

ANALYSIS OF BIOLOGY LEARNING IN JUNIOR HIGH SCHOOLS IN THE COVID-19 ERA

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ABSTRACT

Keywords:
Biology Learning, Junior High School, Students, Teacher

In 2020, the learning process in Indonesia was disrupted due to the Covid-19 outbreak. The Indonesian Ministry of Education and Culture has changed techniques for online-based learning activities, including biology education. This research aims to determine the problems of biology education in junior high schools in the era of the Covid-19 pandemic. This research is descriptive qualitative research. The subjects used in this research were students and teachers. The object of this research is to analyze the problems of students and teachers in carrying out learning in junior high schools in the era of the Covid-19 pandemic. The research results show that the implementation of biology learning during the COVID-19 pandemic, especially in online format, faces a number of challenges that affect the effectiveness of the teaching and learning process. Internet network problems, especially in rural areas, are a serious obstacle, resulting in difficulties for students' access to platforms such as WhatsApp, Zoom Meeting, Google Classroom, and Google Meeting. The difficulty in understanding biological concepts by students emphasizes the need for a more in-depth learning approach and an increase in the role of teachers in providing detailed explanations. Limited infrastructure and technological accessibility illustrate inequalities in online learning. Therefore, collaborative initiatives are needed between the government, schools, teachers and students to overcome technical obstacles and improve the quality of biology learning during the pandemic.

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INTRODUCTION

Learning is defined as a change in a person's behavior or character that is permanent, the result of experience and training, not solely due to the process of growth or maturity (Suardi, 2018). Education, as a medium for achieving prosperity for all mankind, has a crucial role in forming quality individuals. However, currently, new challenges have emerged with the outbreak of the Covid-19 pandemic (Suprapno et al, 2021).

In an effort to prevent the spread of the virus, the World Health Organization (WHO) recommends avoiding events that could cause large crowds. This has led to a new paradigm in providing education, especially in the context of face-to-face learning. Traditional practices involving large groups of students in the classroom are currently being reviewed to adapt to safety and health demands (Romadona & Arif, 2021).

The COVID-19 pandemic has significantly changed the way we live our daily lives, forcing us to adapt to situations we never imagined possible. One aspect affected is the education system, where study, work and worship activities are now required to be carried

out at home. Despite the big challenges, this era is also a moment where student creativity is the key in learning from home (Salkiah, 2020).

The use of technology, such as cellphones and laptops, has become the main foundation for carrying out distance learning. Students are required to utilize these devices as effective learning media (Katuuk et al, 2021). This is the time for student creativity to play a role, where they must look for innovative ways to maximize the potential of this medium. The use of online platforms, learning applications and other digital resources is a strategic step in bridging learning gaps and ensuring educational continuity (Sudarmanto et al, 2021).

The importance of students' mastery of learning media in this context cannot be ignored. Studies such as those mentioned by Santosa (2020) confirm that students' ability to master learning media plays an important role in improving the quality of education. Therefore, educators and education policy makers need to continue to support strengthening students' digital literacy and technology skills so that they can optimize the learning process from home.

Education plays a central role in shaping and driving the progress of a nation (Raharjo, 2012). In the midst of dynamic global developments, the COVID-19 pandemic has emerged as a serious test for education systems around the world. Despite facing various challenges, students still show high enthusiasm to continue learning. The health emergency forced a drastic change from the conventional face-to-face learning system to online learning.

Online learning is a learning model that utilizes technology as a means of electronic learning from teachers to students, connected via the internet network. Rohana (2020) describes that online learning does not require students to be present directly in the classroom, allowing them to learn in a safe environment. Even though it initially emerged as a response to an emergency situation, the government is encouraging online education as an effective solution in dealing with the pandemic (Kahfi, 2020).

Many students consider studying biology with a scientific nature as a difficult subject, there is a lot of memorization in Latin which requires time to remember, because the field of biology studies the branch of knowledge about living things in the universe (Dewi & Sari, 2022). The change from a face-to-face (offline) learning system to online learning has had both positive and negative impacts (Syahmina, 2020). Therefore, teachers must wisely combine and use models and multimedia in the learning process that is adapted to the learning system for emergency conditions during the pandemic.

In the teaching and learning process this time, teachers and students use applications on cellphones and laptops, such as Google Classroom, WhatsApp, and Zoom Meeting (Sadikin & Hamidah, 2020). Teachers are required to be creative and skilled in using social media (Pujowati, 2021). This is because online learning also requires learning media to support students' desire to learn and students' enthusiasm for learning (Pustikayasa, 2019). The impact felt from online learning is not only the limited activities of teachers and students, another impact is that when carrying out online teaching and learning activities, not all students have a good access network to carry out online learning, students and teachers You also have to spend more money to purchase internet quota so you can learn online (Supriyatin, 2022).

METHOD

The research carried out was descriptive qualitative in nature, where the qualitative approach aims to understand the phenomena experienced by the research subjects holistically. This approach uses descriptions in the form of words and language, focuses on a specific natural context, and utilizes various scientific methods (Moleong, 2014). The data collection methods used involved observation, interviews and questionnaires. The validity of the data is guaranteed through the application of triangulation techniques, which is a way to ensure the validity of the data by comparing it with other data sources outside the data (Moleong, 2014).

The data analysis process uses techniques from the Miles & Huberman model, which involves data reduction, data presentation and data verification stages (Prastowo, 2016). This technique helps researchers in detailing and summarizing the information collected, presenting it in a clear way, and verifying the correctness and relevance of the data. With this approach and method, it is hoped that this research can provide an in-depth understanding of the phenomenon under study, as well as produce rich and contextual findings.

RESULTS AND DISCUSSION

The learning process has an integral role in improving the quality of education, and can occur both within the framework of formal and informal education (Emda, 2011). The main goal of learning is to improve the quality of students' cognitive, affective and skill aspects. However, the COVID-19 pandemic presents serious challenges, especially for PGRI 2 Subang Middle School students, forcing them to switch to the Distance Learning (PPJ) system using online learning.

Online learning, as explained by Despa Ayuni et al. (2021), is a learning system that utilizes the internet network to deliver material to large groups efficiently. This learning model can be done either for free or for a fee, providing flexibility to students. At PGRI 2 Subang Middle School, teachers have adopted online learning by using various platforms to support teaching and learning activities.

Through this online learning system, teachers can bridge physical distances while maintaining the quality of learning. Despite the challenges of technology and adaptation, the use of multiple learning platforms is key to ensuring educational continuity. Collaborative efforts between teachers and students in overcoming technical obstacles and maximizing the potential of online learning are an important part of the learning dynamics in the pandemic era. Thus, online learning at SMP PGRI 2 Subang is not only a response to emergency situations, but is also an effort to maintain the quality and relevance of education amidst ongoing global challenges.

Table 1 Deep Learning Platforms during the Covid-19 Pandemic

No	Learning Platform	Percentage
1	WhatsApp	40 %
2	Zoom Meetings	30 %
3	Google Meetings	10 %
4	Google Classroom	20 %

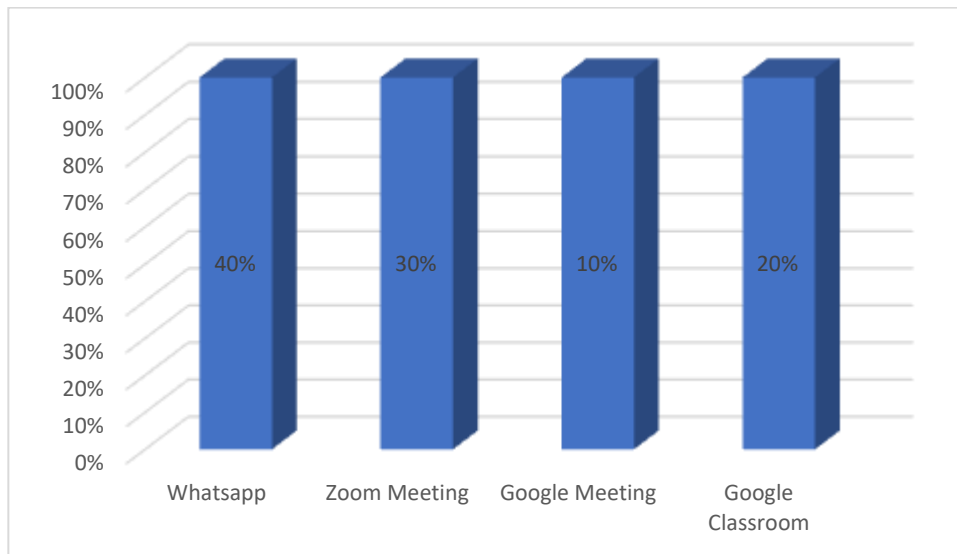


Figure 1 Diagram of the Learning Platform at SMPN PGRI 2 Subang

Based on the diagram presented, it can be concluded that the platform most widely used by biology teachers at PGRI 2 Subang Middle School is WhatsApp, reaching 40%. This finding is consistent with research by Yulianto et al. (2020), which states that the WhatsApp application is one of the applications most frequently used by pupils and students, reaching 98%. WhatsApp not only dominates usage because of its popularity, but also makes it easy for teachers to send various types of materials and assignments to students, such as Microsoft Word documents, Microsoft PowerPoint presentations, video links, and so on (Rigianti, 2020).

Apart from WhatsApp, biology teachers at PGRI 2 Subang Middle School also use the Zoom Meeting application as much as 30%, Google Meeting as much as 10%, and Google Classroom as much as 20%. Despite variations in the use of online learning platforms, there are challenges in making the learning process smooth. Application implementation often does not go well, and this can affect teaching effectiveness.

It is important to recognize that during the pandemic, teachers and students are faced with a steep technological learning curve, and technical problems can become obstacles to the smooth process of online learning. Therefore, technical support and training for educators and students need to be improved. Collaborative efforts between teachers, students and related parties in overcoming technical obstacles will greatly support the smooth running of online learning in the future. Through continuous evaluation and adjustment, the online learning process can be optimized to provide a better educational experience that is responsive to student needs in this digital era.

Table 2 Student Difficulty Levels in Learning Biology During the Covid-19 Pandemic

No	Degree of difficulty	Percentage
1	Very easy	5 %
2	Easy	15 %
3	Currently	10 %
4	Difficult	20 %
5	Very difficult	50 %

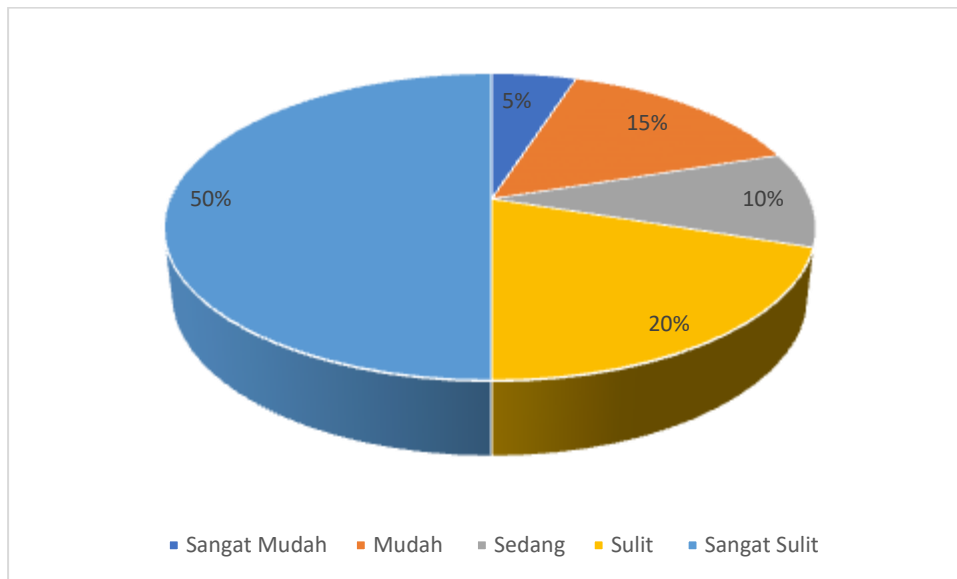


Figure 2 Level of Difficulty of Online Learning at SMP PGRI 2 Subang

Learning is not only a right, but also an obligation for students to expand and develop their potential. Success in the teaching and learning process really depends on the teacher's ability to choose effective learning methods, as well as being influenced by the level of student curiosity and motivation (Muldayanti, 2013). Interestingly, the results from the diagram above show that PGRI 2 Subang Middle School students experience a number of difficulties in carrying out online learning.

Of the total respondents, 50% of students stated that online learning was very difficult, 20% said it was difficult, 10% said it was moderate, 15% said it was easy, and only 5% said it was very easy. The main reason mentioned by students was that the concepts and material presented by the teacher were difficult to understand. This reflects that the implementation of online learning has not been fully effective at SMP PGRI 2 Subang, with some students facing problems understanding concepts.

This difficulty is in line with the findings of Anggianita & Rizal (2020), which shows that some teachers still experience problems in understanding and applying science and technology (Science and Technology) in the online learning process. Other obstacles arise from students who are not used to managing and controlling online learning from home and students' lack of initiative to study independently (Utami et al., 2020).

Especially in the context of biological material, students are exposed to material that requires high-level thinking skills, such as the digestive, respiratory, endocrine and nervous systems. In online learning situations, teachers are expected to provide detailed and detailed explanations, but challenges arise when learning cannot take place directly. Therefore, concrete steps are needed to increase the effectiveness of online learning, including training for teachers, guidance for students in managing online learning, and the provision of adequate learning resources. Through joint efforts, it is hoped that these obstacles can be overcome, and online learning can provide maximum benefits for student development during this pandemic.

Biology learning at SMP PGRI 2 Subang faces serious obstacles due to internet network difficulties experienced by most students. These students live in rural areas, where internet network coverage is often a major challenge. In online learning, platforms such as WhatsApp, Zoom Meeting, Google Classroom, and Google Meeting are the main means for students and teachers to carry out the learning process. However, conditions in rural areas that are difficult to reach by internet networks result in disruptions in signal availability and quality.

As stated by Atsani (2020), the internet network plays a crucial role as a means of connecting students and teachers in implementing the learning process through various applications. In this context, internet network difficulties are the main obstacle that hinders the smooth running of teaching and learning activities. Although online learning systems offer advantages in terms of flexibility and accessibility, infrastructure challenges, especially in rural areas, reveal fundamental weaknesses in the implementation of online learning.

This weakness is a serious concern, especially when not all students can enjoy the benefits of the online learning system. Therefore, the government and schools need to immediately address this problem with concrete steps, such as improving network infrastructure in rural areas, providing alternative learning methods that are less dependent on internet access, or providing learning resources that can be accessed offline. Only by seriously addressing these infrastructure constraints can we ensure that every student has a fair and equal opportunity to obtain an education, regardless of geographic location.

CONCLUSION

In general, observations of the dynamics of biology learning during the COVID-19 pandemic highlight the complexity of the challenges faced by students and teachers at SMPN PGRI 2 Subang in adapting themselves to online learning. The implementation of various platforms such as WhatsApp, Zoom Meeting, Google Classroom, and Google Meeting is a solution, but limited internet infrastructure, especially in rural areas, hampers the accessibility and effectiveness of learning. Students' difficulties in understanding biological concepts are highlighted, requiring a more in-depth learning approach. The importance of collaboration between government, schools, teachers and students in overcoming technical obstacles and increasing student creativity and initiative are important points. With a deep understanding of these obstacles, strategy adjustments, intensive training, and concrete steps are needed to improve the quality and accessibility of biology learning. Only with close cooperation can the education system continue to develop and provide inclusive and responsive education amidst global challenges.

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