

## RESEARCH ARTICLES

# The Consequences of Smart Phone Use Intensity on Academic Procrastination and Learning Motivation of Students at Muhammadiyah University of North Sumatra

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**Abstract:** Indonesia is a country with more than 190 million smartphone users. This makes Indonesia the fourth largest smartphone user in the world after China, India, and the United States. Students tend to use smartphones with high intensity. High smartphone use can lead to smartphone addiction. Objective: to analyze the effect of smartphone usage intensity on academic procrastination behavior and learning motivation in students at the University of Muhammadiyah North Sumatra. Method: This research is an analytical study using a cross-sectional method, with a sample of 63 people divided into 7 people each from 9 faculties at the University of Muhammadiyah North Sumatra. The sampling technique uses the Probability Sampling procedure, namely Consecutive Sampling. All samples filled out three questionnaires to measure the intensity of smartphone use, learning motivation, and academic procrastination. The data obtained will be analyzed using univariate and bivariate analysis techniques, then to test the hypothesis using the Spearman test to assess whether there is an influence between the independent and dependent variables. Results: The Spearman correlation test showed that smartphone usage intensity influenced academic procrastination among students at the University of Muhammadiyah North Sumatra, with a correlation coefficient of 0.790 (p-value of 0.001). The correlation coefficient of smartphone usage on learning motivation among students at the University of Muhammadiyah North Sumatra was -0.531 (p-value of 0.001), indicating a strong and negative relationship between the two variables. Conclusion: High smartphone usage intensity will increase academic procrastination, while high smartphone usage intensity will decrease student learning motivation.

**Keywords:** Smartphone, learning motivation, academic procrastination, medical students

## INTRODUCTION

Indonesia is the country with the fastest growth after China and India. According to data, Indonesia's economic growth in 2023 is projected to reach 5.05 percent. Furthermore, Indonesia alone is estimated to have over 190 million smartphone users. This makes Indonesia the fourth-largest smartphone user in the world after China, India, and the United States.<sup>1</sup>

Neglect caused by smartphone use can damage a person's psychology. The emergence of technology offered by smartphones can lead to excessive smartphone use, which can have negative impacts and affect the social life of the individual who uses them.<sup>2</sup>

Based on previous research, it was found that 2 (13%) students were classified as having a low smartphone usage intensity, 42 (40.8%) students as having a moderate smartphone usage intensity, and 59 (57.3%) students as having a high smartphone usage intensity. The highest smartphone usage intensity was found in the high category.<sup>3</sup>

A study of smartphone usage among 598 university students found several classifications of average smartphone usage duration: 2–3 hours/day is considered below normal, with 36 respondents (12.71%), 2–12 hours/day is considered normal, with 504 respondents (84.3%), 14–17 hours/day is considered above normal, with 76 respondents (12.71%), and >17 hours/day is considered extreme, with 24 respondents (4.0%). Research on smartphone addiction

shows that no student uses their smartphone for less than one hour per day.<sup>4</sup>

Other research indicates that smartphone usage among students is 69.7% for social media, 64.5% for multimedia, 43.3% for games, 35.5% for office applications, and 26.3% for other features.<sup>5</sup> The following data indicates that, on average, smartphone use among students is most often for social media.<sup>5</sup> In addition, students also use smartphones to access educational information to facilitate their learning process in college, such as opening academic portals, accessing scientific articles, scholarship information, reading through [wikipedia.org](http://wikipedia.org), [Detik.com](http://Detik.com), [Googlebooks](http://Googlebooks), and [e-journals](http://e-journals).<sup>6</sup>

A common mistake made by smartphone users is excessive use of their smartphone for too long and too often, which can lead to smartphone addiction. This smartphone addiction disrupts the user's daily activities because they constantly want to use their smartphone. Furthermore, smartphone addiction can disrupt the user's concentration, especially in activities that require intense concentration, such as studying. High-intensity smartphone use can also affect the growth and development of children with high smartphone use. Another impact of high-intensity smartphone use is academic procrastination and impaired learning motivation.<sup>3,7</sup>

Academic procrastination is the failure of someone to complete academic tasks within the specified timeframe.<sup>8</sup> Academic procrastination is an undesirable and

ineffective attitude because it will have negative consequences if the work is not completed on time. Someone who engages in academic procrastination will delay academic activities that should be undertaken.<sup>9</sup>

Learning motivation is a non-intellectual psychological factor. Its distinctive role is in fostering enthusiastic growth, feelings of joy, and enthusiasm for learning. Optimal learning outcomes are not solely determined by intelligence but also supported by the right motivation. Excessive smartphone use can hinder learning motivation because there will always be distractions or interruptions to learning.<sup>10</sup>

## **METHOD**

This study was conducted using a descriptive analytical study using a cross-sectional method. Cross-sectional research is a type of research design that examines the relationship between risk factors and outcomes.<sup>11</sup> Data collection can be conducted using several approaches, such as surveys, observations, and direct observation. Data collection was conducted simultaneously at a single point in time. In this study, data collection for the independent variable, smartphone usage intensity, and the dependent variables, academic procrastination and learning motivation, was conducted using a questionnaire.

This study was conducted from December 2023 to July 2024. The research location was the University of

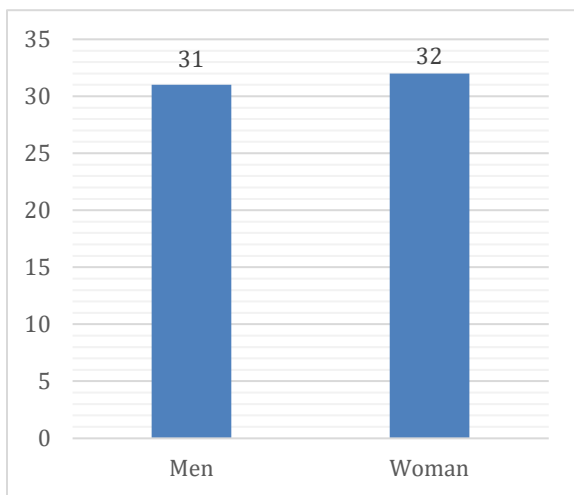
Muhammadiyah North Sumatra. The population was all active students at the University of Muhammadiyah North Sumatra. The sampling method used was probability sampling, namely consecutive sampling. Consecutive sampling is a sampling method that ensures that all samples meeting the inclusion or selection criteria are included in the analysis until a certain time limit or the required sample size is reached.<sup>25</sup> In this study, the researchers obtained a sampling frame, which was the total number of active students from nine faculties, which can be obtained through the UMSU agency.

The data collection technique used in this study was primary data collection. This primary data was obtained using a questionnaire. so that the results of the questionnaire will be in the form of measurement scores from the smartphone usage intensity scale sheet, academic procrastination, and learning motivation given to respondents, namely active students of the University of Muhammadiyah North Sumatra. The instruments used in this study were the Smartphone Use Questionnaires: General (SUQ-G), the Procrastination Assessment Scale Student (PASS), and the learning motivation questionnaire adapted from Santrock. These three questionnaires have been tested for validity and reliability because this questionnaire is an English questionnaire that has been converted into Indonesian. The data obtained from the questionnaires given will be subjected to univariate and bivariate analysis techniques.

Furthermore, the Spearman test will be carried out to determine whether there is an influence between the independent variables on the dependent variable and because there are 2 dependent variables that do not have a hypothetical or unpaired categorical relationship. Acknowledgements are addressed to professionals who have contributed to the preparation of the journal, including technical support, financial support and general support from an institution.

**RESULTS**

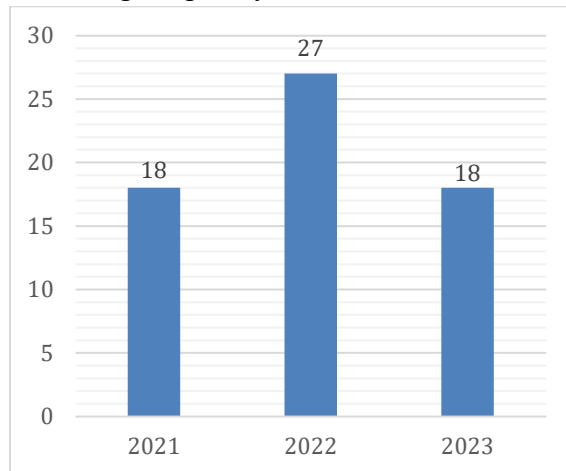
The following frequency distribution describes the characteristics of the research sample based on gender:



**Figure 1. Characteristics of research samples based on gender**

Based on the diagram above, the sample consisted of 31 male students and 32 female students.

The characteristics of the research sample by year are described through the following frequency distribution:



**Figure 2. Characteristics of research samples based on Cohort**

Based on the diagram above, the sample consisted of 18 students from the class of 2021, 27 students from the class of 2022, and 18 students from the class of 2023. Using the SUQ-G questionnaire, the following results were obtained regarding the intensity of smartphone use among the 63 students.

**Table 1. Overview of Smartphone Usage Intensity**

Smartphone Usage Intensity	n	%
Very low	0	0%
Low	2	3,2%
Medium	5	7,9%
High	21	33,3%
Very High	35	55,6%
<b>Total</b>	<b>63</b>	<b>100%</b>

Based on the table above, smartphone usage intensity was categorized as very low (0%), low (2%) (3.2%), moderate (5%) (7.9%), high (21%) (33.3%), and very high (35%) (55.6%).

Using the PASS questionnaire scale, the following results were obtained for academic procrastination among 63 samples:

**Table 2. Overview of Academic Procrastination**

Academic Procrastination	n	%
Low	0	0%
Medium	31	49,2%
High	32	50,8%
<b>Total</b>	<b>63</b>	<b>100%</b>

Based on the table above, it is known that there was low academic procrastination in 0 individuals (0%), moderate in 31 individuals (49.2%), and high in 32 individuals (50.8%).

Using the Santrock questionnaire measurement scale, the following results were obtained for the learning motivation of the 63 samples:

**Table 3. Overview of Learning Motivation**

Learning Motivation	n	%
Low	34	54,0%
Medium	23	36,5%
High	6	9,5%
<b>Total</b>	<b>63</b>	<b>100%</b>

Based on the table above, 34 students (54.0%) had low learning motivation, 23 students (36.5%), and 6 students (9.5%) had high learning motivation.

The effect of smartphone usage intensity on academic procrastination was tested using the Spearman correlation test. The Spearman correlation test showed that smartphone usage intensity had an effect on academic procrastination with a p-value of 0.001 ( $p < 0.05$ ). The correlation coefficient was 0.790, indicating a strong and positive relationship between the two variables. This means that a high smartphone usage intensity score indicates a high academic procrastination score.

**Table 4. The Effect of Smartphone Usage Intensity on Academic Procrastination**

The Effect of Smartphone Usage Intensity on Academic Procrastination	
Correlation Coefficient (r)	0,790
p-value	0.001
N (total)	63

The influence of smartphone usage intensity on learning motivation was tested using the Spearman correlation test. The Spearman correlation test showed that smartphone usage intensity had an effect on learning motivation with a p-value of 0.001 ( $p < 0.05$ ). The correlation coefficient value was -0.531, indicating a strong and negative relationship between the two variables, meaning that a high smartphone usage intensity score means a low academic procrastination score.

**Table 5. The Effect of Smartphone Usage Intensity on Learning Motivation**

The Effect of Smartphone Usage Intensity on Learning Motivation	
Correlation Coefficient (r)	-0,531
p-value	0.001
N (total)	63

## DISCUSSION

From this study, it was found that more than 50% of students use smartphones with very high intensity. This is in line with previous studies with the results of the low category obtained results of 2 students (13%), the medium category obtained results of 42 students (40.8%), and the high category obtained results of 59 students (57.3%).<sup>11</sup> The intensity of smartphone use by most students is the high category.<sup>3</sup> In contrast, data obtained from previous studies that the majority of students (84.3%) use smartphones with a normal duration of 2-12 hours / day, while smartphone use is around 2-3 hours / day (below normal category) is around 36 respondents (12.71%), the above normal duration category (14-17 hours / day) is 12.71%, and the extreme duration category (> 17 hours / day) is around 4.0%. The results of this study indicate that students are addicted to smartphones for more than an hour a day.<sup>4,12,13</sup>

The factors that contribute to prolonged smartphone use are user behaviors, which are divided into three categories: cognitive, which refers to the user's knowledge and insight into

smartphone use; affective, which determines the user's comfort and attitude when accessing the internet; and conative, which refers to their skill in using the smartphone. Another factor is students' interest in reading, which can contribute to prolonged smartphone use, thanks to the features offered by smartphones, such as games, educational resources, and social networking, which support the learning process.<sup>10,14,15</sup>

This study found that more than 50.8% of students engaged in high levels of academic procrastination. This is consistent with previous research, with 3 students (10%) in the very low category, 2 students (6.7%) in the low category, 4 students (13.3%) in the moderate category, 18 students (60%) in the high category, and 3 students (10%) in the very high category.<sup>16,17,18</sup> The highest level of academic procrastination among students is in the high category. This is due to several factors, including students' self-confidence.<sup>19,20,21</sup> Many students lack confidence in their abilities, especially when faced with difficult situations.<sup>22,23,24</sup> Furthermore, easily distracted attention or concentration is also a contributing factor to high levels of academic procrastination among students.<sup>25</sup> Another factor is poor time management. Students with poor time management tend to enjoy their time and consider time to be unimportant, thus not having specific academic targets to achieve. Another factor is student laziness, which causes them to lack motivation to complete

their academic tasks, thus becoming an obstacle in the future.<sup>26,27,28</sup>

This study found that 54% of students had low learning motivation. This differs from previous research, which found that 72 students (25.53%) were in the low category, 96 students (34.04%) were in the average category, and 114 students (40.43%) were in the high category. The highest level of student learning motivation was found in the high category.<sup>29</sup> Factors that can influence student learning motivation include having clear goals. With clear goals, students will direct their abilities to learn and achieve their goals. Furthermore, a sense of enjoyment in learning is also a factor influencing student learning motivation. When students enjoy learning, they will not feel burdened in planning their study schedules. Another factor is a sense of responsibility. To achieve their academic goals, students need to have a sense of responsibility for their obligations, namely studying, so they will not take their academic tasks and obligations lightly. Apart from that, they will try to complete their academic assignments and obligations as best as possible.<sup>29</sup>

The emergence of technology offered by smartphones can lead to excessive smartphone use, which can have negative impacts and affect the social life of individuals who use them.<sup>2</sup> Smartphone use influences academic procrastination among medical students. This study demonstrates this, with test results showing a strong and positive effect. High smartphone use influences academic procrastination because

students with high smartphone usage intensity often engage in academic procrastination. Students who engage in academic procrastination use their smartphones more frequently for gaming and social media, which ultimately negatively impacts academic performance.<sup>30</sup> This aligns with previous research, which found that smartphone addiction can be a significant cause of academic procrastination among students. Previous research has also shown that smartphone use among students often results in students neglecting and procrastinating their academic responsibilities. This smartphone addiction impacts students' physical and mental health, ultimately resulting in problems with interpersonal communication and academic failure.<sup>21</sup>

Smartphone use influences learning motivation among medical students. This study demonstrates this, with test results showing a strong and negative effect. High smartphone usage affects learning motivation because internet access and many social media can make it easier to receive information or communicate, using social media will impact a person's learning motivation because they feel comfortable and can spend a long time just browsing social media, so that the time that can be used for learning will be reduced or learning time can disappear.<sup>29</sup> This is in line with previous research where mistakes that often occur in smartphone users are excessive duration and intensity which can cause an addictive effect on smartphones, so that it

can make learning motivation decrease. In addition, the amount of time spent using the internet can affect the quality of relationships with others and can disrupt psychological well-being.<sup>23</sup>

## CONCLUSION

1. The intensity of smartphone use is categorized as very high in 55.6% of students at the University of Muhammadiyah North Sumatra.
2. Academic procrastination is categorized as high in 50.8% of students at the University of Muhammadiyah North Sumatra.
3. Learning motivation is categorized as low in 54.0% of students at the University of Muhammadiyah North Sumatra.
4. There is an effect of smartphone use intensity on academic procrastination in students at the University of Muhammadiyah North Sumatra, with a p-value of 0.001 and a correlation coefficient of 0.790. The relationship between the two variables is categorized as strong and positive, so that very high smartphone use intensity can also influence high academic procrastination.
5. The effect of smartphone use intensity on learning motivation in students at the University of Muhammadiyah North Sumatra, with a p-value of 0.001 and a correlation coefficient of -0.531. The relationship between the two variables is categorized as strong and negative, so

that very high smartphone use intensity can influence low learning motivation.

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