DOI: 10.24952/bioedunis.v3i2.13857

Bioedunis Journal
https://jurnal.uinsyahada.ac.id/index.php/Bioedunisi
Vol. 03 No. 02 Desember 2024
E-ISSN : 2829-7601

Effectiveness of Self-Assessment with Google Forms to Improve Student Understanding in Biology Learning

Muthia Akmala[1];Yunilla Vidiastuti[2]; Fitria Pusparini[3]; Dini Safitri[4]; Rizhal Hendi Ristanto[5]
[1,2,3,4,5] Biology Education, Faculty of Mathematic and Science, Universitas Negeri Jakarta, Indonesia
[*1]muthiakml12@gmail.com, [2]yunillavidiaaa@gmail.com, [3] fitria_pusparini@unj.ac.id, [4] dinisafitri@unj.ac.id,[5] rizhalhendi@unj.ac.id

Abstract

This study aims to develop and implement self-assessment based on the Rating Scale method using Google Form in learning Biology, especially on the material of substance movement through cell membranes. The research method used a Research and Development (R&D) with the 4D model, involving 33 grade XI students at SMA Negeri 36 Jakarta. Data collection techniques included questionnaires to gather student responses and feedback. Data analysis was conducted using validity and reliability tests, where the instrument demonstrated high validity (r-value > r-table value of 0.344) and a reliability coefficient of 0.8667, ensuring consistent and accurate evaluation results. The self-assessment instrument measured students' understanding of concepts such as diffusion, osmosis, and active transport, while also identifying learning barriers. Results revealed that 9.1% of students faced challenges in understanding the topic, with 3% struggling specifically with diffusion. The use of Google Form provided accessibility, ease of use, and efficiency in data analysis. This approach not only encouraged active reflection and independent strategy design among students but also proved adaptable for other Biology topics and technology-based learning contexts.

Keywords: *biology; movement of substances; self-assessment; rating scale; understanding*

INTRODUCTION

The grading system (assessment) usually serves as the main tool to measure student competence in schools (Gayatri et al., 2024). Through various forms of evaluation, such as exams, assignments, or observations, teachers can assess the extent to which students understand the material that has been taught. This assessment also helps in identifying students' strengths and weaknesses, providing feedback, and serving as a basis for further learning-related decision-making. Thus, the assessment system plays an important role in supporting the overall academic and skill development of students (Tanjung et al., 2020).

DOI: 10.24952/bioedunis.v3i2.13857

Based on the studies that have been conducted, assessment techniques that include oral, written, and assignment tests are the most commonly used methods to evaluate students' understanding of certain material after the learning process (Hidayah, 2020). However, in practice, this assessment is more often focused on the final outcome of student learning, without really paying attention to the contribution of the assessment to the development of students' abilities and skills. This assessment system tends to focus on achieving numbers or grades, while other important aspects, such as critical thinking processes, creativity, and problem-solving skills, receive less attention. In fact, ideally, assessment not only measures results, but also becomes a reflection tool that encourages the development of students' skills holistically (Idris et al., 2020). A more thorough evaluation will help explore an individual's potential while providing a deeper understanding of the student's learning outcomes and skills.

In education, it is important to apply assessment methods that focus not only on the final result, but also on the learning process. Effective assessments should be able to provide an overview of students' development in various aspects, including knowledge, skills, and understanding (Sokhanvar et al., 2021). Various approaches are needed to measure student achievement more comprehensively, considering that each individual has a different way of learning and potential. Thus, an assessment method is needed that encourages students to be more reflective and independent in evaluating their own progress. One form of assessment that is able to measure the improvement of knowledge, skills, understanding, and expertise, and one of the alternatives is self-assessment (Gayatri et al., 2024).

Self-assessment is the process by which students actively evaluate their own progress and performance. In this method, students are given the opportunity to assess how well they understand the material, identify their strengths and weaknesses, and reflect on the learning process they have undergone (Fauzan, 2022). Self-assessment consists of three important components that students possess and take place on an ongoing basis. These components include the ability to self-monitor, the ability to self-evaluate, and the ability to set and implement goals creatively. These three aspects work together to help students continue to thrive in their learning and achieve their goals (Hearn and McMillan, 2008).

Rating scale is an assessment method that utilizes a specific scale to measure student performance, understanding, or skills, which usually ranges from low to high levels (York et al., 2019). By applying the Rating Scale in assessment instruments, teachers can systematically evaluate various aspects of students' abilities, such as material knowledge, practical skills, and attitudes and behaviors in the classroom. With the help of this scale, students can clearly see where they stand in each aspect, making it easier for them to understand their strengths and

DOI: 10.24952/bioedunis.v3i2.13857

weaknesses. In addition, the Rating Scale also encourages students to be more active in the self-evaluation process. By knowing the assessment criteria used, students can more easily identify areas where they need to improve. This not only increases self-awareness but also encourages them to set personal goals in the learning process (Pantiwati, 2016).

Students evaluate themselves with clear and measurable assessment criteria before receiving an assessment from a teacher. This process not only increases self-awareness but also encourages students to set more realistic and measurable personal goals in their learning. Students can use the Rating Scale to record their progress over time, giving them a greater sense of accomplishment as they see progress in the scores earned. By providing targeted feedback, encouraging self-evaluation, and building reflective skills, the Rating Scale can serve as an effective tool in supporting students' academic and personal growth (Pang, 2022).

The use of emoticon meters in the Rating Scale assessment can be an interesting and easy-to-understand tool to measure students' attitudes and activities, especially in Biology learning. Emojis provide a simple but effective visual way to reflect students' emotions or responses to certain topics or activities (Saputra, 2024). By compiling a grading scale of emojis that describe different levels of satisfaction, understanding, or engagement, for example, from sad to happy emojis, teachers can facilitate students' self-reflection more intuitively. Additionally, this method tends to be more enjoyable for students, helping them to be more involved in the self-evaluation process.

The implementation of this assessment is assisted by the use of digital media such as Google Form which offers convenience and efficiency in collecting and analyzing self-assessment results quickly and in a structured manner. The technique of implementing self-assessment can be done by sending a link or a Google Form-based self-assessment sheet to students. By utilizing the Google Form service, teachers can ask students to convey their strengths and weaknesses related to competency achievement. The instruments used include a self-assessment sheet that uses a checklist or rating scale equipped with a rubric (Miyazaki et al., 2024).

In the research, the implementation of self-assessment with the Rating Scale Method is applied to biology material class XI Movement of Substances through Cell Membranes. The purpose of this self-assessment is to improve students' understanding of the basic concepts of substance movement, such as diffusion, osmosis, and active transport, which have significant implications in various fields, including physiology, biotechnology, and health. This study shows how self-assessment can help students understand these abstract concepts more deeply. In the Rating Scale method, students are asked to rate themselves in several aspects, including

DOI: 10.24952/bioedunis.v3i2.13857

concept understanding, practical ability, and self-reflection (Inneke, Adinugraha & Silalahi, 2022). The implementation process begins with the preparation of materials that involve in-depth explanations and the use of interactive learning media, followed by simple experiments that demonstrate the phenomenon of osmosis and diffusion. After conducting the experiment, students fill out a self-assessment scale that includes predetermined criteria, then the results of this self-assessment are analyzed to provide insight into student understanding and assist teachers in designing more appropriate interventions.

This study combines the rating scale method with Google Form media, which provides efficiency in implementation and data analysis. Although self-assessment has been used frequently, integration with digital technology for Biology subjects, especially on the concept of the movement of substances through membranes, has not been widely discussed in previous studies. Most previous studies on self-assessment have focused on manual or conventional evaluation without technology integration. The use of technology in evaluation often focuses more on computer-based tests, rather than on developing students' independent reflection (Esfandiari & Arefian, 2024). This study provides a more comprehensive approach by integrating independent reflection through web-based technology. The use of emoticon meters to increase student engagement is an innovative addition. This visual approach provides a unique appeal to students, making the reflection process more engaging and intuitive. This study shows that the self-assessment method not only improves conceptual understanding, but also trains students to become reflective and independent learners. This aspect is an important contribution in the context of 21st century learning that emphasizes critical and independent thinking skills.

RESEARCH METHODS

The research method used is Research and Development (R&D) with the 4D model which consists of four main stages, namely Define, Design, Develop, and Disseminate. This research focused on developing and testing the effectiveness of self-assessment using Google Forms to improve students' understanding in learning Biology in class XI at SMAN 36 Jakarta. However, the Disseminate stage was not conducted in this study.

At the Define stage, a needs analysis was conducted to identify learning problems and the relevance of using digital-based self-assessment. Needs data were obtained through interviews and observations in the learning environment. The Design stage involves the

DOI: 10.24952/bioedunis.v3i2.13857

preparation of self-assessment instruments in the form of Google Forms designed in accordance with the Biology curriculum and expected competencies, as well as the development of a grid to ensure content validity. Furthermore, at the Develop stage, the designed instrument was validated by experts to ensure suitability with the learning objectives. After that, a limited trial was conducted at SMA Negeri 36 Jakarta involving 33 grade XI students to measure the effectiveness of the instrument in improving their understanding. The data obtained was analyzed using quantitative methods to assess the impact of the instrument on students' understanding. By not conducting the Disseminate stage, this research only focuses on the development and small-scale testing on a limited population.

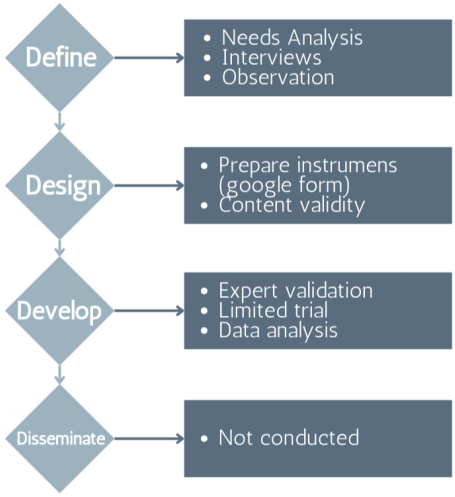

Figure 1. Step development of self assesment

Data analysis was carried out with descriptive statistics to provide an overview of the results of student self-assessment. To ensure that the assessment tool measures the competence in question, a validity test of the instrument is carried out. Furthermore, to test reliability, the Guilford method was used, which assesses the consistency of the results of the assessment instrument. In this way, the research is expected to provide an accurate picture of students' understanding and the effectiveness of self-assessment in the learning process.

RESULTS AND DISCUSSION

This research aims to design and develop a self-assessment instrument using the Rating Scale integrated through media Google Form. This instrument is designed to help high school grade XI students improve their competence in learning, especially on the material of the movement of substances through cell membranes, through the process of self-reflection. Through this approach, the self-assessment instrument is expected to be able to provide a

DOI: 10.24952/bioedunis.v3i2.13857

comprehensive picture of the achievement of student learning outcomes in biology subjects and identify the obstacles faced while studying the material. Thus, students can more easily find and find solutions to their learning obstacles independently and effectively.

The first step taken in this study is to develop a self-assessment instrument based on Rating Scale integrated through Google Form. This instrument is designed to measure students' competence in learning material of substance movement through cell membranes, as well as identify the obstacles they experience during the learning process. The preparation of question items on the instrument is carried out based on the learning indicators that have been formulated, so that each statement can reflect the expected learning objectives. The following is attached to the grid that has been developed in Table 1.

Table 1. Developed grid

Variables	Indicator	Rating Scale
Understanding Concept Movement of Substances Cell	Understand diffusion mechanism and osmosis Explain Difference Between diffusion and osmosis	1 =Strongly incomprehensible 2 = Not understanding 3 = Understand enough 4 = Understand well 5 = Understand very well
Skills Critical Thinking	Able to ask questions when do not understand material	1= Very uncritical thinking 2 = Not thinking critically 3 = Enough critical thinking 4 = Think critically well 5 = Think critically good
Participation Active in Discussion	Actively participate in discussion group Respect opinions friends during discussion	1 = Very unparticipative 2 = Did not participate 3 = Participate sufficiently 4 = Participate well 5 = Participated very well

After the instrument was completed, a test was conducted on a number of respondents to ensure that each existing item was able to measure relevant aspects validly and reliably. The validity test process aims to evaluate whether the instrument really measures what should be measured, so that the data obtained can be used to accurately reflect student learning achievements. The results of this validity test are the basis for determining the feasibility of the

DOI: 10.24952/bioedunis.v3i2.13857

instrument in supporting the objectives of this research. The results of the validity test can be seen in Table 2, and the results of the reliability test are presented in Table 3.

Table 2. Results of Question Item Validity Test

Item	r-value	r-table	Description
1	0,64	0,34	Valid
2	0,50	0,34	Valid
3	0,61	0,34	Valid
4	0,47	0,34	Valid
5	0,71	0,34	Valid
6	0,51	0,34	Valid
7	0,59	0,34	Valid
8	0,75	0,34	Valid
9	0,74	0,34	Valid
10	0,67	0,34	Valid
11	0,44	0,34	Valid
12	0,55	0,34	Valid
13	0,62	0,34	Valid
14	0,72	0,34	Valid
15	0,49	0,34	Valid

Table 3. Reliability Test Results

Coefficient of Reliability	Interpretation
0,86	Highly reliable

Based on the data from the validity and reliability test results of the instrument listed, it can be concluded that all items on this instrument are valid, The r-value is greater than the r-table value (0.344). The validity shows that each question item on the instrument is in accordance with the purpose of measurement, namely identifying learning achievements and obstacles for students in understanding material that moves substances through cell membranes. In addition, a reliability coefficient value of 0.8667 indicates that the instrument has an excellent level of reliability. This means that the instrument can provide consistent measurement results when applied to students with similar conditions. With high reliability, this instrument can be relied on to support students' self-reflection process effectively, thereby helping them recognize weaknesses in learning as well as design strategies to overcome them.

DOI: 10.24952/bioedunis.v3i2.13857

This is reinforced by the research of Ross (2019) that the importance of reliability and validity in self-assessment instruments which shows when the instrument has a high level of reliability, the results obtained will be consistent and reliable. This allows students to conduct more effective self-reflection, so that they are able to recognize strengths and weaknesses in their learning.

Self-assessment based on the Rating Scale method through Google Form is applied to biology learning, especially in material on the movement of substances through cell membranes. The implementation process begins by explaining to students concepts such as diffusion, osmosis, and active transport. After the material was delivered, students were asked to fill out a self-assessment instrument consisting of 15 items. Each item is designed to measure the extent to which students understand concepts, are able to apply knowledge in the context of daily life, and evaluate the obstacles they face during learning. The following is a display of self-identification instruments with the Rating Scale method, explanation of the assessment rubric, and self-assessment instruments on material that moves substances through cell membranes with Google Form.

The results of the self-assessment showed that the majority of students were able to identify their strengths and weaknesses in understanding the concept of the movement of substances through cell membranes. For example, students who scored high on questions related to the difference between diffusion and osmosis showed a good understanding of this concept. In contrast, students with low scores expressed difficulty in understanding the difference between diffusion and osmosis. These findings provide a clear picture of areas that need to be improved by students and teachers.

Table 4. Response to self-assessment instruments with the Rating *Scale Method*

I can explain the difference between diffusion and osmosis to my friends in class.	Very unsuitable (😢)	3,05%
	Unsuitable (😞)	3,05%
	Moderately suitable (😐)	33,3%
	Suitable (🙂)	39,4%
	Very suitable (😄)	21,2%

DOI: 10.24952/bioedunis.v3i2.13857

The results showed that self-assessment encouraged students to actively evaluate their understanding of the concept of substance movement through cell membranes. This process is in line with reflective learning theory, as described by Hearn and McMillan (2008), which states that self-reflection allows students to identify their strengths and weaknesses, while designing learning strategies for improvement. By using the rating scale integrated in Google Form, students not only assess their understanding but also increase their critical awareness of the learning process experienced. Previous research, such as that conducted by Pantiwati (2016), mentioned that self-assessment can improve students' metacognitive skills, but its implementation is often limited to manual methods. In this context, our research makes a new contribution by integrating digital technology to accelerate the reflection process and improve the efficiency of data analysis. In addition, research by Fauzan (2022) highlighting the importance of self-assessment in improving learning outcomes confirms that this technology-based approach can be a more relevant alternative for modern learning. One of the main findings of this study can be seen in Table 5 which shows that most students can understand the concept of movement of substances through cell membranes well, but about 9.1% have difficulty in understanding the concept. In addition, there were about 3% of students who had difficulty in understanding diffusion. This challenge can be attributed to the characteristics of diffusion as a concept that involves quantitative and abstract understanding, such as the movement of water molecules through a semi-permeable membrane based on a concentration gradient. This finding is relevant to the study by Gayatri et al. (2024), which showed that students often struggle in understanding biological concepts that are microscopic and not immediately visible. To overcome this challenge, more interactive approaches, such as digital simulations or visual experiments, can help strengthen students' understanding of osmosis. In addition, reflective learning through self-assessment can be supplemented with additional guidance from teachers to ensure students can interpret their reflection results more effectively.

Table 5. Results of students' answers regarding the concept of material

I understand well the mechanism of diffusion in the process of movement of substances through cells	Very unsuitable (😢)	0,2%
	Unsuitable (😞)	3%
	Moderately suitable (😀)	36,4%

	Suitable (🙂)	51,3%
	Very suitable (😄)	9,1%
I can analyse the material I learnt well, especially about the movement of substances through membranes.	Very unsuitable (😢)	0%
	Unsuitable (😔)	9,1%
	Moderately suitable (😀)	27,3%
	Suitable (🙂)	42,4%
	Very suitable (😄)	21,2%

This research has significant implications in biology learning, especially in improving the quality of learning evaluation. Self-assessment not only serves as a measure of understanding but also as a medium to improve students' critical and reflective thinking skills. Through self-reflection, students not only understand biological concepts such as diffusion, osmosis, and active transport, but also realize the relevance of these concepts in everyday life, for example in the process of absorption of nutrients in the intestine or the transport of molecules in medical therapy (Sunismi et al., 2023). In addition, the implementation of technology through Google Form provides a more interactive and relevant learning experience to the needs of students in the digital era. This is in line with 21st century education efforts that emphasize the integration of technology in learning to improve the effectiveness and efficiency of the teaching and learning process.

One of the advantages of this study is the design of a valid and reliable self-assessment instrument, as shown through the results of validity and reliability tests that show values that meet the standards. The validity of the instrument ensures that the question item really measures what should be measured, namely the student's competence in understanding the concept of the movement of substances through the cell membrane. Meanwhile, the high level of reliability indicates that this instrument provides consistent results, making it reliable for use in learning evaluation. The design of this tested instrument is a strong foundation in ensuring the success of the implementation of self-assessment in students (Suhartono et al., 2022).

DOI: 10.24952/bioedunis.v3i2.13857

Another advantage is the integration of technology through the use of Google Forms. The use of this media provides significant efficiency in the implementation of self-assessment. Students can access the assessment form anytime and anywhere, as long as they have adequate internet access and technological devices. The data collection process has also become faster and more organized, as the results of the direct assessment are digitally documented. Teachers can easily analyze the results of the assessment without having to process the data manually, so that the time used for evaluation becomes more efficient (Suhartono et al., 2022). This is in line with the needs of modern education which demands the integration of technology to support the teaching and learning process.

In addition to the technical aspects, the reflective approach applied in this study also had a positive impact on students. By using self-assessment, students are invited to reflect on their understanding of the material they have learned. This approach not only helps students recognize their strengths and weaknesses, but can also increase learning motivation (Zajda, 2018). Although concrete results from this study have not been presented, many previous studies have shown that when students are able to identify their shortcomings, they tend to be more motivated to improve themselves and achieve better learning outcomes. In addition, reflection through self-assessment also hones critical thinking skills, as students have to analyze their own learning process and determine improvement steps independently (Cravchenko *et al.,* 2023). However, although this study has many advantages, there are several disadvantages that need to be considered (Mokalu et al., 2023). One of them is the limited time to guide students in interpreting the results of their self-assessment. Not all students have good reflective skills, so they need additional guidance from teachers to understand the results of the assessment and formulate appropriate learning strategies. If the teacher does not provide sufficient direction, the effectiveness of self-assessment as a reflection tool can be reduced.

Another disadvantage is related to access to technology. This research relies heavily on the use of Google Forms, so students who do not have access to technological devices or the internet may have difficulty participating (Mokalu et al., 2023). This requires special attention from teachers to ensure that all students have an equal opportunity to use the assessment instruments. The solution that can be implemented is to provide technology devices in schools or provide alternative assessments for students who do not have access to technology. Overall, this study makes a positive contribution in improving the quality of learning through self-assessment. While there are several challenges that need to be addressed, the benefits offered, such as implementation efficiency, increased learning motivation, and the development of

DOI: 10.24952/bioedunis.v3i2.13857

critical thinking skills, demonstrate the great potential of applying this method in a variety of educational contexts.

CONCLUSION

This study shows that the implementation of self-assessment with the Google Form-based Rating Scale method is effective in improving student competence in learning Biology, especially in material on the movement of substances through cell membranes. Through self-assessment, students can actively evaluate their understanding, identify strengths and weaknesses, and reflect on the learning process they have undergone.. This technology-based self-assessment method not only simplifies the evaluation process but also encourages students to become critical and reflective independent learners. In addition, the use of Google Form as a learning medium increases accessibility and flexibility, so that students can reflect anytime and anywhere. Further research is recommended to develop supporting media such as digital simulations or interactive software that help students understand abstract concepts. In addition, more in-depth studies on the long-term impact of self-assessment on student learning motivation and learning outcomes are also needed.

REFERENCES

Esfandiari, R., & Arefian, M. H. (2024). Developing collective eyes for Iranian EFL teachers' computer-assisted language assessment literacy through internet-based collaborative reflection. *Education and Information Technologies*, *29*(8), 9473-9494.

Faorika, E., Hamidah, A., & Anggereini, E. (2021). Analisis Pelaksanaan Pembelajaran Daring di Masa Pandemi Covid-19 Pada Guru Mata pelajaran IPA di SMP Kota Jambi:(Analysis of the Implementation of Online Learning during the Covid-19 Pandemic for Science Subject Teachers at Jambi City Junior High School). *BIODIK*, 7(4), 50-60.

Fauzan, A. (2022). Penilaian Teman Sebaya dan Penilaian Diri (Peer and Self Assessment) untuk Meningkatkan Hasil Belajar. *Gugusan Aksara Edukasi*, 115-125.

Febriana, R. (2021). Evaluasi pembelajaran. Bumi Aksara.

Gayatri, D. A., Novarman, A. M. J., Sianturi, L. J., Ristanto, R. H., & Isfaeni, H. (2024). Pengembangan Self-Assessment dengan Metode Traffic Light Code (TLC) pada Pembelajaran Biologi. *Biosfer: Jurnal Biologi dan Pendidikan Biologi,* 9(1), 108-118.

Hearn, J., and McMillan, J.H. (2008). Student Self-Assessment: The Key to Stronger Student Motivation and Higher Achievement. *Educational Horizons*, 87(1), 40–49.

DOI: 10.24952/bioedunis.v3i2.13857

Hidayah, I. (2020). Analisis Standar Penilaian Pendidikan di Indonesia (Telaah atas Peraturan Menteri Pendidikan dan Kebudayaan Nomor 66 Tahun 2013). *Al-Iman: Jurnal Keislaman Dan Kemasyarakatan*, 4(1), 85–105.

Idris, M. M., & Asyafah, A. (2020). Penilaian Autentik dalam Pembelajaran Pendidikan Agama Islam. *Jurnal Kajian Peradaban Islam*, *3*(1), 1-9.

Inneke, L., Adinugraha, F., & Silalahi, M. (2022). Instrumen Penilaian Diri Siswa Untuk Mengukur Sikap Dan Aktivitas Siswa Saat Pembelajaran Daring Biologi. *Jurnal Al-Qalam: Jurnal Kependidikan*, 23(2), 11-24.

Miyazaki, M., Watanabe, H., Masaka, M., & Takai, K. (2024). Self-assessment System for Generic Skills Using Rubrics and Checklists. *Journal of Information Processing*, *32*, 948-962.

Mokalu, Y. B., Paat, M., Wowor, E. C., Tumewu, W. A., & Kawuwung, F. R. (2023). Students' Learning Interest In The Implementation Of Project-Based Learning Models. *Soscied*, 6(2), 610–619.

Pang, N. S. K. (2022). Teachers' reflective practices in implementing assessment for learning skills in classroom teaching. *ECNU Review of Education*, *5*(3), 470-490.

Pantiwati, Y. (2016). Hakekat asesmen autentik dan penerapannya dalam pembelajaran biologi. *JEMS: Jurnal Edukasi Matematika dan Sains,* 1(1), 18-27.

Ross, J. A. (2019). The reliability, validity, and utility of self-assessment. *Practical Assessment, Research, and Evaluation,* 11(1), 10.

Saputra, R.A.V.W. (2024). RETORIKA: *Teori dan Teknik Praktis Seni Berbicara di Era Digital.* Banyumas : Wawasan Ilmu.

Suardika, I. G. P. (2022). Penerapan Model Problem Based Learning Melalui Aplikasi Whatsapp Group Dalam Pembelajaran Biologi Untuk Meningkatkan Hasil Belajar Dan Aktivitas Siswa. *Edutech : Jurnal Inovasi Pendidikan Berbantuan Teknologi, 2*(1), 45-54.

Suhartono, S., Ngatman, N., Susiani, T. S., Salimi, M., & Hidayah, R. (2022). Pelatihan Pemanfaatan Free Platform Untuk Mengembangkan Penilaian Dalam Pembelajaran Daring. *Dedikasi: Community Service Reports*, *4*(2), 133-152.

Sunismi, S., Wahyuni, S., Ambarwati, A., & Zuhairi, A. (2023). Pendampingan Pengembangan Perangkat Pembelajaran Teaching At The Right Level Berbasis Media Teknologi Pada Kurikulum Merdeka. *Jmm (Jurnal Masyarakat Mandiri)*, *7*(5), 4982–4995.

Sokhanvar, Z., Salehi, K., & Sokhanvar, F. (2021). Advantages of authentic assessment for improving the learning experience and employability skills of higher education students: A systematic literature review. *Studies in Educational Evaluation*, *70*, 101030.

Tanjung, R., Arifudin, O., Sofyan, Y., & Hendar, H. (2020). Pengaruh penilaian diri dan efikasi diri terhadap kepuasan kerja serta implikasinya terhadap kinerja guru. *Jurnal Ilmiah Manajemen, Ekonomi, & Akuntansi (MEA),* 4(1), 380-391.

York, T. T., Gibson, C., & Rankin, S. (2019). Defining and measuring academic success. *Practical assessment, research, and evaluation*, *20*(1), 5.

DOI: 10.24952/bioedunis.v3i2.13857

Zajda, J. (2018). Motivation in the classroom: Creating effective learning environments. *Educational Practice and Theory*, 40(2), 85-103.