The Relationship of Self-Regulated Learning and Academic Stress on Smartphone Addiction in High School Students in Jakarta

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Abstract. The purpose of this study was to investigate relationship of self-regulated learning and academic stress on smartphone addiction in high school students in Jakarta. This research was conducted in Jakarta with a total of 401 high school students in Jakarta. Based on the results of the study, it can be concluded that there is no relationship between Academic Stress and Smartphone Addiction, but one aspect of Academic Stress, namely Task Demands, has a relationship with Smartphone Addiction which has a positive and significant effect on Smartphone Addiction. In addition, Self-Regulated Learning and Smartphone Addiction are also not related to each other, but one aspect of Self-Regulated Learning, namely Affective Component, has a relationship with Smartphone Addiction which has a positive and significant effect on Smartphone Addiction. Thus, it can be said that Academic Stress and Self-Regulated Learning have no effect on Smartphone Addiction in high school students in Jakarta.

Keywords: Academic Stress; Self-Regulated Learning; Smartphone Addiction

1 Introduction

With the current world conditions being hit by the COVID-19 virus (Corona Virus) since early 2020, then with the announcement of Lockdown by the Indonesian government in April, people are not allowed to go out of the house if they don't have to. This is also applied to school students of all levels, from kindergarten students to university students. Therefore, to overcome this problem, the Minister of Education and Culture gave an opinion on utilizing technology as online learning or what is often called Online. This was done by the Minister of Education and Culture to overcome educational problems during the COVID-19 virus outbreak which required people to keep their distance from each other. However, gadgets/smartphones can also hinder their intelligence if they are not used wisely. According to Suhartien [19], the use of gadgets should be avoided early on because these gadgets have more negative impacts than positive ones.

One of the negative impacts of using gadgets has been found in the city of Semarang where there are 8 students who are addicted to online games on smartphones and in the city of Solo dozens of students are treated at the Dr Arif Zainudin Hospital and the last one in the city of Palembang there are 3 students who are not only addicted to online games but with pornographic videos [25]. This is because Smartphones also function to produce pleasure, relieve pain and

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feelings of stress for a while, but failing to control or limit their use will have harmful consequences [22]. A person who experiences a situation or condition that causes stress will naturally try to overcome it by using a number of certain behaviors, one of which is the use of a smartphone [6]. Stress can be experienced by every individual, including students in kindergarten, elementary school, junior high school, high school, and even college students [21].

According to Barseli, Ahmad, and Ifdil [2], continuous curriculum changes, new environmental and social conditions such as a new learning climate, new teachers, new relationships with peers and so on, are one of the causes that can cause academic stress in students. This is because students are asked to adapt themselves to changes in the curriculum and the new social environment. Stress in the form of tension that comes from academic factors experienced by students can cause distortions in students' minds and affect physical, emotional, behavioral, and disrupt the learning process [21]. Academic stress is a stress that is included in the category of distress. Academic stress is a condition in which students cannot face academic demands and perceive academic demands that are accepted as a nuisance [24].

In a previous study conducted by Chiu [3] it was also known that smartphone addiction can occur because it is a way to transfer stress and lack of self-control, so it is possible that academic stress can cause smartphone addiction, but with self-regulated learning, academic stress and Smartphone addiction can be reduced. One way to overcome this academic stress is to have habits within the individual that can regulate student learning styles, namely self-regulated learning. Students who have a good SRL will be shown by the ability to manage regular study habits and be able to apply their learning strategies to learning at school so as to reduce their academic stress [10],

According to Chung [4], the student learning process is not only controlled in external aspects, but is controlled by internal aspects which are regulated by the students themselves (Self-Regulated Learning). As well as students' understanding of external and internal factors, which affect the learning process, can help students to recognize their abilities and weaknesses [8]. In the SRL (Self-Regulated Learning) process, students need to set their learning goals, make their lesson plans, evaluate their learning outcomes and suppress distractions, so that students are expected to improve their learning outcomes [15]. In essence, Self-Regulated learning is an attempt to monitor, regulate, and control aspects of cognition, motivation, and individual behavior in the learning process [20].

Thus, if students can use smartphones with good self-regulated learning, students can be helped in their learning process without having to experience smartphone addiction. In the research of Priskila and Savira [16], it is also known that there is a fairly strong relationship between Self-Regulated Learning and Academic Stress in high school students, where the higher the SRL, the lower the Academic Stress, and vice versa. Then in the research of Haryuningrum and Dian [9] which measures self-regulation with addiction to social networks, namely Facebook, it is known that there is a significant relationship between the two variables where the higher the addiction to using social networks, the lower the self-regulation in the individual. In Anggreani's research [1] which examined the relationship between academic stress and Self-Regulated Learning with addiction to social networks, it also had the same result, namely that there was a positive relationship between academic stress and addiction to social networks, then there was a significant negative relationship between self-regulation and social network addiction.

Based on the description of the background above, the formulation of the problem in this study is stated in the research question, namely "Is there a relationship between Self-Regulated Learning and Academic Stress on Smartphone Addiction in High School Teenagers?" This study aims to see the relationship between Self-Regulated Learning and Academic Stress on

Smartphone Addiction in High School Teenagers. The hypotheses formulated in this study are as follows:

H1: There is a relationship between Self-Regulated Learning and Smartphone Addiction in High School Teens in Jakarta.

H2: There is a relationship between Academic Stress and Smartphone Addiction in High School Teenagers in Jakarta.

2 Research Methods

2.1 Research Design and Sample

This study uses a quantitative approach in which data is collected and presented in the form of numbers, scores, averages for different groups on several tasks, the percentage of people doing something, graphs, data tables, and so on [15]. The population used in this study were final year students in Jakarta. The characteristics of the respondents in this study were: high school students, have a personal smartphone, and are 15-18 years old.

2.2 Instrument for Gathering Data

Researchers used a Smartphone Addiction measuring instrument using the theory of Kwon et. al [12]. The measuring instrument for Academic Stress uses the theory of Desmita [5]. The Self-Regulated Learning measurement tool uses the theory and measuring tools from Pintrich, Smith, Garcia and McKeachie [14] and is updated and discussed in more detail by Duncan and McKeachie [7]. The questions listed in the Smartphone Addiction questionnaire have only 1 type of statement, namely favorable, except for 1 indicator in 1 aspect which is unfavorable. This measuring instrument is also accompanied by six answer options, namely Strongly disagree (STS), Disagree (TS), Slightly disagree (ATS), Slightly agree (US), Agree (S), Strongly agree (SS). The statements listed in the Academic Stress Questionnaire consist of favorable and unfavorable accompanied by four answer choices, namely Strongly Agree (SS), Agree (S), Less Disagree (KTS), and Disagree (TS). The statements listed in the Self-Regulated Learning questionnaire consist of 1 type of statement, namely favorable accompanied by seven answer choices, namely, Not at all in accordance with me, Not in accordance with me, Not in accordance with me, Average according to me, Quite in accordance with me , More suited to me, and Perfectly suited to me.

2.3 Reliability of The Smartphone Addiction Instrument

Researchers tested the Smartphone Addiction instrument with 33 items that had been distributed, overall, the researchers got a value of 0.898 when testing the Smartphone Addiction measuring instrument without any items being wasted at all. Siregar [18] says that a variable is said to be a variable if it gives a Cronbach Alpha value > 0.60. Based on these results, it can be said that the Smartphone Addiction instrument is reliable.

2.4 Reliability of The Academic Stress Instrument

The researcher conducted a trial on the Academic Stress instrument with 31 items that had been distributed by the researcher. Overall, the researcher got a score of 0.603 after 3 items were discarded. Based on the results above, it can be concluded that the Academic Stress instrument is reliable.

2.5 Reliability of The Self-Regulated Learning Instrument

The researcher conducted a trial on the Self-Regulated Learning instrument with 31 items that had been distributed by the researcher, the researcher got a reliability value on the Self-Regulated Learning instrument of 0.934. Based on the results above, it can be concluded that the Self-Regulated Learning instrument is reliable.

3 Results and Discussion

3.1 Demographic Data And Descriptive Data

Based on the data collection carried out, it was obtained a description of the demographic data of the participants as follows:

Table 1. Demographic Data of Participants

	Frequency	Percentage
Gender		
Male	202	50.4
Female	199	49.6
	401	100
School		
Public	291	72.6
Private	110	27.4
	401	100
City		
Central Jakarta	42	10.5
North Jakarta	76	19.0
South Jakarta	71	17.7
West Jakarta	148	36.9
East Jakarta	64	16.0
	401	100
Class		
X	86	21.4
XI	216	53.9
XII	99	24.7
	401	100

Based on data collection that has been carried out on 401 participants, the descriptive variable results are as follows:

Table 2. Mean and Standard Deviation

	Min	Max	Mean	Std. Deviation
Academic Stress	10.00	37.00	19.9551	4.90744
Self-Regulated Learning	26.00	182.00	130.2170	24.57794

Smartphone Addicition	37.00	156.00	95.7805	21.75309

Based on the table above, the table shows that the average value for the Academic Stress variable is 19.9551 with an SD of 4.90744, the Self Regulated Learning variable is 130.2170 with an SD of 24.57794, and the last variable is Smartphone Addiction of 95.7805 with an SD of 21.75309.

3.2 Data Normality Assumption Test

In this study, researchers conducted a normality test to see the relationship between variables, whether they were parametric or non-parametric. At this stage, the researcher conducted a normality test on all of the respondents' data, which amounted to 401 respondents. The researcher tested the assumptions by using the One-sample Kolmogorov-Smirnov test. The assumption test results show that the significance value of Academic Stress, Self-Regulated Learning, and Smartphone Addiction is below the significance value of 0.05, so that Academic Stress, Self-Regulated Learning, and Smartphone Addiction have data that are not normally distributed.

3.3 Correlation Test

The results of the correlation test in this study were obtained by testing the relationship between Academic Stress and Smartphone Addiction using the Spearman correlation in the SPSS 26.0 program. Spearman correlation is used because the data is not normally distributed. Based on data from the correlation test, the r value obtained in the Spearman correlation is 0.088 which indicates there is no relationship between the two variables with a significance value (p) of 0.079 where $p > 0.05$ means that H2 is rejected.

This shows that there is no relationship between Academic Stress and Smartphone Addiction. As additional data analysis, the researcher tested aspects of academic stress with smartphone addiction, where aspects of academic stress consist of 3 aspects, namely: Task Demands, Role Demands, and Interpersonal Demands. Based on data from the correlation test, the value of r with the Task Demands aspect is 0.116, which means that there is a relationship between the Task Demands and Smartphone Addiction aspects with a significance value (p) of 0.021, where $p < 0.05$, indicating that there is a relationship between the variables measured. very weak. Meanwhile, Role Demands and Interpersonal Demands have a correlation coefficient (r) of 0.047 and 0.051 which means that there is no relationship between the two aspects of academic stress and Smartphone Addiction with a significance value (p) of 0.347 for Role Demands and 0.308 for Interpersonal Demands, where $p > 0.05$ so that it shows that there is no significant relationship between the measured variables.

The results of testing the relationship between Self-regulated Learning and Smartphone Addiction using the Spearman correlation obtained a correlation coefficient of 0.057 and a significance value (p) of 0.254 where $p > 0.05$ which means there is no significant relationship between the two variables, which means H1 is rejected. As additional data analysis, the researcher tested aspects of self-regulated learning with smartphone addiction, where aspects of self-regulated learning consisted of 3 aspects, namely: Value Component, Expectancy Component, and Affective Component with Smartphone Addiction.

Based on data from the correlation test, the value of r with the Value Component aspect is 0.074 and the Expectancy Component is 0.007 which means that both aspects have no relationship with Smartphone Addiction with a significance value (p) of 0.137 for the Value Component and 0.890 for the Expectancy Component where $p > 0.05$ so shows that there is no

relationship between the measured variables. While the Affective Component has an r value of 0.129 which indicates that, this aspect has a relationship with Smartphone Addiction with a significance value (p) of 0.010, where $p < 0.05$, indicating that there is a relationship with the Affective Component aspect. however, the relationship is very weak.

Discussion

This study aims to examine the role of self-regulated learning and academic stress on Smartphone addiction in high school adolescents in Jakarta. From this study, the researchers found that there was no relationship between Academic Stress and Smartphone Addiction with a correlation coefficient of 0.088 with a significance of 0.079. This shows that there is no relationship between Academic Stress and Smartphone Addiction. However, the Task Demands aspect shows that there is a relationship between the Task Demands aspect and Smartphone Addiction with a correlation coefficient of 0.116 with a significance of 0.021.

This shows that there is a relationship between aspects of Task Demands and Smartphone Addiction. Task Demands is a demand in which high school students must do the tasks given by the teacher and take lessons in class and take exams or tests. The results of this study are not in line with the research of Simangunsong and Sawitri [17]; Wang, Rost, Qiao and Monk [23]; Chiu [3] who found that there is a significant relationship between Academic Stress and Smartphone Addiction where if Academic Stress is high, Smartphone Addiction is high. The cause of the results of previous studies that are not in line with the results of research conducted may be caused by different learning methods where in previous studies it was not online learning, while in research conducted by researchers it was about online learning.

Online learning done at home makes students and teachers not need to go to school to study, but students and teachers use smart phones or other devices to study online in the form of Zoom, Google Classroom, Video calls and so on. However, according to a statement from Karuniawan and Cahyanti [11] the use of smartphones does not always have a positive impact because when students can use smartphones as a tool to reduce their academic stress, this will cause students to use their smartphones excessively and uncontrollably.

Moreover, because of this online learning, teachers and students do not have the same time when they are in class to study, therefore teachers also have to give a lot of assignments to make students understand the material that has been taught. explained by the teachers. This is what can make students become stressed because of the many difficult tasks that can make them stressed.

In addition, from this study the researchers found that there was no relationship between Self-Regulated Learning and Smartphone Addiction with a correlation coefficient of 0.057 with a significance of 0.254. This shows that there is no relationship between Self-Regulated Learning and Smartphone Addiction. However, in the Affective Component aspect, there is a correlation coefficient of 0.129 with a significance of 0.010, which means that there is a relationship between the Affective Component Aspect and Smartphone Addiction.

The Affective Component has two components, namely a component of concern and an emotional component, the component of concern is the negative thoughts of students that can interfere with their achievement, while the emotional component is the affective and physiological side which is a manifestation of anxiety (anxiety). This is not in line with research from Priscila and Savira (2019); Haryuningrum and Dian [9]; Anggreani [1] where Self-Regulated Learning has a significant relationship with addiction in general, where the higher Self-Regulated Learning, the lower the level of addiction in students.

According to Oktawirawan [13] anxiety is the main factor that can make high school students become stressed when doing online learning. This is because the little teaching time

makes students less understanding of the material being studied so that it makes students become stressed. Lack of mastery of the material can make students find it difficult to do the tasks given by the teacher which is then followed by a sense of anxiety in students about the potential for a decrease in grades in their exams.

Therefore, the use of Smartphones during online learning like this must also require students to study independently (Self-Regulated Learning). The data obtained by the researcher shows that high school students who do Self-Regulated Learning at home tend to be average at various levels, Then the statement from Oktawirawan [13] also states that with internet access via Smartphones, students can use the internet or online applications students can learn independently by discussing with friends and can communicate with the teacher to help understand the material well.

4 Conclusion

The results of this study indicate that there is no significant relationship between Academic Stress and Self-Regulated Learning on Smartphone Addiction, but in the aspect of Task Demands (Academic Stress) and Affective Component (Self-Regulated Learning) there is a relationship with Smartphone Addiction. Due to the current world conditions that are being hit by the COVID-19 virus, learning must be done at home (Online). This causes teachers to only have limited time, which ultimately encourages teachers to give assignments to students more often so that students can understand the material that has been given in a short time. However, giving a lot of assignments can make students become stressed and anxious. In addition to assignments, mastery of the material can also make students anxious and stressed. This is what can make students use their smartphones excessively or cannot control themselves to relieve or even relieve their stress.

Limitation And Future Study

The researcher realizes that there are still many shortcomings in this research. Therefore, the researcher has several suggestions to make improvements for further research, First looking for a lot of literature and also research on Academic Stress, Self-Regulated Learning, and Smartphone Addiction in order to get more information and also relate variables that may be relevant either with Academic Stress, Self-Regulated Learning or Smartphone Addiction. Then further researchers can also measure Smartphone Addiction in more detail in the Game section only or in the Social Media section.

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