



Constraints to Learning Science with an Online Learning System in the Era of the Covid-19 Pandemic

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Article history	Abstract
Submission : 2021-09-14	This study explored the constraints of learning science with an online learning system (on the network) in the era of the Covid-19 pandemic. This research design was descriptive qualitative with a phenomenological approach. Phenomenology is an effort that aims to explain something that occurs according to reality. Data was collected through questionnaires open to SMP/MTs students and semi-structured interviews with student parents. The data analysis technique in this study used data Qualitative data that were presented without numerical calculations. The study results showed that learning science with the online method encountered many obstacles. The barriers to learning science with online methods referred to three important aspects, namely differences in student learning style, technological literacy, and parental support.
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1. INTRODUCTION

The ongoing COVID-19 is an ongoing pandemic which is a respiratory syndrome caused by the coronavirus. The outbreak started in December 2019 in Wuhan, China and was declared a pandemic by WHO (World Health Organization) on March 11, 2020. This virus spreads between people in the same way that influenza uses respiratory drops for sneezing and coughing. More complicated cases may include symptoms such as severe respiratory distress syndrome and pneumonia. Suggested precautions: wash hands frequently, maintain physical distance from people, cover mouth during coughing, self-isolate for suspected persons or visiting an infected country or having contact with an infected person (Rothan & Bycldy, 2020).

Impact on Education, the government has temporarily closed all schools across the country to limit the spread of the coronavirus and as of March 14, around 420 million children were out of school. More than 13 countries have temporarily closed all schools. In addition, 9 countries have closed their schools at the local level to prevent COVID-19, which has affected more than 85 million children. UNESCO has recommended distance learning programs and other online education platforms so that teachers and schools can reach students and educational disruptions can be reduced during school closures (UNESCO, 2020).

The Indonesian government's policy in responding to this epidemic is to apply the principle of social distancing in all levels of society, even in several big cities in Indonesia, Large-Scale Social Restrictions are also imposed to break the chain of spreading this virus. This policy has an impact on education in Indonesia, especially in the learning process for school students. The implementation of social distancing at the elementary and secondary school levels continues to be carried out until conditions are declared conducive. During the pandemic, schools are indeed closed but the learning process must continue. To date, online learning has never been carried out simultaneously (Sun et al., 2020).

During the pandemic, online learning has been carried out almost all over the world (Goldschmidt, 2020). Accordingly, in this online learning, all elements of education are required to still be able to facilitate learning so that it remains active even without face to face. Teachers as the main element in formal education are encouraged to adapt to the implementation of learning that originally used conventional face-to-face methods and switched to online learning. In addition, parents as the main facilitators during learning at home (Study from Home) are also expected to provide full support to students to achieve the learning objectives that have been established.

According to Arwen et al. (2020), Sunitha (2020), and Duocet (2020), the impact of studying at home is also felt by parents who are also more burdened because they have to be teachers at home, teach to make assignments, and always monitor. Through good synergy between students and parents, science learning in the Covid-19 pandemic era will still achieve maximum results even though it is carried out with a different learning system than before. From this description, the problem can be formulated "How is parental support for students in dealing with obstacles to learning science with an online learning system?". Based on this background, a study entitled "The Constraints of Learning Science with an Online Learning System in the Era of the Covid-19 Pandemic" was conducted.

2. METHOD

The design of this research was descriptive qualitative using a phenomenological approach. Phenomenology is an effort that aims to be able to explain something that occurs with reality. Data were collected through an open questionnaire for SMP/MTs students and semi-structured interviews with student parents. The data analysis technique in this study used qualitative data. The following is an explanation of the data collection techniques in this study:

a. Open Questionnaire for Students

Respondents to the questionnaire were 31 students from 8 SMP/MTs spread across the sub-districts of Widodaren, Mantingan, and Ngrambe, Ngawi Regency. An open questionnaire (unstructured questionnaire) is a questionnaire that is presented in a simple form so that respondents can fill it in according to their wishes and circumstances. The questionnaire consisted of 8 questions and was distributed randomly using Google Forms. Descriptive data on demographic characteristics, including class, school, age, and gender, are presented in Table 1.

Table 1. Respondent Profile

	Frequency	(%)
Class		
VII	7	22.5
VIII	14	45.2
IX	10	32.3
School		
SMPN 1 Widodaren	3	9.6
SMP Ma'arif Widodaren	5	16.1
SMP Islamiyah Widodaren	1	3.2
SMPN 1 Mantingan	1	3.2
MTsN Mantingan	2	6.4
SMPN 1 Ngrambe	1	3.2
MTs Darul Hikmah Ngrambe	17	54.8
MTs Darul Huda Ngrambe	1	3.2
Age (years)		
12	8	25.8
13	11	35.4
14	10	32.3
15	2	6.4
Gender		
Man	7	22.5
Woman	24	77.5

b. Interview with Parents of Students

The interview technique in this study was conducted using a semi-structured method and consisted of 5 questions. A semi-structured interview is an interview process that uses interview guidelines derived from topic development and asking questions and the use is more flexible than interviews. Interviews were conducted by asking directly to representatives of parents of SMP/MTs students who were doing science learning online. A total of 11 people were interviewed directly line to obtain information about the science learning constraints experienced by students. Descriptive data on demographic characteristics, including address, occupation, age, and gender are presented in Table 2.

Table 2. Informant Profile

	Frequency	(%)
Address		
Widodaren	7	63.6
Mantingan	2	18.2
Ngrambe	2	18.2
Work		
Farmer	3	27.2
Trader	1	9.1
Teacher	2	18.2
Laborer	3	18.2
Housewife	3	27.2
Age (years)		
36-45	8	72.3
45-55	3	27.2
Gender		
Man	3	27.2
Woman	8	72.3

Qualitative data analysis is inductive, namely analysis based on the data obtained. The analysis consists of three streams of activities that occur simultaneously, namely: data reduction, data presentation, conclusion drawing/verification.

3. RESULT AND DISCUSSION

a. Obstacles in learning science in terms of students

Based on the results of the open questionnaire answers expressed by students, three main themes were found that underlie the emergence of the obstacles themselves. The first is the difference in learning styles. 18 out of 31 students stated that it was difficult to understand the material because they did not meet face-to-face with the teacher, while others were happy because they could manage their own rest time, and some were happy because there were no assignments for practicum. The following is an excerpt from the questionnaire answers:

Answer 1: *It's sad, because it's very different from meeting in person, I don't understand more because I only read the material, it's different from meeting in person if I meet in person the teacher will explain in detail and it's easy for me to understand.*

Answer 2: *Because I've never been given a science assignment like practice... so I'm just happy." Often I am given online KBM assignments that work on my cellphone.*

From the two answers above, it can be seen that students have different learning styles. In online learning, students feel more comfortable asking questions and express opinions in forums that are held privately line (Firman & Sari, 2020: 84). A person's learning style is a combination of how he absorbs, and then organizes and processes information. In Quantum Learning it is stated that there are 3 kinds of learning styles, namely visual, auditory and kinesthetic:

1. Visual learning style: This type of learning style is learning by seeing.
2. Auditorial learning style: This type of learning style is learning by listening.
3. Kinesthetic learning style: This type of learning style is learning by moving, working and touching (Bobby, 2010: 110).

Thus, students who have a kinesthetic learning style are certainly less facilitated if online learning is only done with assignments without the practicum.

The second learning obstacle is technological literacy. Although 29 out of 31 students stated that they had sufficient technological literacy, a small portion of them certainly needed more attention, because this greatly supports learning success. The following is an excerpt from the questionnaire answers:

Answer 1: *Lack of technological insight because not much is understood*
Jawaban 2: *n using google classroom, sometimes I have to try many times to follow the material.*

Technological literacy is an activity in using digital technology, communication equipment, and/or networks to access, organize, integrate, evaluate, and create information for a purpose (Helaludin, 2019: 48). The real example shown in this research is how students take experiences from new learning systems that they have not had before. Those who were not familiar with the Google Classroom application, now know, as well as other online learning platforms. (Zhang et al., 2004) shows that the use of the internet and multimedia technology can change the way knowledge is conveyed and can be an alternative to learning carried out in the classroom. The implementation of online learning requires supporting facilities, such as smartphone-mail, laptops, or tablets that can be used to access information anywhere and anytime (Gikas & Grant, 2013).

In Indonesia, several applications are provided by the government to support learning activities at home. In addition, an educator can conduct face-to-face with their students through applications that can be accessed via the internet. However, some existed obstacles in online learning make students less interested in online learning. One of the problems is the availability of internet networks. Some admit that it is difficult to follow the lesson line because not all regions have internet networks with smooth access (Hasanah et al., 2020). This makes it difficult for them to collect assignments. In addition to the challenges regarding internet services, another challenge is the cost constraint. To follow the lesson line, students have to pay more to buy an internet quota. Especially when learning is done through video

conferencing, it will spend a lot of internet quota. Based on information from Din (in CNN Indonesia, 2020) published on May 25, 2020, it is stated that data consumption for video conferencing using a zoom app with 720P video quality for one hour consumes 540 MB of data.

The third learning obstacle is parental support. 12 out of 31 students stated that their parents did not provide support, either in the form of support for learning motivation or assistance in the learning process, because most of them are workers who are busy with work demands. The following are excerpts from the questionnaire answers:

Jawaban 1: *Parents are busy with their respective activities*

Jawaban 2: *My parents are busy at work, but if they have more time, they accompany me even if they just sit in front of me and if I don't understand the material, my parents can't answer.*

In addition, 12 out of 31 students admitted that they were not given extra money to buy internet quota, some of the quota assistance from the government did not reach them. Parents should provide full support to their children, both material and non-material support. Parental support is the attitude, action, and acceptance of the family towards its members. Members of parents view that supportive people are always ready to provide help and assistance if needed (Friedman, 2008). Friedman (2008) explains that parents have several types of support, namely:

1. Informational Support

Parents function as a collector (collectors) and disseminator (spreaders) of information about various things. Explaining provides advice, suggestions, and information that can be used to reveal and solve a problem. The benefit of this support is that it can suppress the emergence of an understanding because of the information provided and can contribute suggestions and actions to individuals. These aspects of support are in the form of advice, suggestions, instructions, and providing information.

2. Assessment Support

Parents act as a guide that is feedback, guides, and mediates in the problem-solving process, as a source and validators of the identity of parent members that include providing support, attention, and appreciation.

3. Instrumental Support

Parents are a source of practical and concrete assistance, which seeks to provide the facilities and equipment needed by each member of their parents.

4. Emotional Support

Parents as a safe and peaceful place to rest and recovery and help control emotions. Aspects of emotional support include support that is manifested in the form of affection, trust, attention, listening, and being heard.

The mechanism in terms of building parental support according to Cochen and McKay (2008) are as follows:

1. Real Support

Although virtually anyone can provide support in the form of money and attention, tangible support is most effective when it is well appreciated by the recipient. Providing tangible support that results in feelings of disorganization and unfavorable acceptance will increase individual pressure and stress in the parent's life. This tangible form of support includes attention and material.

2. Hope Support

Support groups can influence an individual's perception of threats. Expect individuals in the same person who has been in a similar situation for advice and assistance. Expectancy support can also help improve an individual's strategy by suggesting alternative strategies based on previous experience and inviting people to focus on the more positive aspects of the situation.

b. Obstacles in learning science in terms of parents

Based on the results of the interview answers expressed by the parents, it was found that three main problems or learning obstacles were in sync with the answers to the students' questionnaires. The first is the difference in learning styles. Here are excerpts from the interview answers:

Answer 1: *My child is sometimes excited when he finds the material he likes*

Answer 2: *My child is not enthusiastic about learning (lazy to read the small print and difficult to understand)*

From the two answers above, most parents admit that their children are not enthusiastic because reading only makes them less able to understand the material without an explanation from the teacher, because science is a rather abstract subject and requires direct explanation.

The second learning obstacle is technological literacy. 2 of the 31 students stated that they have less technological literacy. Their parents stated that they are busy working, they also come from the middle to lower economic class, and their home location has poor internet access. Under these conditions, technological literacy will be difficult to achieve. Access to information is limited because parents do not provide extra fees to pay for quotas, even their gadgets are still riding with those of other family members, schools in rural areas make them slightly delayed in access information in the form of the latest learning platforms, or other supports related to online learning, generally they learn by assignment through the WhatsApp application.

Technology can be used in teaching and learning activities, which can be said as a change from conventional to modern methods. (Gheytsi, Azizifar & Gowhary (in Khusniyah and Hakim, 2019:21) mention that several studies have shown that technology provides many positive effects on learning. The Internet has been integrated into a tool used to complement learning activities (Martins, 2015). Online learning is a learning system that is carried out not face to face, but using e-learning platform that can help the teaching and learning process that is carried out even though the distance is far. The purpose of an online learning is to provide quality learning services in a massive and open network to reach more and wider interest in learning spaces (Sofyana & Abdul, 2019:82).

The third learning obstacle is parental support. 6 out of 11 parents stated that their children often asked for assistance in answering assignments, but most of them did not help because they did not understand the material, and some were busy with their work. Here are excerpts from the interview answers:

Answer 1: *Yes. Sometimes I feel dizzy to answer, because the assignment is not by the existing material. I also don't understand the lesson now and then it's much different*

Answer 2: *Since I'm busy working like in the fields and doing housework, I'm also a housewife, so I'm busy taking care of the house and the kids... even though the kids always want to ask questions and ask about lessons that I can't, but I'm instead busy taking care of my younger sister who is still a toddler.*

In addition to supporting in the form of learning assistance, 5 out of 11 parents also expressed objections to the additional cost of buying quotas, as has been stated in the case of students' learning difficulties, not a few of those who did not receive quota assistance from the government. The school has tried to take care of the assistance, but there has been no clear follow-up. The parents also hoped that conditions will return to normal soon, they said "children are better off studying at school. If they study at home, their parents can't monitor every day because they have to work and study online, children are less able to understand the material".

4. CONCLUSION

Based on the results of research and discussion, it can be concluded that learning science with the online method encounters many obstacles. This obstacle refers to the three important aspects, namely differences in student learning styles, technological literacy, and parental support.

Things that need to be considered for further research include: researchers are expected to review other aspects that have the potential to become learning obstacles by seeking to deepen the literature review from the latest journals, and find or explore efforts or solutions to minimize obstacles learning experienced by students.

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