

## Students' perception of online learning in biology subject at SMA Muhammadiyah Pleret Bantul during the covid-19 pandemic

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Informasi artikel	ABSTRAK
<p>Sejarah artikel: Diterima : April 20, 2022 Revisi : May 30, 2022 Dipublikasikan : June 17, 2022</p>	<p>Persepsi siswa terhadap pembelajaran daring pada mata pelajaran biologi adalah hal penting sebagai bahan evaluasi pembelajaran. Penelitian ini bertujuan untuk mengetahui persepsi siswa dan kendala yang dialami siswa pada saat pembelajaran daring mata pelajaran biologi di masa pandemi covid-19 di SMA Muhammadiyah Pleret Bantul. Penelitian kuantitatif dengan metode survey ini menggunakan 45 orang siswa sebagai sampel jenuh. Teknik pengumpulan data dalam penelitian adalah quesioner. Teknik analisis data berupa deskriptif kuantitatif dengan menghitung <i>mean</i> (rata-rata) dari hasil skor yang diperoleh. hasil penelitian menunjukkan bahwa persepsi siswa terhadap pembelajaran daring termasuk dalam kategori baik dengan nilai rata-rata 2,57. Hal ini menunjukkan bahwa proses pembelajaran biologi secara daring di SMA Muhammadiyah Pleret dilaksanakan dengan baik untuk menggantikan pembelajaran tatap muka. Peserta didik mengalami beberapa kendala yang dirasakan yaitu kesulitan dalam berdiskusi kelompok, kegiatan pembelajaran tidak didukung dengan praktikum sehingga sulit dipahami, serta kurang memadainya sarana dan prasarana.</p>
<p><b>Kata kunci:</b> persepsi pembelajaran daring biologi covid-19</p>	<p><b>ABSTRACT</b> <b>Students' perceptions of online learning in biology are important for learning evaluation.</b> This study aimed to investigate student perceptions and the obstacles experienced by students during online learning of biology subjects during the covid-19 pandemic at SMA Muhammadiyah Pleret Bantul. This quantitative research with a survey method used 45 students as a saturated sample. The data collection technique in this research was a questionnaire. The data analysis technique was quantitative descriptive by calculating the mean of the scores obtained. The study results showed that students' perceptions of online learning were included in the good category, with an average of 2.57. It showed that the online biology learning process at SMA Muhammadiyah Pleret was well implemented to replace face-to-face learning. Students experienced several perceived obstacles; there were difficulties in group discussions, a practicum did not support learning activities and made it difficult to understand, also inadequate facilities and infrastructure.</p>
<p><b>Keywords:</b> perception online learning biology covid-19</p>	

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## INTRODUCTION

Biology is one of the lessons that play an essential role in the quality of education (Safira, 2016). Biology is a scientific discipline that provides a variety of learning experiences that can make it easier for students to understand scientific concepts and processes. Learning biology leads students to understand the structure and function of organ-composing tissues, the role of creatures in the environment, the structure and function of the human body, and other understandings about living things. Thus, biology is an interesting and fun lesson for students (Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi, 2014).

The biology learning process was not carried out directly (face to face) due to the Covid-19 pandemic. This is done to prevent the spread of the disease. The Covid-19 pandemic caused an unprecedented global health crisis (Ali et al., 2020). In response to these conditions, the Minister of Education and Culture, Nadiem Anwar Makarim, on March 24, 2020, finally issued circular letter No. 4 of 2020 regarding the implementation of education policies during the emergency period of the spread of Covid-19. Learning from home, recommended by the government, was online learning. It was done until September 2021.

In implementing online learning, students and teachers must be able to use supporting devices such as Android, PC, or iPhone (Gikas & Grant, 2013). Internet network access must also be adequate. In addition, the purchasing power of students and teachers regarding internet quota is also a major factor supporting online learning (Sadikin & Hamidah, 2020). In Indonesia, online learning is something new. Before the Covid-19 pandemic, students and teachers were never prepared to learn online.

According to Sofyana and Abdul (2019), online learning should be able to provide quality learning services in a network that is massive and open to reach more and broader study room enthusiasts. However, this is different from what happens in reality at school. Online learning can cause various obstacles in the learning process. Problems related to online learning are that students have difficulty communicating with teachers, students prefer face-to-face discussions, students find it difficult to understand the material if it only comes from books, there are internet quota constraints, and the signal is not evenly distributed in Indonesia (Puspaningtyas & Dewi, 2020).

Thus it becomes important to know students' perceptions of online learning, including in biology subjects. Perception is a process involving messages or communication of the meaning received. Through perceptions, students continuously make contact with their environment. This relationship is carried out through their senses, namely the senses of sight, hearing, touch, taste, and smell (Slameto, 2010). When biology learning is carried out online, of course, it will also create a different perspective for each student. It is because the perceptions that arise from students come from observations and experiences of students during the biology learning process. These students' perceptions are important for evaluating the advantages and disadvantages of online biology learning by subject teachers.

Muhammadiyah Pleret Bantul High School was one of the schools which implemented online learning since the home study policy was established. Due to the Covid-19 pandemic in 2020, biology teachers at Muhammadiyah Pleret Bantul High School carried out online learning activities using google classroom and WhatsApp applications to replace face-to-face learning. In addition, the WhatsApp application was also used for giving questions as assignments or tests. However, students' perceptions of online biology learning at Muhammadiyah Pleret High School have never been studied. To find out the perception, the researcher formulated it in 3 aspects, including the learning process, learning techniques, and carrying capacity. Besides that, the researchers also examined the obstacles experienced by students in the online biology learning process so it could be used to improve learning in the following semester.

## METHOD

This research was a quantitative research using the survey method. Surveys were conducted to collect information from a sample by asking them through questionnaires or interviews to describe various aspects of the population (Arifin, 2011). The survey in this study was implemented by collecting information from students' perceptions of online learning in biology subjects using a questionnaire filled out by the respondents. The sampling technique used was saturation sampling. A total of 45 students from SMA Muhammadiyah Pleret Bantul became respondents in this study. The respondents came from science and social classes. SMA Muhammadiyah Pleret is one of the schools that implements the 2013 curriculum and uses a cross-interest program. In this cross-interest program, students from social classes can also study science-based subjects, such as physics, chemistry, and biology. Furthermore, the data analysis technique in this study used quantitative descriptive analysis by calculating the mean of the scores obtained.

## RESULTS AND DISCUSSION

According to the regulation of the Minister of Education and Culture (2014), cross-interest is a program to expand and develop the interests, talents, and abilities of students by selecting subject groups outside of their interest groups. This program is a new program from the government that aims to provide opportunities for students to develop the competence of knowledge, attitudes, and skills in accordance with their interests, talents, and academic abilities in scientific subject groups.

Three indicators were used to determine students' perceptions of online learning in biology subjects at Muhammadiyah Pleret High School. They were the learning process, learning techniques, and carrying capacity, as listed in Table 1.

**Table 1.** The results of the overall calculation of the learning process indicator

Number	Sub Indicator	Item Number		Interval	
		(+)	(-)		
1	Interest	2		2,82	
		1		2,73	
			3		2,66
	Attitude	7		2,95	
		9		2,51	
		13		2,75	
		16		2,86	
			22		2,4
	Interaction	5	11	2	
			14	2,73	
		20	2,51		
	Motivation	4		2,86	
Student understanding	17		2,57		
	21		2,57		
	24		2,64		
	Evaluation	24		2,64	
	Average			2,47	

From the overall calculation, students' perceptions of the learning process indicators had an average interpretation of 2.47, which was included in the good enough level. A good perception of learning can be used as an indicator to show that the learning process is good enough (Pitriani & Alfriansyah, 2016). Thus, the data obtained indicated that the online biology learning process has been going quite well.

In the learning process, biology teachers must be able to direct students to carry out activities promptly and effectively. Starting learning activities on time shows that an activity has been well prepared. Teachers also have an important role in encouraging students so that the learning process can run well and smoothly. It is because students have mental readiness and interest in participating in different learning processes.

To attract student concentration properly, the teacher needs to convey learning objectives. According to Hamalik (2005), learning objectives describe the expected behavior after learning occurs. Conveying learning objectives is very important because it can attract students' attention and motivate them to participate in learning.

In addition to knowing the learning objectives, active participation is also necessary. That means that students must be involved in the learning process. According to Rusman (2010), participatory learning optimally involves students in learning activities. Meanwhile, according to Mulyasa (2006), participatory learning is related to students' involvement in planning, implementing, and evaluating learning. In item number 3 on the instrument used, the statement "I actively participate when studying biology" was given. Most of the respondents' answers to this statement agreed. The biology teacher also acknowledged at Muhammadiyah Pleret Bantul High School that students actively participated in the learning process, such as actively asking questions, answering questions from teachers and colleagues, and doing assignments according to instructions from the teacher. It is in accordance with the opinion of Sudjana (2006) that student activity can be seen in terms of participating in carrying out their learning assignments, being involved in problem-solving, asking other students or teachers about things that are not understood, seeking information needed for problem-solving, conducting group discussions according to the teacher's instructions, and assessing his abilities and the results he obtained.

Nevertheless, some students still did not actively participate in the learning process. According to Gagne and Briggs in Yamin (2007), there are nine aspects to fostering student activity and participation, namely motivating or attracting students' attention so that they play an active role in learning activities;

Explaining instructional objectives to students; Providing a stimulus (e.g., concept) to be learned; Giving instructions to students how to learn it; Bringing up student activities in each learning activity; Providing feedback; Carrying out bills against students in the form of tests, so students' abilities are continuously monitored and measured; Summarizing each material presented. Learning motivation plays a significant role in achieving learning achievement. According to Uno (2011), learning motivation is internal and external encouragement to students who are learning to carry out behavior, generally with several or supporting elements, including the desire to succeed, the desire and aspirations of the future, appreciation for learning, and a conducive learning environment". It is also in accordance with the opinion of the biology teacher at SMA Muhammadiyah Pleret Bantul that students were very motivated when learning which was marked by doing assignments with enthusiasm and tenacity.

The learning process involves mutual interaction between teachers and students to achieve learning goals. From this, the teacher not only transfers material but educates and directs students to have good character. It is in accordance with Law Number 20 of 2003 concerning the National Education System that national education functions to develop and shape national character and civilization, which is beneficial in the context of educating the nation's life, aiming at developing the potential of students to become human beings of faith, and fearing God Almighty, having noble character, being healthy, knowledgeable, capable, creative, and being a democratic and responsible citizen.

Based on the results of the overall calculation, student perceptions of the learning process indicators had an average interpretation of 2.47, which was included in the good enough criteria. It showed that the online learning process was going quite well. It was in accordance with the benefits of online learning that online learning makes it easy for students to communicate and discuss with teachers efficiently; students can communicate with other students, as well as freedom in expressing opinions; and online learning provide convenience in communicating between teachers, students, and parents (Sobron, et al., 2019).

**Table 2.** The results of the overall calculation of the technical indicators of learning

Number	Sub-Indicators	Items Number		Intervals
		(+)	(-)	
1	Learning access	10		2,82
		23		2,68
	Signal		8	2,8
		12		2,31
	Average			2,65

Based on Table 2, from the results of the overall calculation, student perceptions of learning technical indicators had an average interpretation of 2.65, which was included in the good criteria. It showed that online biology learning could be accessed properly.

One of the government's efforts in education during the pandemic was to close all educational institutions for offline learning. The government adopted a policy for a study from home at all levels of education. Learning from home was done through online learning. This action could reduce the emergence of crowds in the school environment as in face-to-face learning. WHO in 2020 recommended that keeping a distance could prevent the transmission of Covid-19. Unfortunately, not all students had good internet access. It was due to the availability of internet access quota and the signal conditions. From the results of the overall calculation, it could be concluded that the technical learning indicators had an average interpretation of 2.65, which was included in the good criteria. It showed that online learning could be accessed easily.

**Table 3.** The overall calculation results of the carrying capacity indicator

Number	Sub-Indicators	Items Number		Intervals
		(+)	(-)	
1	Facilities and infrastructure		6	1,97
		19		2,84
	Operate the application		15	2,84
		18		2,82
	Average			2,61

Based on Table 3, from the results of the overall calculation, students' perceptions of the carrying capacity indicator had an average interpretation of 2.61, which was included in the good criteria. It showed that the carrying capacity when online learning was well fulfilled.

Facilities and infrastructure are needed in the biology practicum. However, the Covid-19 pandemic was directing students to study online at their homes, while the facilities and infrastructure at home were inadequate for learning. This becomes an obstacle to learning. It was in accordance with Aji, et al. (2020) that education faced four obstacles during the Covid-19 pandemic. They were limited internet control; inadequate facilities and infrastructure; limited internet access; and were not ready for funds in an emergency. Based on this explanation, the lack of facilities and infrastructure is also an obstacle in biology practicum during a pandemic. Supposedly through practicum, students can have skills as support in learning science. It is in accordance with the opinion of Rustaman (2003) that all forms of practicum in schools can make science learning effective, which does require direct experience.

As times progress, the development of Information and Communication Technology (ICT) is also growing rapidly, and we cannot avoid it. Technological devices such as computers and gadgets are vital in everyday life. The rapid development of ICT has a significant impact on human life, including education. According to Abidin (2016), with ICT innovation, people can learn quickly, and information delivery becomes easy. Related to that, students need to master and utilize ICT, especially in operating learning applications, so that this can facilitate the online learning process. In terms of the ability to operate applications, students were generally proficient and had mastered the applications used during online learning. However, from the study results, some students stated that the lack of ability to operate learning applications made it difficult for them. Apart from having to master ICT and being able to operate online learning applications, another obstacle was the lack of online learning support facilities, as experienced by several students at Muhammadiyah Pleret Bantul High School. In addition to hindering the learning process, the lack of automatic online learning support facilities also hampers student learning progress. It is in accordance with the opinion of Limon (2016) that inadequate facilities will disrupt students' learning process and results.

Based on the discussion above, it could be summarized that the obstacles experienced by students during online biology learning included students' opinions that online biology learning would be easier to understand if it was coupled with carrying out practical activities, and students had difficulty discussing with friends group while online learning. It was in accordance with the opinion of Silberman (2001) that students will learn effectively when a teacher provides many skillful activities. Thus, students will understand the subject matter better. Of course, this can only be obtained through practice. The difficulty of discussing during online learning is also evidenced by Dzalila, Ananda, and Zuhri (2020) that working on group assignments using applications such as Whatsapp and Line would be very helpful in the learning process. However, group learning remotely made it difficult for students to have discussions. The results of this study were expected to be used as an evaluation of the learning process carried out by teachers and as a basis for policy-making by schools.

## CONCLUSION

Students' perceptions of online learning of biology subjects at the Muhammadiyah Pleret Bantul High School had an average interpretation of 2.57, which was included in the good criteria. It showed that the online biology learning process was well implemented. The obstacles faced during online learning were that students feel that online biology learning would be easier to understand if it was coupled with doing practicum activities, students had difficulty discussing with group mates, and inadequate facilities and infrastructure.

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