

Students' Perceptions of Learning Mathematics Online

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Abstract

This research was motivated by a change from direct learning to online learning. This is due to the Covid-19 pandemic that occurred in early 2020. There are students who think that learning Mathematics online is difficult. So that students have negative perceptions about learning Mathematics online. This study aims to describe students' perceptions about learning Mathematics online in terms of the stages before learning, while studying, and after learning. This research uses a descriptive approach with quantitative methods. The population in this study was students of SMA UNP Laboratory Construction for the 2020/2021 academic year, totaling 621 and sample 243 students. The sample selection used simple random sampling technique. The data collection technique used a questionnaire on students' perceptions about learning Mathematics online with a Likert scale model. Data were analyzed using descriptive statistical analysis techniques. This research as a whole shows that the students' perceptions about learning Mathematics online at the UNP Laboratory Development High School as a whole are in the quite good category with a percentage of 60%. Furthermore, seen from the aspect of the stages before learning is in the quite good category, namely 65%, Then, seen from the aspects of the stages during learning, it was in the quite good category, namely 60%, and seen from the aspect of the stages after learning is in the quite good category, namely by 66%. The implication of this research can later be used as a consideration of guidance and counseling in the school.

Keywords: Perception, Learning, Online.

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Introduction

The implementation of education in schools is expected to be able to enable students to develop their potential optimally. One way that can be done is by studying. School as a place to study that teaches various knowledge to students. As stated in Law no. 20 of 2003 concerning the National Education System article 3 explains, "National education has the function of developing capabilities and shaping the character and civilization of a nation with dignity in order to educate the nation's life, aiming at being faithful and obedient to God Almighty, having noble character, being healthy, knowledgeable, capable, creative, independent and a democratic and responsible citizen". Education is the right of every child of the nation to get it and has become a necessity for individuals for future survival (Zarniani, Alizamar & Zikra, 2014) Effective learning is expected to take place in every subject studied by students. One of them is mathematics. Mathematics is the mother of knowledge, but currently it is not yet a favorite subject among students in general. Mathematics lessons are very useful in life, but do not make students have positive perceptions of this learning, which can be seen from the process of learning mathematics in schools (Rizka, A, 2010). Perception takes place when a person receives a stimulus from

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outside that is captured by the auxiliary organs which then enters the brain. Thus, in it there is a thought process which ultimately manifests in an understanding, this understanding which is more or less called perception (Prasetyowati, 2018). Students' perceptions of the Mathematics learning process are responses or assessments given by students towards the implementation of Mathematics learning. Students receive stimuli from the teacher and the teaching process carried out by the teacher, which is then interpreted and understood by students as a learning experience that has a positive or negative effect on themselves. According to Purwanti, Firman & Sano (2013) perception is the process of observing, organizing, interpreting, and assessing the stimulus received by an object. According to Couto% Alizamar (Fadli, Alizamar & Afdal, 2017) perception is the ability of an individual or someone to distinguish, group then, focus the mind on something and to interpret. Perception is an assessment of an object that is identified by means of the senses (Fitria, Daharnis, & Sukmawati, 2013). Perception depends on human senses, cognitive processes that exist in humans will allow filtering, changing or modification of existing stimuli. The perception that a person has will affect the sukup and the actions taken (Triyono & Rahmi, 2018). Monalisa, Daharnis & Syahniar (2016) also argue that everyone has different perceptions of an object they have. Daharnis, & Sukmawati, 2013). Perception depends on human senses, cognitive processes that exist in humans will allow filtering, changing or modification of existing stimuli. The perception that a person has will affect the sukup and the actions taken (Triyono & Rahmi, 2018). Monalisa, Daharnis & Syahniar (2016) also argue that everyone has different perceptions of an object they have. Daharnis, & Sukmawati, 2013). Perception depends on human senses, cognitive processes that exist in humans will allow filtering, changing or modification of existing stimuli. The perception that a person has will affect the sukup and the actions taken (Triyono & Rahmi, 2018). Monalisa, Daharnis & Syahniar (2016) also argue that everyone has different perceptions of an object they have.

According to Prayitno (in Daharnis, 2005) there are several stages of learning which are described as follows (1) The stages before, include learning material, completing assignments, preparing physically, reading learning materials, making questions and preparing learning tools, (2) focus attention, choose a seat, note material, ask and answer and express opinions, (3) The stages after covering, completing notes, enriching yourself, doing exercises and doing assignments.

In Mathematics, students have different perceptions and tend to be negative. Mathematics learning is often used as a scourge for most students. In fact, there are still many phenomena that occur in the field, such as students who have not reached the minimum completeness criteria (KKM). In fact, mathematics is a compulsory subject and is very useful in everyday life.

At the beginning of 2020, the world was shocked with a new virus, namely the coronavirus and the disease is called Coronavirus disease 2019 (COVID-19). Coronavirus is a positive, encapsulated and segmented single-strain RNA virus. Coronavirus belongs to the order Nidovirales, family Coronaviridae. COVID-19 infection can cause mild, moderate or severe symptoms. The main clinical symptoms that appeared were fever (temperature > 38 ° C), cough and difficulty breathing. In addition, it can be accompanied by severe shortness of breath, fatigue, myalgia, gastrointestinal symptoms such as diarrhea and other respiratory symptoms (Yuliana, 2020). During the Covid-19 pandemic, learning activities were shifted from direct learning to online learning. Online learning is learning that is held through a web network.

Online learning has several shortcomings that cause polemics in the community, especially students who undergo the learning system. Based on the news from Kompas Corner media (10 April 2020 edition) there is a decrease in the quality of learning during online learning because many disturb the focus of students when the lesson is taking place. In line with that, Surya.co.id media (edition 17 June 2020) states that students feel bored with online learning, this

is because they have not seen their friends for a long time. Online learning is considered less than optimal because there are limitations to being able to ask questions freely to the teacher. Putri (2020) said that learning Mathematics online made students experience several obstacles, including signals, The number of assignments that contain a lot of students has difficulty in doing mathematics lessons, students are less interested in learning online because they are less able to learn independently, and do not understand learning online. Other difficulties in learning Mathematics online are technical difficulties, adaptation difficulties and teacher unpreparedness (Firman, 2020).

Based on an interview on March 2, 2020 with one of the Laboratory Development High School Guidance and Counseling Teachers regarding the mathematics learning process, information was obtained that the math scores of the XI IS class students had the KKM score and did not even reach the KKM that had been determined by the school, which was 78 for the class. XI, there are some students who are not serious even when they take Mathematics. Some students did not do the assignments and exercises provided by the teacher, there were students who deliberately pulled out during Mathematics class hours. Subsequent interviews about how the process of Mathematics lessons while studying from home and online on July 14, 2020 via telephone with the Guidance and Counseling teacher of the UNP Laboratory Construction High School explained that learning activities experienced more obstacles than when learning directly. Online learning experiences obstacles such as network problems, limited learning media, the difficulty of creating a conducive learning atmosphere so that students do not concentrate, many students do not make assignments because for learning Mathematics itself requires direct explanation by the teacher to students. This results in many students who do not understand Mathematics and get grades that are limited to KKM and even do not complete. Online learning experiences obstacles such as network problems, limited learning media, the difficulty of creating a conducive learning atmosphere so that students do not concentrate, many students do not make assignments because for learning Mathematics itself requires direct explanation by the teacher to students. This results in many students who do not understand Mathematics and get grades that are limited to KKM and even do not complete. Online learning experiences obstacles such as network problems, limited learning media, the difficulty of creating a conducive learning atmosphere so that students do not concentrate, many students do not make assignments because for learning Mathematics itself requires direct explanation by the teacher to students. This results in many students who do not understand Mathematics and get grades that are limited to KKM and even do not complete.

Method

This study used a quantitative method with descriptive research that aims to describe the perceptions of students of the UNP Construction Laboratory High School towards online mathematics learning based on the stages of learning. The population in this study were 621 high school students of the Construction Laboratory of UNP with a sample of 243 students of class X, XI, and XII who were selected by simple random sampling technique. The instrument used was a perception questionnaire. The data were processed using descriptive.

Results and Discussion

Overall, students' perceptions about learning mathematics online at the UNP Development Laboratory High School students are in the good category with the following details:

Table 1. Description of Average (Mean) and Percentage (%) of Students' Perceptions About Learning Mathematics Online Based on Sub Variables.

No.	Sub Variable	SCORE							Category
		Ideal	Max	Min	Σ	Mean	SD	%	
1	Before studying (12)	60	51	22	9448	38.88	5.28	64.8	G
2	While studying (13)	65	58	23	9499	39.09	5.30	60.1	G
3	After studying (8)	40	37	11	6456	26.57	4.40	66.4	G
	Overall (33)	165	136	61	25403	104.54	12.62	63.3	G

Description: Max = maximum score

Min = minimum score

SD = standard deviation

G = good enough

Based on table 1, it can be known that the perceptions of UNP Laboratory Development High School students about learning Mathematics online as a whole (the stages before learning, while studying, after learning) are in the fairly good category (CB). This illustrates that the overall perception of students about learning Mathematics online has sufficient perceptions. The sub-variables before studying were in the quite good category with a percentage of 64.8% of the ideal score, the sub-variables while studying were in the good enough category with a percentage of 60.1% of the ideal score, and the sub-variables after learning were in the good enough category with the percentage 63.3%.

Walgito (2003) argues that perception is a process of organizing observations, interpreting stimuli received by organisms or individuals so that it becomes something meaningful and is an activity that is integrated within the individual. This is in line with Slameto (2010) who states that perception is a process that involves the entry of an impression into the human brain. Furthermore, regarding students' perceptions about learning Mathematics online, seen from the stages before learning, while studying, and after learning. Students are said to have good perceptions about learning Mathematics online, seen from the stages before learning, while studying, and after study. The results showed that generally the students' perceptions about learning Mathematics online were in good category. This means that students' perceptions about learning Mathematics as a whole have a good point of view.

Table 2. Description of Average (Mean) and Percentage (%) of Students' Perceptions About Learning Mathematics Online Based on Indicators Before Learning.

No.	Sub Variable	SCORE							Kat
		Ideal	Max	Min	Σ	Mean	SD	%	
1	Preparing materials (3)	15	15	4	2422	9.97	2.21	66	G

No.	Sub Variable	SCORE							Kat
		Ideal	Max	Mi n	Σ	Mean	SD	%	
2	Prepare physically (2)	10	10	2	1505	6.19	1.32	62	G
3	Complete tasks (4)	20	18	8	3278	13.49	1.81	67	G
4	Prepare learning tools (3)	15	14	3	2243	9.23	1.96	62	G
Total		60	51	22	9448	38.8	5.28	65	G

Based on the table, it can be seen that students' perceptions about learning Mathematics online based on all indicators before studying are in the quite good category with a percentage of 65% of the ideal score. This can be seen from the data analysis on each indicator, including: preparing the material is in the good enough category with a percentage of 66% of the ideal score, physical preparation is in the good enough category with a percentage of 62% of the ideal score, completing the task is at good enough category with a percentage of 67% of the ideal score, preparing learning tools was in the quite good category with a percentage of 66% of the ideal score. This means that students' perceptions about learning Mathematics online in terms of the stages before learning have a good perception. This shows that students' perceptions are good at the stage before learning. Student activities in the pre-learning stage include activities to prepare material, prepare physically, complete assignments, prepare learning tools.

Slameto (2010) suggests that Readiness is the overall condition of an individual that makes him ready to respond or answer in a certain way to certain situations. One of the things that students must prepare is to prepare the material so that by preparing the material, students will be better prepared to take part in learning activities. From the research results that illustrate that students have good perceptions, but good guidance and cooperation between teachers is still needed to continue to foster better perceptions. So that a good perception will have a good effect on learning activities online.

Then the physical preparation of students will greatly affect the process of learning mathematics online. This physical preparation also means the physical health of the students. According to Purwanto (2009) health is a determining factor for student learning outcomes. This health will have a huge impact on students' learning ability. If a person is always unwell, has a fever, colds and coughs and so on, it can result in not being excited to learn. If physical preparation is lacking or students are sick, it will interfere with the student's learning process. So that in this case students still need guidance to be able to have good perceptions and be able to physically prepare before studying. Then when completing the task, According to Prayitno (in Suryadi, 2016) skills in completing assignments are part of the learning process, the main goal is to teach students. Through these assignments students are required to work on finding materials, studying and further examining them. Doing certain tasks can gain new understanding and skills according to the task material. Then the last one is to prepare learning tools. The results of the study reveal that the pre-learning stage to prepare learning tools is in the fairly good category. This means that students have a pretty good perception of preparing learning tools before learning Mathematics online.

The indicator shows a good student perception that self-enrichment after learning Mathematics online is not too difficult, so completing notes after learning is categorized as good.

Enrichment itself can be defined as students' efforts to find other learning sources. Learning sources are all sources such as messages, people, materials, tools, techniques, and backgrounds that are used by students as sources for learning activities and can improve the quality of learning (Supriadi. 2015). From the enrichment activities themselves, it is expected to be able to provide convenience to students for the next learning process. Students who already have other learning resources will certainly like knowledge, so that it will help in the learning process. Students' perceptions are good that doing exercises or doing assignments after learning Mathematics online is not too difficult, so doing exercises or doing assignments after learning is categorized as good.

Assignments or homework are assignments as a distraction which is a variation of the material presentation technique for students to do at home (Roestiyah. 2008). The giving of assignments has the intention that students do work actively and can better understand the material that has been conveyed by the teacher while studying. The results of the study show that students have a perception of which is good for doing exercises or doing assignments. This needs to be guided again so that students have a better perception of doing exercises or doing assignments after learning.

Furthermore, guidance and counseling services that can be provided to students in order to increase positive perceptions during learning are as follows:

a. Information Services

Information services are very important in Guidance and Counseling services. This service serves to provide the information needed by students. According to Prayitno (2009) information service aims to provide information to interested individuals about various things needed to carry out a task or activity or to determine the direction of a desired goal or plan.

With the provision of information services, it is hoped that students will be able to bring up new understandings in themselves so that with their understanding students can avoid and prevent things that can harm themselves. The understanding of learning Mathematics online is given, it is hoped that students will be able to change their perceptions of each stage in learning online, from negative to positive.

b. Group Tutoring Services

Prayitno (2009) argues that group guidance services are services that activate group dynamics to discuss useful topics and be of concern with group members and group leaders. Tohirin (2007) explains group guidance is a way of providing assistance to individuals through group activities. In group guidance services, general topics that have been agreed upon with group members are discussed.

Wirawan (2013) states that perception is to focus attention on an object, while the objects around it are considered the background. Perception takes place when a person receives a stimulus from the outside world which is captured by the auxiliary organs which then enters the brain. The perceptual process cannot be separated from the sensing process which is the precursor of perception. The sensing process will take place at any time, when the individual receives stimulation through the senses, namely through the eyes as a visual tool, the ears as a hearing device, the nose as a tool of smell, the tongue as a tasting tool, the skin on the palms of the hands as a sense of touch, all of which are sensory organs. which is used to receive stimuli from outside the individual. The sense organs are a means of connecting the individual with the outside world. The sensed stimulus is then organized by the individual and interpreted, so that the individual realizes, understands what he senses, and this process is called perception. In group

guidance services, the Guidance and Counseling Teacher can provide task topics related to the importance of learning Mathematics.

c. Group Counseling Services

According to Prayitno (2009) "group counseling services are services that activate group dynamics to discuss various useful matters for personal development and or solving individual problems who are participants in group activities".

Through this group counseling service the teacher can provide opportunities for students for counseling related to perceptions of learning Mathematics online. Taking advantage of group dynamics can further help alleviate student problems, because each student will express different views.

d. Individual Counseling Services

According to Prayitno (2009) "individual counseling services are real services held by a counselor to a client in order to alleviate the client's personal problems. Individual counseling is a service that provides opportunities for students face-to-face with BK teachers at school, including alleviating student problems. Through this individual counseling service teachers can provide counseling that is more appropriate to student problems related to perceptions of learning Mathematics online.

Conclusion

In general, students' perceptions about learning Mathematics online were in the good category, Then the students' perceptions about learning Mathematics online with the before study aspect were in the good category, then the students' perceptions about learning Mathematics online when study aspect were in the good category. , and Students' perceptions about learning Mathematics online based on the aspects of the stages after learning are in the good category.

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