An Analysis of Students Responses on Mathematics Learning Based on Google Classroom

Tetty Natalia Sipayung[1], Imelda[2], Tatag Yuli Eko Siswono[3], Masriyah[4]
[1,2]*Universitas Katolik Santo Thomas, Indonesia*
[3,4]*Department of Mathematics Education, State University of Surabaya, Indonesia*
tetty_sipayung@ust.ac.id

Abstract

A teacher needs to observe student responses when learning takes place. During the Covid- 19 pandemic, it was to observe student responses when learning takes place online. However, efforts are still being made to determine student responses to online learning. Student responses is needed to determine the cognitive and affective development of student when learning take place. Therefore, a study was conducted on the analysis of student responses to mathematics learning. Mathematics learning applied in this study uses online learning, namely using a learning container, namely Google Classroom. This research ia a qualitative research which aims to analyze students' responses to mathematics learning based on google classroom. This research involved subjects, namely students of class VII-C SMP Santo Yoseph Medan in the odd semester of the 2020/2021 Academic Year, totaling 32 people. The instrument used to analyze student responses was a questionnaire designed online in the form of a google form. The results of this study explain that student responses are positive towards google classroom-based mathematics learning. This is studied based on indicators of student responses.

I. Introduction

Education that is carried out from time to time is always changing in accordance with the times. Therefore, teachers as learning managers are required to be more creative and innovative in order to make learning outcomes more optimal. This is in accordance with the Law of the Republic of Indonesia Number 20 of 2003, Article 1 paragraph 19, concerning the National Education System (Sisdiknas) that education is a conscious and planned effort to realize a learning atmosphere and learning process so that students actively develop their potential to have spiritual, religious, self-control, personality, intelligence, noble character, and skills needed by themselves, society, nation and state (Simorangkir and Sembiring, 2018).

Mathematics is inseparable from numbers, but not the main essence of mathematics. Mathematics as a science that can train students' abilities. Mathematics cannot be taken from problems (Ulya, Kartono, H. and A Retnoningsih, 2014: 577). But even so, math still in its frightening way even mathematics answers a collection of complicated problems solved by students. There are several reasons why students can have difficulties in mathematics at various points in development, one concern that can affect the learning of all students regardless of whether they have math learning disabilities, or is conceptual understanding (L. Booth, J., 2011: 31).

Various attempts by teachers or education practitioners have been made to improve student achievement in mathematics, but have not shown satisfactory results. In the mathematics competition at PISA, Indonesia is still in the lowest rank. It takes constant efforts to train students to get used to mathematics and the problems that exist in it. Teachers also need to choose a learning model that is in accordance with the condition of students so that students are active in the learning process and improve student achievement (Husna, at. al., 2019: 408).

Response in learning is important because it relates to the results and learning objectives that students want to achieve (Muhlisin, A., 2018: 14). To support students; ideas and channel them to knowledge development, teachers need to have skills that include learning to pay attention to, analyze, and respond to student ideas (Dalvi, T. and Anna Hofmann, 2019: 333). In addition, flexibility in asking is needed, teachers need to adjust questions to accommodate student contributions and respond to student thinking in a neutral rather than evaluative way (Chin, C., 2006: 1319).

The emergence of new technologies is increasingly rapid, being the background of the birth of the learning model of blended learning as a new innovation in responding to the challenges of the times (Prasasti et al, 2019). Online learning, which is required to be carried out during the Covid-19 pandemic, is of course the concern of all teachers, especially responding to student responses in online learning. E-learning innovation research is research on the acceptance of online learning after innovation is adopted for classroom use (Ngammpornchai, A. and Jonathan Adams, 2016: 13). Therefore, qualitative research is needed to analyze student responses to online mathematics learning. But on this occasion, student responses will be analyzed in online learning based on the Google Classroom application. The results of this study can be used as a reference or information that can help in improving the quality of learning in the classroom, especially in the school environment.

II. Research Methods

This research is a qualitative research with a descriptive method that aims to analyze student responses to mathematics learning based on Google Classroom. This research was conducted in the odd semester of the 2020/2021 academic year. The subject of this study was 32 students of class VII-C SMP Santo Yoseph Medan. Class VII-C students are taught online using the Google Classroom application. Therefore, the object of this study is the response of students to learning mathematics based on Google Classroom.

The research instrument was a questionnaire designed online using google form. Questionnaires are given to students after completing the implementation of mathematics learning with the aim of collecting student response data on Google Classroom-based mathematics learning. The questionnaire given is arranged based on the student response questionnaire grid which is presented in the following table:

Table 1. Student Response Questionnaire Grid

No.	Indicator	Questionnaire Item Number		Total
		Positive Statement	**Negative Statement**	
1.	Student interest in learning methods	1, 4	13	3
2.	The benefit that students get by using learning methods	3, 5, 6, 7, 8, 9, 14	10	8

| 3. | Constraints experienced by students during the learning process with the learning method | - | 11, 15 | 2 |
| 4. | Students' expectations and suggestions for learning methods | 12 | 2 | 2 |

As for interpretation of the questionnaire results percentage scale can be seen in the following table:

Table 2. Percentage Interpretation of the Questionnaire

Score (%)	Criteria
0-20	very weak
21-40	weak
41-60	enough
61-80	strong
81-100	very strong

To determine the student response category, the percentage data can be adjusted according to the following criteria:

Table 3. Student Response Criteria

Percentage	Category
85 % ≤ student response	very positive
70 % ≤ student response < 85 %	positive
50 % ≤ student response < 70 %	less positive
student response < 50 %	Not positive

III. Results and Discussion

Mathematics learning that has been carried out online based on Google Classroom can be seen from the student responses. Student responses were analyzed based on the results of questionnaires filled out by students on the shared google form. There are four indicators of student responses which include: (1) student interest in learning using the Google Classroom application; (2) The benefits that students get in learning using the process using the Google Classroom application; (3) Constraints experienced by student during the learning process using the Google Classroom application and (4) Students' expectations and suggestions for learning using the Google Classroom application. Based on the data collection that has been done, the student responses data analysis is described based on each indicator. The percentage of student responses to indicators of student interest in learning mathematics using Google Classroom can be seen in the following table:

Table 4. Percentage of Each Item Response on Indicator 1

Item Number		Strongly Agree		Agree		Disagree Less		Disagree		Strongly Disagree	
(+)	(-)	Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%
1		7	21, 9	21	65,6	4	12, 5	0	0	0	0
4		2	6,2	19	59,4	7	21,9	3	9,4	1	3,1
	13	3	9,4	6	18,7	11	34,4	11	34,4	1	3,1
Total		12	37,5	46	143,7	22	68,8	14	43,8	2	6,2
Average			12,5		47,9		22,9		14,6		2,1

Based on the indicator of student interest in learning with Google Class which is linked to the data in the table above, information is obtained that 12.5% of students strongly agree, 47.9% of students agree, 22.9% of students disagree, 14.6% students disagree, and 2.1% of students strongly disagree. The percentage of student responses to the overall interest indicator is stated in the following table:

Table 5. Percentage of Student Responses to Indicator 1

Item Number	Score	Frequency	Total Score	Percentage (%)
	5	10	50	14,6
	4	51	204	59,6
1, 4, 13	3	22	66	19,3
	2	9	18	5,3
	1	4	4	1,2
Total		96	342	100
Highest Score		5		
Number of Statement		3		
Number of Respondent		32		
Maximum Score		480		
Percent Average		71,25		

In the table above, information is obtained that the average percentage of student interest in learning with Google Classroom is 71.25 % and this is a positive response category. The percentage gain is in the strong category. Furthermore, students' responses are analyzed based on the indicators of benefits obtained by students in learning with Google Classroom which can be seen in the following table:

Table 6. Percentage of Each Item Response in Indicator 2

Item Number		Strongly Agree		Agree		Disagree Less		Disagree		Strongly Disagree	
(+)	(-)	Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%
3		4	12, 5	21	65, 6	7	21, 9	0	0	0	0
5		7	21, 9	19	59, 4	5	15, 6	1	3,1	0	0

		5	%	4	%	3	%	2	%	1	%
6		3	9,4	23	71,9	5	15,6	1	3,1	0	0
7		10	31,3	18	56,3	3	9,4	0	0	1	3,1
8		3	9,4	20	62,5	8	25	1	3,1	0	0
9		3	9,4	18	56,3	10	31,3	1	3,1	0	0
14		8	25	15	46,9	7	21,9	0	0	2	6,2
	10	1	3,1	6	18,8	13	40,6	10	31,3	2	6,2
Total		38	122	140	437,6	58	181,3	14	43,7	5	15,5
Average			15,3		54,7		22,6		5,5		1,9

Based on the indicators of benefits obtained by students in learning mathematics with Google Classroom which are linked in the table above, it is found that 15.3 % of students strongly agree, 54.7 % of students agree, 22.6 % of students disagree, 5.5 % of students disagreed, and 1.9 % of students strongly disagreed. From this percentage data, it can be concluded that student responses are positively related to the benefits obtained by students in learning mathematics with Google Classroom. Overall, the data on the percentage of student responses to the indicators of benefits obtained by students can be seen in the following table:

Table 7. Percentage of Student Responses to Indicator 2

Item Number	Score	Frequency	Total Score	Percentage (%)
3, 5, 6, 7, 8, 9, 10, 14	5	41	205	21
	4	144	576	59
	3	58	174	17,8
	2	9	18	1,8
	1	4	4	0,4
Total		256	977	100
Highest Score	5			
Number of Statement	8			
Number of Respondent	32			
Maximum Score	1280			
Percent Average	76,32			

In the table above, information is obtained that the average percentage of students benefiting from learning with Google Classroom is 71.25 % and this is included in the positive response category. The percentage gain is in the strong category. Furthermore, students' responses are analyzed based on the indicators of constraints experienced by students during the learning process with Google Classroom which can be seen in the following table:

Table 8. Percentage of Each Item Response on Indicator 3

Item Number		Strongly Agree		Agree		Disagree Less		Disagree		Strongly Disagree	
(+)	(-)	Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%
	11	1	3,1	11	34,4	12	37,5	7	21,9	1	3,1
15		5	15,6	11	34,4	9	28,1	6	18,8	1	3,1
Total		6	18,7	22	68,8	21	65,6	13	40,7	2	6,2
Average			9,4		34,4		32,8		20,3		3,1

Based on the indicators of constraints experienced by students during the learning process with Google Classroom which is linked in the table above, it is found that 9.4 % of students strongly agree, 34.4 % of students agree, 32.8 % of students disagree, 20.3 % of students disagree, and 3.1 % of students strongly disagree. From this percentage data, it can be concluded that the student responses related to the obstacles experienced by students in learning mathematics with Google Classroom are less positive. Overall, the data on the percentage of student responses to indicators of obstacles experienced by students during the learning process with Google Classroom can be seen in the following table:

Table 9. Percentage of Student Responses to Indicator 3

Item Number	Score	Frequency	Total Score	Percentage (%)
	5	8	40	19,5
	4	17	68	33,2
11, 15	3	21	63	30,7
	2	16	32	15,6
	1	2	2	1
Total		64	205	100
Highest Score		5		
Number of Statement		2		
Number of Respondent		32		
Maximum Score		320		
Percent Average		64,06		

In the table above, information as obtained that the average percentage of students who experience problems during the learning process with Google Classroom is 64.06 % and this is in the less positive response category. The percentage acquisition is in the adequate category. Furthermore, student responses are analyzed based on indicators of student expectations and suggestions for learning with Google Classroom which can be seen in the following table:

Table 10. Percentage of Each Item Response on Indicator 4

Item Number		Strongly Agree		Agree		Disagree Less		Disagree		Strongly Disagree	
(+)	(-)	Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%
12		6	18,8	20	62,5	6	18,7	0	0	0	0
	2	2	6,2	20	62,5	7	21,9	3	9,4	0	0
Total		8	25	40	12,5	13	40,6	3	9,4	0	0
Average			12,5		62,5		20,3		4,7		0

Based on the indicators of student expectations and suggestions for learning mathematics with Google Classroom which is linked to the data in the table above, it is found that 12.5% of students strongly agree, 62.5% of students agree, 20.3% of students disagree, 4.7% of students disagree, and 0% of students strongly disagree. From this percentage data, it can be concluded that student responses are related to student expectations and suggestions for learning mathematics with Google Classroom is positive. In other words, most students put positive hopes and suggestions on learning mathematics with Google Classroom. Overall, the data on the percentage of student responses to the indicators of student expectations and suggestions for learning with Google Classroom can be seen in the following table:

Table 11. Percentage of Student Responses to Indicator 4

Item Number	Score	Frequency	Total Score	Percentage (%)
2, 12	5	6	30	14,5
	4	25	100	48,3
	3	13	39	18,8
	2	18	36	17,4
	1	2	2	1
Total		64	207	100
Highest Score		5		
Number of Statement		2		
Number of Respondent		32		
Maximum Score		320		
Percent Average		64,69		

In the table above, information is obtained that the average percentage of students who put hopes and suggestions on learning with Google Classroom is 64.69% and this is included in the less positive response category. The percentage acquisition is in the adequate category. As a whole, a recapitulation of student responses to Google Classroom-based mathematics learning is presented in the following table:

Table 12. Recapitulation of Student Response Questionnaires in Mathematics Learning Based Google Classroom

Indicator	Statements (%)					Total
	Strongly Agree	Agree	Disagree Less	Disagree	Strongly Disagree	
Student interest in learning methods	12,5	47,9	22,9	14,6	2,1	100
The benefit that students get by using learning methods	15,3	54,7	22,6	5,5	1,9	100
Constraints experienced by students during the learning process with the learning method	9,4	34,4	32,8	20,3	3,1	100
Students' expectations and suggestions for learning methods	12,5	62,5	20,3	4,7	0	100

In addition, a recapitulation of the comparison of the percentage of student responses from the four indicators is also presented. The recapitulation results can be seen in the following table:

Table 13. Recapitulation Comparison of the Percentage of Student Responses in Mathematics Learning Based on Google Classroom

Indicators	Percentage	Interpretation
Student interest in learning methods	71,25	Strong
The benefit that students get by using learning methods	76,32	Strong
Constraints experienced by students during the learning process with the learning method	64,06	Enough
Students' expectations and suggestions for learning methods	64,69	Enough

Looking at the indicators of interest and usefulness, it can be said that student responses are positive towards learning mathematics based on Google Classroom. However, in the learning that has been implemented, students experience problems during the mathematics learning process with Google Classroom. This is possible due to several factors such as:

(1) limited internet quota to carry out online learning; (2) there are students who do not have their own cellphones or laptops; (3) most of the learning methods presented by the teacher in Google Classroom are less able to help students understand the learning material. This is because the teacher applies the method of recording the material prepared in jpeg power points without any explanation from the teacher concerned. Besides the obstacles, students put positive expectations and suggestions for learning mathematics based on Google Classroom.

IV. Conclusion

Based on the results and discussion, it can be concluded that the student response is positive towards learning mathematics based on Google Classroom. Behind this statement there are obstacles, hopes, and suggestions from students regarding the applied learning. Constraints and suggestions for learning with Google Classroom are expected to be an improvement in subsequent learning, especially in mathematics lessons.

Acknowledgements

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