the results cannot be generalized to a broader population. In future studies, the sample scope can be expanded. Third, the presentation of respondents' achievements in the academic procrastination variable was only done descriptively. However, comparative testing based on specific characteristics should be conducted to obtain more comprehensive results. In future studies, variable differences based on specific characteristics, such as gender, ethnicity, socioeconomic status, academic performance, and other aspects, can be analyzed.

Conclusion

Academic procrastination is a serious issue that affects many students. The research findings indicate that academic burnout and smartphone addiction play significant roles in determining academic procrastination. Both of them have been shown to be predictors of academic procrastination, with smartphone addiction having a greater influence than academic burnout. This study has important implications for addressing academic procrastination by reducing burnout, especially academic burnout, and smartphone addiction. Therefore, it is important to build students' self-regulation through guidance and counseling services at universities.

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