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Analysis of Level of Academic Procrastination on Mathematics Assignments

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ABSTRACT

This study aims to determine the level of academic procrastination on the mathematics assignment of students at SMP Negeri 11 Yogyakarta. In addition, to find out the causes of students experiencing academic procrastination. The purpose of the study was so that the results of this study can be used as a reference to find solutions to the problems experienced by students. This type of research is descriptive quantitative. The population in this study were students of SMP Negeri 11 Yogyakarta class VIII as many as 136 students. The methods used are questionnaires, interviews, and documentation. The instrument validity technique uses logical validity carried out by material experts and empirical validity with a significant level of 5%. Test the reliability of the instrument using Cronbach's Alpha formula and determine the category of procrastination using SPSS 28.0. Qualitative data analysis uses descriptive qualitative, including data reduction, data presentation, and verification. Test the validity of the data in this study including the credibility test using triangulation techniques. The results showed that there were 21 students in the high category, 69 students in the medium category, and 10 students in the low category. The causes of students experiencing procrastination include a lack of interest in mathematics, difficult math tasks, considering tasks that are less important to do, and lacking the ability to divide time.

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1. Introduction

Mathematics is one of the subjects taught at all levels of school. During the process of learning mathematics, there are several experiences, one of which is the experience of getting assignments in mathematics. However, children who don't like, don't like, or are less talented in mathematics, will find it difficult and lazy in the process. As a result, the child cannot complete the task properly. Even though the mathematics assignment from the teacher aims to train and increase students' skills. According to Pestana et al. (2020), this behavior of delaying or being lazy to do tasks is called procrastination. Meanwhile, procrastination or lazy behavior in the academic sphere is called academic procrastination.

Cases of procrastination can occur in all areas of life including education or school. In the field of education or school, procrastination experienced by students includes delaying learning and delaying doing assignments. However, students more often experience delays in doing school assignments. This statement is in line with the results of research by Katz et al (2014) which showed that students experience academic procrastination in doing schoolwork.

In the field of education, procrastination can cause academic problems for the perpetrators. These academic problems include bad grades and not passing exams. This is in line with Janssen's research (2015) which stated that academic procrastination also hurts academic achievement which includes low

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scores, cheating behavior, and an average score that is lower than the average passing standard. The results of this study indicate that procrastination hurts individuals.

Several studies have found that teenagers tend to procrastinate more often than adults who have emotional maturity and clear goals in life Kim & Seo (2015). The young people in question are school-age children. This is one of the causes of academic procrastination in schools. Based on this, the problem of procrastination within the scope of education or schools, especially in the assignment of mathematics subjects, needs to be investigated so that it does not cause further problems for the perpetrators.

Grade 8 students of SMP Negeri 11 Yogyakarta experienced the behavior of delaying math assignments given by the teacher. This information was obtained based on the results of observations and interviews regarding the problems experienced by teachers and the conditions of students with math teachers conducted by researchers at SMP Negeri 11 Yogyakarta before conducting the research. The results of observations made by researchers showed that children preferred chatting with friends and then delayed completing their work until finally the assignment during class hours became work that had to be completed at home. Other information was obtained from the results of interviews with the grade 8 mathematics teacher before direct observation by telephone which stated that grade 8 students, especially grades 8C and 8D, often experienced delays in submitting mathematics assignments. Data from interviews and observations is the basis for researchers to analyze the level of procrastination experienced by students and the causes of students' procrastination in doing assignments. Therefore, researchers examined the level of academic procrastination in Yogyakarta 11 Public Middle School students and its causes.

2. Method

This research was conducted at SMP Negeri 11 Yogyakarta in class VIII. The research was conducted from September 20 2021 to October 15, 2021.

In this study, the data collection techniques used by researchers are as follows:

1. Questionnaire

This study uses a closed questionnaire. Collecting data using a student questionnaire aims to obtain data related to each student's procrastination. To simplify the analysis, the researcher uses alternative answer choices along with scoring as shown in table 1.

Table 1. Alternative answer choices and scores

Alternative Answer Choices	Score	
	+	-
always _(SS)	4	1
Ring _(S)	3	2
Sometimes (K)	2	3
Never (T)	1	4

2. Interview

This study used an unstructured interview technique. The unstructured interview technique is an interview technique that is not carried out according to systematic guidelines. However, the interviews were conducted in a freeway and only outlined the problems to be explored.

3. Documentation

This study used data on the mathematics assignment of grade VIII students.

The research instruments in this study were procrastination questionnaires and interview guidelines. This study uses data analysis techniques as follows:

Quantitative Data Analysis

a. Validity test

Before carrying out qualitative data analysis, a validity test was carried out on the instrument to be used to collect data. The validity test in this study consists of:

1) Logical Validity

This study used a logical validity test which was conducted together with instrument experts, namely mathematics education lecturers at PGRI Yogyakarta University.

2) Empirical Validity

This study uses empirical validity with the *Pearson product-moment* correlation coefficient test developed by Karl Pearson. To find out the validity of the items in this study and to make it easier to calculate the correlation coefficient, the researchers used SPSS *software.* 28 .To interpret the validity of the questionnaire items the researcher uses the criteria according to Guilford (Lestari & Yudhanegara, 2015) as follows:

Table 2. Instrument validity criteria

Correlation coefficient	Correlation	Validity Interpretation
$0.90 \leq r_{xy} \leq 1.00$	Very high	Very Valid
$0.70 \leq r_{xy} < 0.90$	Tall	Valid
$0.40 \leq r_{xy} < 0.70$	Currently	Valid Enough
$0.20 \leq r_{xy} < 0.40$	Low	Invalid
$r_{xy} < 0.20$	Very low	Invalid

(Lestari &Yudhanegara, 2017)

In this study, the instrument developed is said to be valid if the results of the validation assessment are at least in the moderate category or quite valid.

b. Reliability Test

After validation, the valid items are then looked for for their reliability. The purpose of looking for this reliability is to measure the consistency of the instrument to be used. The value of the correlation coefficient between the items in the instrument to determine the high and low consistency of an item denoted by r.

To determine reliability, researchers used the following *Alpha-Cronbach formula:*

$$r = \left(\frac{n}{n-1}\right)\left(1 - \frac{\sum {s_i}^2}{{s_t}^2}\right)$$

(Lestari & Yudhanegara, 2017)

Information:

r = reliability coefficient; n= many questions; ${s_i}^2$= variance of the score of item I; ${s_t}^2$= total score variance

To calculate the reliability coefficient, the researcher used SPSS 28 *software*. To interpret the reliability of the instrument, the researcher used the criteria according to Guilford in Lestari & Yudhanegara (2015) as follows:

Table 3. Instrument reliability criteria

Correlation coefficient	Correlation	Reliability Interpretation
$0.90 \leq r \leq 1.00$	Very high	Very Reliable el
$0.70 \leq r < 0.90$	Tall	Reliable el
$0.40 \leq r < 0.70$	Currently	Simply Reliab el
$0.20 \leq r < 0.40$	Low	Unreliable el_
$r < 0.20$	Very low	Very Unreliable el

Lestari &Yudhanegara (2017)

3. Result and Discussion

Before the questionnaire instrument was analyzed, the researcher conducted two tests on the questionnaire instrument, namely the validity test and the reliability test with the following results:

1. Validity test

a. Logical Validity

The questionnaire instrument used by the researcher has been validated by a material expert (validator). The conclusion of the general questionnaire assessment carried out by the validator is that the questionnaire instrument is very suitable with an average score of 4 and the questionnaire is used with a little revision.

b. Empirical Validity

The questionnaire instrument which had been validated by the subject matter expert (validator) was then tested on 36 respondents. To find out The validity of the tested questionnaire instrument, it was calculated using SPSS 28 *software*. The calculation results are in Table 6with the description of aspect 1 the aspect of *wasting time,* aspect 2 the aspect of *task avoidance,* aspect 3 the aspect of *blaming others,* and uses indicators developed from the Tuckman version of the procrastination questionnaire. Aspects and indicators in this study are as follows:

Table 4. Indicators of Academic Procrastination

Aspect	Indicator
Wasting	delay for
Time	Start doing the task
	buy some time
	in finishing work.
	Difficulty managing time
Task Avoidance	avoids the task because it is considered unpleasant
	consider the task a difficult job
	Choose to do other more enjoyable activities
	Considering less important tasks to be done.
Blaming Others	assume that other people make a job difficult
	I blame other activitiesthat cause procrastination

(Tuckman, 1991)

Table 5. Trial questionnaire validation

Aspect	Indicator	Statement	r hits	Ket
1	delay for Start doing the task	Point 1	0.499	Valid Enough
		Item 2	0.649	Valid Enough
	buy some time in finishing work.	Item 3	0.788	Valid
		Item 5	0.469	Pretty valid
		Item 12	0.395	Invalid
		Item 16	0.455	Valid Enough
	Difficulty managing time	Item 7	0.789	Valid
		Item 11	0.688	Valid Enough
		Item 28	0.544	Valid Enough
2	avoids the task because it is considered unpleasant	Item 6	0.529	Valid Enough
		Item 13	0.855	Valid
		Item 15	0.245	Invalid
	consider the task a difficult job	Item 10	0.754	Valid
		Item 19	0.641	Valid Enough
		Item 24	0.615	Valid Enough
	Choose to do other more enjoyable activities	Item 4	0.604	Valid Enough
		Item 8	0.544	Valid Enough
		Item 9	0.789	Valid
		Item 17	0.675	Valid Enough
		Item 18	0.642	Valid Enough
		Item 21	0.397	Invalid
		Item 22	0.526	Valid Enough
		Item 23	0.759	Valid
	Considering less important tasks to be done.	Item 20	0.719 _	Valid
3	assume that other people make a job difficult	Item 1 4	0.554	Valid Enough
		Item 25	0.539	Valid Enough
		Item 26	0.627	Valid Enough
		Item 27	-0.179	Invalid
	I blame other activitiesthat cause procrastination	Item 29	0.671	Valid Enough
		Item 30	0.412	Valid Enough

Based on the table above, the questionnaire items are said to be valid if they are included in the moderate or quite valid category. Based on the results of the validity above, as many as 19 questionnaire items were declared quite valid and as many as 7 items were declared valid. Therefore, the twenty-six items can be continued to be tested for reliability.

2. Reliability Test

This reliability test was conducted to determine the consistency of the questionnaire instrument items. The items tested were 26 statements that had previously been tested for validity which were declared valid. The results of the reliability test in this study are as follows:

Table 6. Cronbach's Alpha Results

Cronbach's Alpha	Number of Items
0.932 _	26

In this study, a questionnaire is said to be reliable if the value of *Cronbach's Alpha* ≥ 0.7 0. Based on The table above shows that *Cronbach's Alpha value* is 0.932 ≥ 0.7 0. This means that this questionnaire instrument is very reliable. The interpretation of the reliability of the questionnaire instrument is as follows:

Table 7. Interpretation of the reliability of the questionnaire instrument

Correlation coefficient	Correlation	Reliability Interpretation
0.932 _	Very high	Very reliable

Based on the table above, the reliability interpretation of the 26 items of valid questionnaire statements is said to *be* acceptable, because they are included in the very reliable category.

The results of the data collection that has been carried out by researchers, researchers distinguish the category of procrastination into three categories, namely the high category, the medium category, and the low category. As for how to determine the category using the standard deviation can be seen in Appendix 10. The results of the questionnaire for analysis can be summarized as follows:

Table 8. The number of students and the percentage of each procrastination category

No	Academic Procrastination Questionnaire Score	Frequency		Category
		Frequency	Percentage	
1.	$X \geq 50$	21	21%	Tall
2.	$(29 \leq X < 49{,}5)$	69	69 %	Currently
3.	$X < 28{,}5$	10	10 %	Low
Total		100	100 %	

The table above shows that students of SMP Negeri 11 Yogyakarta have procrastination which is calculated from a sample of 100 students. Based on the data obtained, students who had high procrastination were 21 students (21%), then students who had moderate procrastination were 69 students (69%), and students who had low procrastination were 10 students (10%). The tendency of students to procrastinate is in the medium category, namely 69 students (69%).

To determine interview respondents, researchers used the results of questionnaire data according to the procrastination level category. The categories consist of high, medium, and low categories. Researchers chose each of the 3 respondents based on the results of the academic procrastination questionnaire.

Table 9. List of interview respondents

No	Respondents	Class	Procrastination level	Score
1.	NF	8B	Tall	70
2.	NOMS	8C	Tall	59
3.	MMA	8D	Tall	73
4.	AL	8A	Currently	39
5.	AZP	8A	Currently	39
6.	DCA	8C	Currently	38
7.	SMD	8A	Low	27
8.	SSA	8A	Low	26
9.	RTA	8A	Low	26

Based on questionnaires and interviews, the categories of academic procrastination levels and their descriptions were obtained as follows:

a. High Academic Procrastination Category

Based on the results of questionnaires, interviews, and documents as well as data triangulation, students with a high academic procrastination category experience a high tendency to procrastinate. This is marked by the subject not being able to submit assignments on time for several assignments. This is by the definition of procrastination according to Tibbett & Ferrari (2015) that academic procrastination is a delaying behavior that is carried out in formal tasks among these tasks is academic tasks. In this case, the formal task or academic task in question is a math assignment. The behavior of students belonging to the category of high academic procrastination also fits the definition of academic procrastination according to Rothblum et al (1986) which defines that the behavior of delaying academic assignments is done always or almost always. Failure to submit on time and student delays in submitting assignments at high academic procrastination is also the definition mentioned by Lestari & Yudhanegara (2017) and Nasution et al., (2021) which state that procrastination is a behavior of delaying starting to do a job that the perpetrator fails to complete the task according to the time specified by the task maker or a form of failure of a person in completing work to obtain a certain goal. The behavior of high academic procrastination students is also by the definition of Zusya & Akmal (2016) which states that procrastination is the behavior of delaying completing important work that should be completed but preferring to do other activities that are considered more enjoyable than doing assignments. The behavior experienced by students with high academic procrastination is also by the definition according to Pestana et al. (2020) which states that procrastination is a habit of procrastinating and is often counterproductive by postponing assignments. Then Hen & Goroshit (2014) stated that academic procrastination is also associated with deadlines for submitting assignments that have ended. This can be seen from the evidence of assignments that were not successfully submitted on time by students.

Students with high procrastination fulfill the characteristics mentioned by Sukoharjo et al. (2020), namely, they prefer to postpone doing their assignments and experience difficulties in making decisions in choosing work or activities that are important to do first or postpone. The procrastination behavior experienced by students in the high procrastination category also fulfills the characteristics mentioned by Tibbett & and Ferrari (2015), namely delaying starting or completing a task, being late in completing a task, and choosing to do activities that they think are fun. Students with high academic procrastination category belong to the type of *passive procrastination* which is a type of procrastination that occurs when a student or someone is passive in completing a task and experiences negative emotions when completing a task.Then, students with high academic procrastination in doing math assignments experience a type of *dysfunctional procrastination*, namely procrastination behavior without positive intent which has bad consequences and causes the perpetrator to experience problems. *Dysfunctional procrastination* experienced by students is a type of behavioral *dysfunctional procrastination* or *avoidance procrastination*. *Dysfunctional procrastination the behavioral* type or *avoidance procrastination* is an academic delay that can be seen by the avoidance of tasks that procrastinators find unpleasant. In addition, this procrastination behavior is caused by procrastination actors experiencing difficulties in completing tasks.

The academic procrastination behavior experienced by students in the high academic procrastination category fulfills three aspects, namely aspects of wasting time, avoiding assignments, and blaming others. In the aspect of wasting time, students delay starting work on assignments. This is evidenced by the results of questionnaires and interviews. Then, students also buy time to complete their work. This is evidenced by the results of questionnaires, interviews, and documentation. Student assignment documents show students failed to submit assignments on time. Students also have difficulty in dividing the time. Students' difficulty in dividing their time is evidenced by the results of questionnaires and interviews.

In the aspect of avoiding assignments, students with high academic procrastination avoid assignments because they are considered unpleasant. In addition, students also consider math assignments to be difficult jobs. As a result, students choose to do other activities that are more fun. Students also consider the task less important. This is evidenced by the results of questionnaires and interviews. In the aspect of blaming, students with high academic procrastination experience not blaming other people or other activities. This shows that students who are in high procrastination do not experience aspects of blame.

Based on the results of the study, students with a high procrastination category experienced a high procrastination tendency to experience delays in submitting assignments. Students with high

procrastination have causes that influence, including a lack of interest in mathematics, making math assignments difficult, considering assignments to be less important, and lacking the ability to share time.

The impact of procrastination by students in the high procrastination category, namely students experiencing bad grades. If this is done continuously until the next semester it can cause students not to go to class. This statement is in line with research conducted by Hen & and Goroshit (2020). Therefore, teachers and parents should always motivate and advise well so that students can be more diligent and have stable emotions.

b. Moderate Academic Procrastination Category

Based on the results of questionnaires, interviews, and documents as well as triangulation, students with moderate procrastination still tend to delay doing assignments. This is done by students because students find it difficult so students choose to postpone. The behavior of students who are included in moderate academic procrastination is by the definition of procrastination according to Tibbett & Ferrari (2015) which states that academic procrastination is a procrastination behavior carried out in formal tasks among these tasks is academic assignments. The academic task referred to here is a mathematical task. The behavior of students with moderate academic procrastination is by the characteristics of procrastinators mentioned by Mustakim (2017) in point a, namely procrastinators prefer to postpone doing their work or assignments. The behavior experienced by students with moderate academic procrastination also fulfills the characteristics of a procrastinator mentioned by Tibbett & and Ferrari (2015) in point a, namely delaying starting or completing a job or assignment.

The procrastination behavior experienced by students with moderate academic procrastination is included in the type of *active procrastination. Active procrastination* is a standard type of procrastination that does not negatively impact a person's effectiveness. An *active procrastination* person may gain short-term benefits when choosing to postpone completing a task, such as being able to work better under pressure. Thus, a*ctive procrastinat*or can choose their attitudes and decisions according to the time available, know the purpose of time, control time, and have the right coping style. In this case, students with moderate academic procrastination can choose when they delay or not. Students with academic procrastination choose to postpone assignments if the task is difficult and the deadline for submitting assignments is still long. Students delay doing the task better. Students with academic procrastination are still working on and submitting assignments according to the allotted time and are not experiencing delays. Students with moderate academic procrastination are wiser in managing their time. Therefore, students with academic procrastination are experiencing *functional procrastination*. *Functional procrastination* is delaying doing a task to produce a more perfect task. In this study, students with academic procrastination were procrastinating to do their assignments better. Students delay working to find formulas, and explanations, and prepare their minds so that they are in conditions that can be used to think better.

Academic procrastination behavior is experiencing aspects of wasting time and avoiding assignments. Students with academic procrastination are experiencing avoiding assignments by delaying if they have difficulty doing math assignments. Delaying doing tasks means stalling for time. This is included in the aspect of wasting time while avoiding the task by doing other activities is included in the aspect of avoiding the task. Students with moderate academic procrastination do not blame other people or other activities if they experience problems in completing assignments. Therefore, students with moderate academic procrastination do not experience aspects of blaming others. Based on the results of the study, the reason why students with academic procrastination are experiencing academic procrastination is that students find it difficult to complete assignments.

Students with moderate academic procrastination do not experience any adverse effects due to their procrastination behavior. Students always work on assignments and submit their assignments on time. Students with moderate academic procrastination are understandable.

c. Low Academic Procrastination Category

Based on the results of questionnaires, interviews, and documents as well as triangulation tables in the previous sub-chapter, students with low academic procrastination answered never to almost all positive procrastination questionnaire procrastination statements and only one positive statement was selected occasionally. This shows that students with low academic procrastination almost do not experience academic procrastination. Based on The results of interviews, questionnaires, and documentation, showed that students did not delay doing assignments even though the tasks were difficult. Students more often directly work on assignments. Students with low procrastination category do not experience all three aspects of procrastination. Students do not experience aspects of wasting time because students do not procrastinate, do not procrastinate, and can divide their time well. Students with low academic procrastination do not experience aspects of avoiding assignments because even though the task is difficult

students still do not procrastinate doing it. Students also do not blame other people or other activities, therefore students do not experience aspects of blaming.

Students with low academic procrastination do not experience any type of procrastination. In addition, students with low academic procrastination do not experience adverse effects. Students with low procrastination can be said not to experience procrastination.

4. Conclusion

The results showed that 21 students were in the high category. Students with high levels of procrastination experience passive procrastination and dysfunctional procrastination. In the type of dysfunctional procrastination, students with high academic procrastination categories are included in behavior or avoidance procrastination. As many as 69 students belong to the moderate category. Students with moderate levels of procrastination experience active procrastination and functional procrastination. As many as 10 students belong to the low category. Students with low levels of procrastination can be said not to experience procrastination. The causes of students experiencing procrastination include being less interested in mathematics, considering mathematics assignments to be difficult, considering assignments to be less important, and lacking the ability to share time.

Suggestions in this study are given to teachers, parents, and future researchers. Suggestions for teachers include: Teachers should make children like mathematics before giving teaching and assignments. Teachers can provide learning strategies that attract students, teachers can create learning strategies that make students think math is easy, teachers don't give assignments that can make students think math is difficult and math teachers can work with counseling teachers so they can help students reduce procrastination student academic. Suggestions for parents of students include: Parents always support and make conditions for children to always be happy so that children are not pressured to learn mathematics and Parents to foster a sense of responsibility towards children so that children are motivated to always do a good job. Suggestions for further researchers include: Researchers being more optimal in conducting research and Researchers further developing research with the same theme to be able to have a positive impact on education.

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