



Analysis of Students Learning Ethics in Online Learning via Zoom in Mathematical Communication Ability at Senior High School Bunda Kandung Jakarta

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Article Info	Abstract
Received October 3, 2021	This research is based on the results of observations of class X IIS regarding student's mathematical communication in online learning ethics via zoom. Initial findings indicate that mathematical communication skills have emerged but are not optimal. In general, the research objective is analyzing student's online learning ethics via Zoom in mathematical communication. The method used is descriptive qualitative method to reveal facts. The data are collected through observation, interviews, documentation and triangulation/combination. This study involved three students from class X IIS and the teacher as a validator at Senior High School Bunda Kandung. The data analysis technique uses an interactive model through four stages, which are data collection, data reduction, data display, and drawing conclusions/verification. The results showed that student's learning ethics via zoom on student's mathematical communication skills for subjects 1 and 2 were optimal because subjects 1 and 2 were able to communicate, express ideas, manage thoughts, analyze and evaluate mathematical thoughts. However, subject 3 has not been optimal in communicating their mathematical thoughts coherently and clearly. Subject 3 is unable to analyze his thoughts and unable to behave well with his friends.
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INTRODUCTION

Currently, the demand for book-based literacy is getting lower and moving to online platform. This phenomenon is further exacerbated by the outbreak of the COVID-19 pandemic. Recommendations from the government to work from home and study from home force everyone to do anything independently in order to keeping their distance and avoiding crowds. This effort was made by the government to stop the spread of the Corona virus.

The era of revolution 4.0 is a sign of real scientific progress (Harahap, 2019), where progress is followed by advance technology developments (Trisna, 2019), and requiring us to not only understand (Lina, Ulfatin, & Sultoni, 2021), but also follow the flow (Haqqi & Wijayati, 2019). Distance Learning (DL) is a form of adjustment in the education sector during the COVID-19 pandemic to keep learning process continues (Latip, 2020; Saifulloh & Dervish, 2020). Technology is the key

to the sustainability of distance learning which can connect teachers and students who are separated by distance (Zam, 2021). However, the existence of technology will become useless if it is not accompanied by tech-savvy user (Latip, 2020).

Mathematics class include an activity in learning mathematics that is well structured so that students get better knowledge about mathematics (Putra, 2016). Someone who has the ability to understand mathematics is required to be able to communicate it properly and correctly so that it can be understood by others. This is not easy to do during the offline period and getting harder during the online period. There are several important reasons that make communication necessary to be the focus of attention in learning mathematics, one of them is 'mathematics as language' (Saputro, Masrukan, & Agoestanto, 2017). This shows the importance of studying mathematics in building the ability to think, reason, solve problems, communicate, and connect mathematics to the real situation.

One of learning failure factor's is due to obstacles in the communication process between students and teachers (Budiman, 2016). The selection of the right media is important in order to maximizing the transfer of knowledge from teachers to students so that students not only hear what the teacher says, but also see the process which is in line with Hikmah, Roza, and Maimunah's (2019) research on analysis of student's mathematical communication skills.

The use of learning media at the learning orientation stage will greatly help the effectiveness of the learning process and the deliver of messages and lesson content at that time. One of the goals in learning mathematics is providing the widest opportunity for students to develop and integrate communication skills through modeling, speaking, writing, talking, drawing, and presenting what has been learned (Collins, 1995). Through mathematical communication, students should be able to express their mathematical ideas in solving problems (Gordah & Nurmaningsih, 2016)

In the online education era, students are subjects and objects of education who need guidance from others to direct them, develop their potential and guide them to maturity. Students must be able to behave well when dealing with the teacher.

Learning Ethics

Ethics is the knowledge of what is good and what is bad, of moral rights and obligations (Abadi, 2016). A collection of principles/values relating to morals and values regarding to right and wrong that followed by society (Tanyid, 2014). Actions and predicates of ethical values, both are an inseparable unit (Wijaya, 2018). It's required an action that can be observed and researched to assess the value because "values" do not float in a vacuum, but toward the object of experience (Ismail & Aryati, 2020). In relation to ethical values, actions are used as material for reviewing the placement/application of one's ethical values. If it is likened, value is the basis and form, while action is the content. As a basis and form, it can only be understood clearly, if the content is included along with the action. The combination of ethical values and actions as its implementation produces something called morals or decency. Thus, the subject of ethics can not be separated from "actions" as "content" from the basis and form (values) (Ismail & Aryati, 2020).

This fact places ethics as a knowledge that talks about good and bad, but it is different from other normative form which are character and morals. Character is the science of good and bad based on God's revelation, if it is Islam then the source

is the al-Quran and as-Sunnah which is universal and absolute (Hardiono, 2020). While morals are good and bad based on the size of tradition and culture that are temporal, relative, and dynamic (Wathoni, 2020). Ethics is used to provide considerations and assessments of human attitudes and behavior both individually and in groups, so that commonly accepted values and norms can be rationally accounted for, and it does not even rule out the emergence of new values and norms because the previous norms did not have a strong basis.

Mathematical Communication Ability

Communication is something that can not be separated from human life. Humans need communication in order to conveying ideas, opinions, and finding information related to things they want to know. Humans are not able to interact, get to know each other, seek knowledge, and draw conclusions if there is no communication. Therefore, the ability to do something that each individual is capable of. This ability is commonly considered as potential.

In education, every student must develop their abilities because abilities develop in accordance with better education. One of the mathematical abilities that must be developed by students is communication skills because communication is important in mathematics education. This agrees with Turmudi's (2009) statement that communication is an essential part of mathematics and mathematics education/class. This is a way to share ideas and clarify understanding. The communication process helps establish the meaning and completeness of ideas and makes them public.

Student's mathematical communication skills are student's abilities in communicating mathematical thoughts clearly in correct and easy-to-understand language to friends, teachers, and others (Abdi & Hasanuddin, 2018). Student with good mathematical communication skills will be able to explain ideas, situations, and mathematical relations orally or in writing with real objects, pictures, graphs, and algebra to make conjectures, develop arguments, formulate definitions and generalize conjectures, compose arguments, formulate definitions, and generalization (Niasih, Romlah, & Zhanty, 2019). To have good mathematical communication skills, students must be able to represent, listen, read, discuss and write in learning activities (Lanani, 2013).

Online Learning via Zoom

The difference between conventional learning and distance learning is that in a conventional class, the teacher is considered as all-knowing person and is assigned to transfer knowledge to students. While in distance learning the main focus is students. Students are independent at certain times and are responsible for their learning. The atmosphere of e-learning will "force" students to play a more active role in their learning process (Arifin & Herman, 2018). Students make plans and look for materials with effort and on their own initiative. For example, learning through zoom meet. Zoom meet is one of the face-to-face conference platforms where teachers and students can interact directly like offline face-to-face meeting (Kusmiati & Lie, 2021). On this application, there are many features ranging from file sharing in PDF format that can be done easily, offers the facility to join with just a link or room number, and also includes two-way live broadcast lectures, online courses are becoming very popular because they save time and travel costs,

fuel costs, and their impact on the environment, low financial costs and offer great webinar experience, allows to write and talk together through the process. Zoom can be used in educational options and for community-based discussions (Abdillah, 2020).

RESEARCH METHODS

This study uses a qualitative approach which is descriptive qualitative research in specific. The qualitative research proposed by Moleong (2010) that defines qualitative methodology as a procedure in research that produces descriptive data in the form of written or spoken words from people and observable behavior. This research was conducted at Senior High School Bunda Kandung, South Jakarta, with a sample of class X-IIS with three students in that class. The data is collected through observation, interviews, documentation and triangulation or a combination of the three students. Data analysis or interpretation is the process of systematically searching for and compiling records of research findings through test observations, observation sheets, interview guidelines and documentation. The data analysis techniques in this study were data collection, data reduction, data display and conclusion/verification drawing. The purpose of analysis is to increase the researcher's understanding of the focus points studied and make findings for others, edit, classify, reduce and present them.

RESULTS AND DISCUSSION

Based on the results of data analysis, the 3 research subjects coded with S1-S3. The recapitulation is presented below. In this study, there were obstacles in student's mathematical communication skills which is poor communication between teachers and students. The following Table 1 is the results of mathematical communication skills recapitulation.

This invention is in accordance with research conducted by Ariawan and Nufus (2017) that students who are subjects in the low ability category get a low score, the medium ability category gets an average score and the high ability category gets a high score as well. Students who have high abilities have opportunities, encouragement, and support for speaking, writing, reading, and listening in mathematics classes reap dual benefits: they communicate to learn mathematics, and they learn to communicate mathematically (NCTM, 2000).

In the online period, students must discipline themselves by respecting time because when online learning is carried out, students still have to prepare everything so that it remains on time. It shows student's learning ethics, as the results of the analysis are summarized in Table 2.

Using polite language. Polite language is not only applied in the video call learning process, but also used in the learning process through chat or other media or when asking the teacher. This finding is in accordance with research conducted by Qori (2020) that learning and teaching must be based on ethics which is the regulator of action and the good & bad in teaching and learning. Students must have ethics to their teacher who has given them an outpouring of knowledge so that they can become a useful human being, this ethical attitude to the teacher is our respect for what the teacher has given.

Table 1. Recapitulation of Mathematical Communication Ability Results

Indicator	Code	Findings and Analysis		
		Test	Interview	Observation
Communicating mathematical thoughts	S1	Capable to write the process of completion	Capable to explain in an organized manner but a little error	Capable to answer questions properly and correctly
	S2	Quite capable to write down the completion process	Quite capable	Capable to answer
	S3	Capable to write but takes too long to communicate mathematical thinking	Quite capable	Quite capable
Using mathematical discussion to express ideas appropriately	S1	Capable to generate ideas	Capable	Quite capable in learning process
	S2	Capable to generate ideas	Capable	Quite capable
	S3	Quite capable to come up with ideas	Quite capable	Less fortunate
Analyze and evaluate the mathematical thoughts and strategies of others	S1	Capable to generate ideas	Capable	Quite capable in learning process
	S2	Capable to generate ideas	Capable	Quite capable
	S3	Quite capable to come up with ideas	Quite capable	Less fortunate

Table 2. Recapitulation of Learning Ethics Results

Indicator	Code	Findings and Analysis
Attitude	S1	Capable to listen and understand the teacher who explains materials using online media platform (via zoom).
	S2	Quite capable to listen and understand the teacher who explains materials using online media platform (via zoom).
	S3	Less capable to listen and understand the teacher who explains materials using online media platform (via zoom).
Courtesy	S1	Capable to be polite when meeting with teachers in digital media and friendly to their colleagues.
	S2	Capable to be polite when meeting with teachers in digital media and listen to the advice of teachers.
	S3	Capable to be polite when meeting with the teacher in digital media, but not really responsive in greeting the teacher.
Behavior	S1	Always reprimand his friends for being careless, causing harm to me and always asking the teacher when they don't understand the explanation of the material.
	S2	Occasionally reprimand his friend for being careless, causing harm to me and always asking the teacher when he didn't understand the explanation of the material.
	S3	Lack of interaction in reprimanding his friend for being careless, causing harm to me and being silent when he didn't understand the explanation of the material (not asking the teacher).

CONCLUSION

Ethics is a philosophical reflection on values and morals that are held, carried out diligently in life, and become the basis for behaving and acting. Therefore, ethics must be taught and inculcated from childhood. Meanwhile, bad ethics must be corrected since the bad things begins to appear. Students who are not familiar with many activities in online learning will easily commit ethical violations. Therefore, it is necessary to form study groups to familiarize students with communicating with their friends. Therefore, they will not feel burdened and think that it is a natural activity. Students, especially at the high school level, find it easier to understand learning in a fun way compared to being given a lot of assignments.

Mathematical communication ability for subject one with high ability is able to meet four indicators of mathematical communication ability, subject two with moderate learning ethic is also able to meet four indicators of mathematical communication skills and subjects with low mathematical communication skills are only able to meet two indicators of oral mathematical communication skills.

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