



Volume 10 (1) 2022, 1 – 7

## Jurnal Pelita Pendidikan

Journal of Biology Education

<https://jurnal.unimed.ac.id/2012/index.php/pelita/index>

eISSN: 2502-3217 pISSN: 2338-3003

### ANALYSIS OF THE USE OF ONLINE LEARNING APPLICATIONS DURING THE COVID-19 PANDEMIC IN BIOLOGY SUBJECTS

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#### ARTICLE INFO:

#### ABSTRACT

##### Article History

Received January 19<sup>th</sup>, 2022  
 Revised March 13<sup>th</sup>, 2022  
 Accepted March 28<sup>th</sup>, 2022

##### Keywords:

*Online Learning Applications, Covid-19 Pandemic, Biology Learning*

The COVID-19 pandemic has had a negative impact on the life system in Indonesia, one of which is the education system. This study aims to analyze the use of online learning applications during the Covid-19 pandemic in biology subjects at SMAN 2 Rantau Utara. This research was quantitative research with a descriptive method. The sample of this research was the students of class XI MIA SMAN 2 Rantau Utara totaling 179 students who were taken by total sampling technique. The research instrument was in the form of a questionnaire on the use of online learning applications distributed through Google Forms and interview guidelines. Data analysis was carried out by calculating the percentage of scores obtained. The results showed that the online learning applications used by class XI MIA students of SMAN 2 Rantau Utara during the covid-19 pandemic were Google Meet at 57%, and Google Classroom at 43%. The indicators obtained for using online learning applications during the Covid-19 pandemic were: (1) Display of features/facilities in online learning applications used was 74%, (2) Interest in online learning applications used was 58.2%, (3) The provision of materials/tasks in the online learning applications used was 56.8%, (4) the independence of students towards online learning applications used in learning was 46.2%, and (5) the implementation of learning that occurred while using the online learning applications used by 42.6%. The use of online learning applications for biology subjects conducted online was a good solution to dealing with problems in the education system in the era of the covid-19 pandemic.

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#### How to Cite:

Sadila, Aulia & Sari, Novi Fitriandika. (2022). Analysis Of the Use Of Online Learning Applications During The Covid-19 Pandemic In Biology Subjects. *Jurnal Pelita Pendidikan*, 10(1), 1-7.

## INTRODUCTION

Indonesia is still one of the countries affected by the Corona Virus (Covid-19) pandemic. The Covid-19 virus pandemic has caused many adverse impacts on the activities of daily life, one of which is in the world of education, so during the Covid-19 pandemic, the Circular of the [Ministry of Education and Culture No. 4 \(2020\)](#) handling of Corona Virus Disease (Covid-19) which requires educational institutions to apply online or online learning ([Monica & Fitriawati, 2020](#); [Sukma, 2021](#))

Online learning aims to meet educational standards with information technology using computers or gadgets that were interconnected between students and teachers ([Awalia et al, 2021](#)). [Sukma \(2021\)](#) argues that there is a policy regarding Limited Face-to-face Learning (PTM) that the Government has put in place to prevent the spread of Covid-19 and as a solution that is expected to overcome difficulties in face-to-face learning, which is also constrained by problems of time, location, distance, and costs and the existence of Social Distancing regulations.

[Astuti & Prestiadi \(2020\)](#) argued that online learning is learning that is carried out remotely using learning applications such as Google Classroom, Whatsapp groups, Google Meet, Zoom, TVRI, DragonLearn, and so on by using mobile learning media, such as mobile phones and laptops that use mobile learning media, equipped with Internet network access. In line with [Astuti & Prestiadi \(2020\)](#), [Surata et al \(2020\)](#) stated that, learning applications were systems that can be used to provide learning so that students can respond by showing interest, concern and feelings in learning activities to achieve learning goals.

The same opinion as [Hasiru et al \(2021\)](#) states that online learning is a solution that can be done to overcome obstacles in carrying out teaching and learning activities that should be carried out in a face-to-face situation, so [Ndasung \(2021\)](#) through his research also states that online learning demands the role of educators in concluding the success of learning that is tailored to the learning needs of students. However, in its use, there were many obstacles and challenges felt by students and teachers when carrying out the ongoing learning process, especially in Biology learning ([Tasdik & Amelia, 2021](#)).

During the Covid-19 pandemic, the subject matter is displayed in the form of word files, PowerPoint files, short videos, and reading materials sent via learning applications so that teachers were required to develop learning methods and media used, and students were

required to be active in learning activities ([Safitri & Panjaitan, 2021](#)). The use of learning applications in schools is adjusted to school policies as well as the goals and results to be achieved by the school. This is due to the necessity of educators and educational elements to maintain online learning during the Covid-19 pandemic ([Ndasung, 2021](#)).

Based on the results of initial observations and interviews with school principals and teachers in the field of study, it was found that SMAN 2 Rantau Utara is a school that has implemented online learning in all Teaching and Learning Activities (KBM), including the field of Biology. KBM activities were carried out by utilizing learning applications, namely, Google Meet and Google Classroom.

Based on interviews conducted with students, researchers indicated that there were various complaints faced by students during online learning such as decreased interest in learning, lack of understanding of subject matter, communication limitations, boredom due to the virtual learning environment, and accumulation of school assignments. Not to mention the limited internet network quota, the location does not allow for a signal, so it makes you lose focus in studying. Therefore, researchers feel the need to examine how to use online learning applications during the COVID-19 pandemic at SMAN 2 Rantau Utara

## METHOD

This research was conducted from November 2021 to December 2021 at SMAN 2 Rantau Utara, Labuhanbatu Regency. This research was quantitative descriptive. The population of this research was the students of class XI MIA SMAN 2 Rantau Utara. The research sample amounted to 179 students who were taken by total sampling technique. The instruments used were interview guidelines and questionnaires about the use of online learning applications which were distributed to students via Google Form.

The initial preparation stage was carried out by interviewing the principal, subject teachers, and students at the research site, then designing interview guidelines, making grids and statements in the questionnaire, and validating the instrument to expert validators. The online learning application questionnaire during the pandemic was a modification of [Koroh \(2020\)](#), [Nalurita \(2021\)](#), [Budiarti et al \(2021\)](#). The questionnaire on the use of online learning applications during the Covid-19 pandemic is shown in Table 1.

**Table 1.** Questionnaire on The Use of Online Learning Applications During The Covid-19 Pandemic

Indicator	Item	Amount
Display of features/facilities in online learning applications.	1, 2, 10, 12, 17, 23	6 question
Interest in types of online learning Applications.	3, 7, 15, 18, 22	5 question
Preparation of Materials and Assignments.	4, 8, 14, 20, 24	5 question
Student independence in learning.	5, 11, 16, 21	4 question
Implementation in learning using online learning applications.	6, 9, 13, 19, 25	5 question
<b>Total</b>		<b>25 questions</b>

Data analysis was carried out by calculating the percentage of the score obtained using the formula for calculating the percentage as follows:

$$Es = \frac{n}{N} \times 100$$

Information:

Es = Expected score

N = Total maximum score

n = Total score obtained

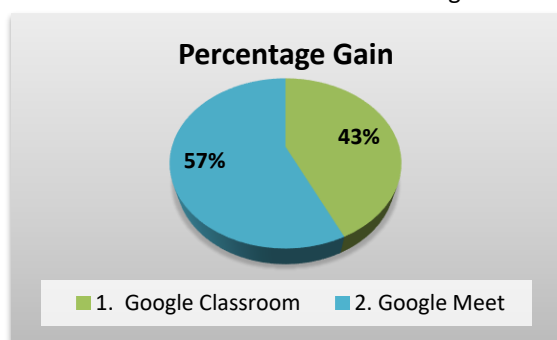
The percentage results obtained from the calculation of scores based on the Likert scale with the scoring scale were shown in table 2.

**Table 2.** Likert Scale Criteria

Criteria	Score
Strongly agree	4
Agree	3
Doubtful	2
Disagree	1

## RESULTS AND DISCUSSION

The results showed that the types of online learning applications used by class XI MIA students at SMAN 2 Rantau Utara can be seen in Figure 1.

**Figure 1.** Percentage of the types of Online Learning Applications used

The use of the type of online learning application that was more often used by students of SMAN 2 Rantau Utara during the Covid-19 pandemic was Google Meet with a percentage of 57% compared to Google Classroom which gets 43%. In line with [Sukma \(2021\)](#) and [Prisuna \(2021\)](#), Google Meet was an online learning application that has video conferencing features/facilities so that interaction between educators and students

occurs. Google Meet can also make video calls with 25 other users or more in each meeting. This was in line with [Nalurita \(2021\)](#), which states that the application or application of Google Meet was easier to use, just by opening it via Google Chrome and logging in via email, you can directly connect. It was felt by class XI MIA that the Google Meet application was an effective application because it was face-to-face virtually so that it made their intention and interest in learning more serious to do online learning. In line with the results of interviews with biology subject teachers, online learning using the Google Meet application was relatively conducive because teachers can directly monitor the behavior of students who were participating in online learning and there was a chat column as a question-and-answer room during online learning.

Google Meet still had drawbacks, there were various obstacles experienced, such as network instability if the weather conditions were rainy, wasteful quota even frequent running out of quota resulting in exiting the application automatically while in the middle of learning takes place, must be in a quiet place to focus on learning the onset of pain in the hands was caused by holding a cellphone for a long time and fatigue in the eyes.

Google Classroom was the second application used by class XI students at SMAN Rantau Utara. This application was an application offered by G-Suite for Education and has been widely used by internet users due to its enormous benefits ([Irfan and Ariandi, 2021](#)). Paper efficiency, user flexibility, a simple, attractive and easy to use interface because this application was a development from Google itself, as well as the task organization process by teachers/ instructors that were relatively easy to do were the basic reasons users take advantages from this platform. The weakness were the unavailability of virtual videos to monitor the activities of students in online teaching and learning activities.

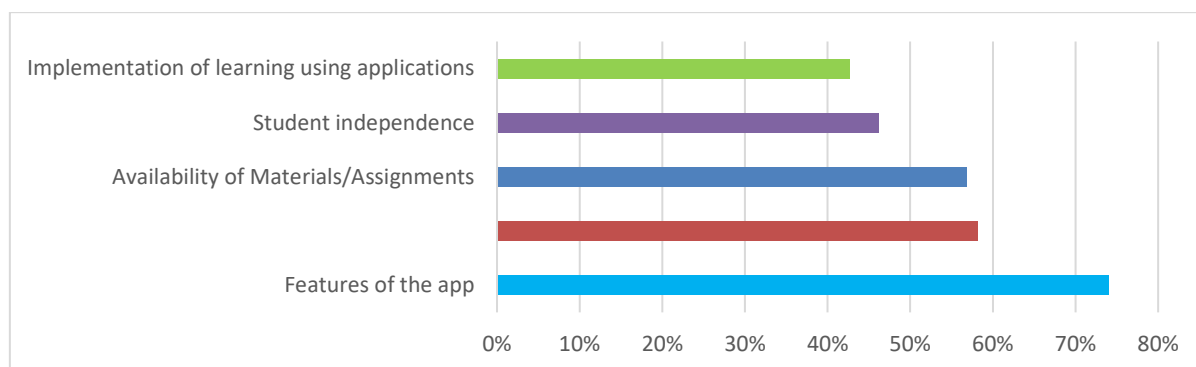
According to [Hasiru et al \(2021\)](#) and [Astuti & Prestiadi \(2020\)](#) the Google Classroom application was a learning application published by Google with the aim of simplifying online teaching and learning activities during the Covid-19 pandemic, where it

was used and the task facilities provided were not have to use paper again. Based on the results of interviews that researchers have conducted regarding the Google Classroom application, which usage was slightly lower than Google Meet, students of class XI MIA could accept and use the application easily. However, without video conferencing features/facilities, they were less serious and even not serious participating in online learning. Teachers could not directly monitor student behavior, such as eating, playing, and even traveling and some students added that learning with Google Classroom just by responding to being present in the available discussion column was enough evidence that they have participated in online learning until after the absences were complete. Students were free to do anything without having to continue participating in learning. However, some students added that learning done with Google Meet has an added value, namely that learning could be done anywhere and anytime as long as an internet connection was available and of course it saves quota.

In line with research conducted by [Mazda & Fikria \(2021\)](#) where the research states that the

most frequently used combination of learning applications was using Google Meet or Google Classroom when giving face-to-face material with virtual and as an application for providing soft copies of material or collecting assignments. by using Google Classroom. Where in the learning that takes place displays videos and explanations of subject matter, so that through the application, educators and students meet face to face, although not directly and students can interact actively through the chat column that has been provided or ask questions using the available audio features. In addition, with the use of Google Classroom, teachers can send materials/ assignments to students at once or individually and students can directly send/upload the answers in the provided column, and teachers can also directly give assessments to students whose results can be known directly by students. in the assessment section provided.

Furthermore, the research results were obtained from data acquisition factors for the use of online learning applications during the Covid-19 pandemic as shown in Figure 2.



**Figure 2.** Factors in Using Online Learning Applications During the Covid-19 Pandemic in Biology Subjects at SMAN 2 Rantau Utara

Based on the results of data acquisition from each of the factors above, it can be seen that the use of online learning applications has not been maximally utilized as a solution for online learning in class XI MIA SMAN 2 Rantau Utara. The percentages obtained from each indicator were as follows: (1) Display of features/facilities in online learning applications with a percentage of 74%, (2) Interest in types of online learning applications with a percentage of 58.2%, (3) Provision of materials /task with a percentage of 56.8%, (4) Student Independence in learning with 46.2%, and (5) Implementation of learning in using online learning applications with 42.6%.

#### Display Features/Facilities in Online Learning Applications

The data shown that 74% of students understood and liked the online learning applications. research on the use of online applications in terms of paper efficiency, user flexibility, a simple and attractive interface, and the process of task organization by the instructor/instructor which was relatively easy to do was the basic reason users take advantage of this online platform ([Irfan & Ariandi, 2021](#)). However, there were still 26% of students who have difficulty accessing online learning application features. Students were also still confused about the notification feature if there was new material/

task, ignorance in the use of discussion forums in online learning applications, lack of understanding in using the video conferencing feature, and ignorance of the deadline for collecting assignments through the online learning application used.

#### **Interest in types of Online Learning Applications**

Interest in this type of online learning application obtained a percentage of 58.2%, meaning that more than half of the students agreed that there were many positive activities that could be done apart from reading material and doing assignments, school study hours were shortened, but many students also abused that time by playing games. Students do not like learning with online learning applications used by 41.8% because they often feel bored not meeting friends at school even though in online learning applications used students can see who their friends who were participating in online learning. Students also often feel tired if they have to stare at laptops for a long time and hold cellphones when using applications.

As according to [Monica & Fitriawati \(2020\)](#), using applications such as Zoom, Google Meet, Google Classroom and others that have been prepared during the current Covid-19 pandemic, learning that can be said to be flexible and its implementation makes it easier for students to participate in learning activities. Online or remotely, as well as making learning using applications get a very good response from students. The many features that make it easy to be of value to facilitate online learning. However, some of the students said that during learning they often did not understand what the teacher said because the speaker factor sometimes disappeared depending on the signal strength and sound when the teacher gave lessons.

#### **Preparation of Materials/ Assignments**

The provision of materials and assignments in the online learning application obtained a percentage of 56.8%, meaning that students liked the appearance of the menu of materials and assignments from the online learning application. With the menu for providing materials/tasks in each online learning application, students can easily access assignments and materials into learning applications. This was in line with the opinion of [Astuti & Prestiadi \(2020\)](#) that the availability of adequate facilities and infrastructure was a big support for the successful implementation of learning. More precisely, the understanding of learning provided by the teacher to students must be possessed in all online learning applications, such as menus for uploading materials

in the form of files or learning videos, question-and-answer columns, interaction menus between virtual members and others.

The provision of material can be done by making explanation videos by educators, to make it easier for students to understand material such as the research by [Safitri & Panjaitan \(2021\)](#) which resulted in the use of online media in online learning in biology subjects, showing that in online learning 100% or all students used smartphone media. Students often used it and find it easier to use.

According to [Handayani \(2020\)](#) that the benefits of online learning were that students can learn from home, not limited by place, more effective use of time because students do not spend time traveling to school, besides that data or material that has been submitted by the teacher can be recorded and reused. While the disadvantages were network instability, learning material content was not delivered accurately, and student concentration was reduced.

#### **Student Independence in Learning**

Student independence in online learning was 46.2%. The use of online learning applications makes it easier for users to better understand biology lessons independently and with online learning applications that were used, students become more diligent in doing and submitting assignments on time, and with the use of online learning applications, students find new things and feel more challenged in learning. However, 53.8% of students said that the use of online learning applications that were used did not make it easier or even difficult for biology lessons that were carried out independently. Students also find it difficult to do assignments independently and make students were confused to submit assignments on time.

According to [Assidiqi & Sumarni \(2020\)](#), the interview data shows that there were two digital platforms that were often used, the application was simpler and easier to use. The data shows that all students use Google Meet and Google Classroom in conducting online learning. With this application, teachers and students can meet face to face via laptop or cellphone screens. The use of this application was very helpful in delivering material, the interaction between teachers and students was more intertwined.

#### **Implementation of Learning using Online Learning Applications**

As many as 42.6% of students agree and like learning done using online learning applications.

Students stated that the online learning application used was very useful in biology lessons because it could solve problems found in learning, was more active in providing comments, both in statements and questions. While using online learning applications, it requires students to always pay attention to the teacher's explanations when studying, be responsive to advanced technology via cellphones or laptops, face-to-face virtually which can be done anywhere and anytime as long as there was an internet connection.

As many as 57.4% of students feel less enthusiastic and even lose their enthusiasm for learning using online learning applications. This was also in line with the opinion of [Setyaningsih & Hidayat \(2021\)](#) that there were several obstacles faced by both teachers and students. These obstacles were, (1) initial difficulties when entering the application; (2) The majority of parents of students who were technology stuttering coupled with an age that was quite old and less proficient in using mobile phones so that they cannot accompany students when they have difficulties in learning using online learning applications; (3) Limited cellular network for students who lived far from urban areas.

According to Ismail in [Astuti & Prestiadi \(2020\)](#) the obstacles or obstacles experienced by students during online learning, namely online learning applications used during online learning were not all suitable for all students because each student has a different learning style. In general, students' learning styles were visual, auditory and kinesthetic. Students who tend to learn visually were easier to accept lessons by seeing or observing first before learning new things. Students whose learning style was auditory, then they must listen to the explanation first to make it easier to understand the lesson. Meanwhile, students whose learning style was kinesthetic always want to move and were more interested in looking for themselves without having to always read.

## CONCLUSION

Based on the results of research that has been carried out which was contained in the results and discussions of students at SMAN 2 Rantau Utara, North Rantau District, Labuhanbatu Regency, Prov. North Sumatra, that the applications used by students were Google Meet by 57% and Google Classroom by 43%. Meanwhile, the use of online learning applications in biology subjects was not maximal and effective, with the results that (1) Display features/facilities in online learning applications by 74%, (2) Interest and online learning applications by 58.2%, (3) The provision of materials and assignments was 56.8%, (4) student

independence in learning was 46.2%, and (5) the implementation of learning in using online learning applications is 42.6%.

In the end, it is undeniable that the use of online learning applications for biology subjects carried out online or online by class XI MIA students during the Covid-19 pandemic was a good and appropriate solution to deal with problems and obstacles in the current education system, it was just that students were not familiar with the online learning environment.

## ACKNOWLEDGMENT

Researchers to the Principal of SMAN 2 Rantau Utara and biology teachers and students from Class XI MIA 1 to MIA 5 who have accepted researchers to conduct research at the school.

## REFERENCES

- Assidiqi, M. H. & Sumarni, W. (2020). Pemanfaatan Platform Digital di Masa Pandemi Covid-19. *In Prosiding Seminar Nasional Pascasarjana (PROSNAMPAS)*, 3(1), 298-303.
- Astuti, A. D., & Prestiadi, D. (2020, June). Efektivitas Penggunaan Media Belajar Dengan Sistem Daring Ditengah Pandemi Covid-19. *In Prosiding Web-Seminar Nasional (Webinar)*, 20, 129-135.
- Awalia, L. M., Pratiwi, I. A., & Kironoratri, L. (2021). Analisis Penggunaan Aplikasi Pembelajaran Daring terhadap Minat Belajar Siswa di Desa Karangmalang. *Jurnal Basicedu*, 5(5), 3940–3949. <https://doi.org/10.31004/basicedu.v5i5.1354>
- Budiarti, M. I. E., Titing, T. F. R., Dhipanusa, K., Setiyono, M., & Nalle, C. Y. (2021). Keefektifan Penggunaan Google Class Room Dan Zoom Selama Pandemi Covid 19 Pada Pembelajaran Matematika. *JPB: Jurnal Patria Bahari*, 1(1), 9-23. <https://doi.org/10.54017/jpb.v1i1.16>
- Handayani, L. (2020). Keuntungan, Kendala dan Solusi Pembelajaran Online Selama Pandemi Covid-19: Studi Ekploratif di SMPN 3 Bae Kudus. *Journal of Industrial Engineering & Management Research*, 1(2), 15-23.
- Hasiru, D., Badu, S. Q., & Uno, H. B. (2021). Media-Media Pembelajaran Efektif Dalam Membantu Pembelajaran Matematika Jarak Jauh. *Jambura Journal of Mathematics Education*, 2(2), 59-69. <https://doi.org/10.34312/jmathedu.v2i2.10587>
- Irfan, M., & Ariandi, A. (2021). Analisis penggunaan aplikasi daring oleh dosen program studi

- Pendidikan Biologi Universitas Sulawesi barat selama pandemi COVID-19. *Jurnal Ilmu Pendidikan (JIP) STKIP Kusuma Negara*, 12(2), 139-144.  
<https://doi.org/10.37640/jip.v12i2.866>
- Kemendikbud Nomor 4 Tahun 2020. (2020). Surat Edaran Menteri Pendidikan dan Kebudayaan Nomor 4 Tahun 2020. *Engineering, Construction and Architectural Management*, 25(1), 1-9.  
<https://pusdiklat.kemdikbud.go.id/surat-edaran-mendikbud-no-4-tahun-2020-tentang-pelaksanaan-kebijakan-pendidikan-dalam-masa-darurat-penyebaran-corona-virus-disease-covid-1-9/>
- Koroh, T. D. (2020). Respon Mahasiswa Terhadap Pembelajaran Daring dan Kemandirian Belajar Mahasiswa Selama Pandemi Covid-19: *Student Response To The Online Learning And Self Learning During Pandemic Covid-19. Widyadewata*, 3, 54-59.
- Mazda, C. N., & Fikria, A. N. (2021). Analisis Efektifitas Google Classroom, Zoom Meeting dan Google Meet sebagai Multimedia Interaktif Pembelajaran Online. *INISTA: Journal of Informatics, Information System, Software Engineering and Applications*, 3(2), 1-9.  
<http://journal.ittelkom-pwt.ac.id/index.php/inista/article/view/242>
- Monica, J., & Fitriawati, D. (2020). Efektivitas penggunaan aplikasi zoom sebagai media pembelajaran online pada mahasiswa saat pandemi covid-19. *Jurnal Communio: Jurnal Jurusan Ilmu Komunikasi*, 9(2), 1630-1640.  
<https://doi.org/10.35508/jikom.v9i2.2416>
- Nalurita, S. (2020). Pemanfaatan Aplikasi Google Meet Pada Mata Kuliah Teknik Proyeksi Bisnis Semester Gasal Tahun Pelajaran 2020/2021 Di Universitas Dirgantara Marsekal Suryadarma (Unsurya)(Studi Pada Mahasiswa Prodi Manajemen Kelas G). *Jurnal Ilmiah Manajemen Surya Pasca Scientia*, 10(1).  
<https://journal.universitassuryadarma.ac.id/index.php/jimspc/article/download/593/564>
- Ndasung, D. J. (2021). Pendidikan di Indonesia Pada Masa Pandemi Covid-19. *Jurnal Pendidikan Tambusai*, 5(2), 3014-3018.
- Prisuna, B. F. (2021). Pengaruh Penggunaan Aplikasi Google Meet terhadap Hasil Belajar. *Jurnal Penelitian Ilmu Pendidikan*, 14(2), 137-147.
- Safitri, S., & Panjaitan, E. U. (2021). Analisis Pembelajaran Daring Menggunakan Media Online Selama Pandemi Covid-19 Pada Mata Pelajaran Biologi di SMA N 2 Rantau Selatan. *Jurnal Edu-Bio: Education and Biology*, 3(02), 8-14.
- Setyaningsih, W. D., & Hidayat, S. (2021). Analisis Penggunaan Aplikasi Google Classroom Sebagai Media Pembelajaran Dalam Meningkatkan Keaktifan Siswa. *PEDADIDAKTIKA: Jurnal Ilmiah Pendidikan Guru Sekolah Dasar*, 8(3), 727-741.  
<http://ejournal.upi.edu/index.php/pedadidaktika/index>
- Sukma, E. (2020). Perbedaan Hasil Belajar Biologi Siswa Menggunakan Platform Whatsapp Group dan Google Meeting Dalam Pembelajaran Jarak Jauh Pada Masa Pandemi Covid-19 (Doctoral dissertation, Universitas Muhammadiyah Malang).
- Surata, I. K., Sudiana, I. M., & Sudirgayasa, I. G. (2020). Meta-analisis media pembelajaran pada pembelajaran biologi. *Journal of Education Technology*, 4(1), 22-27.
- Tasdik, R. N., & Amelia, R. (2021). Kendala Siswa SMK dalam Pembelajaran Daring Matematika di Situasi Pandemi COVID-19. *Jurnal Cendekia: Jurnal Pendidikan Matematika*, 5(1), 510-521.