The Use of Web-Based Portfolio as Alternatife Assesment in Biology Learning

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Abstract

The current state of the Covid-19 pandemic has had an impact on various ongoing activities, including learning activities. Currently, the government provides a policy to organize learning from home, known as Learning From Home (BDR). Learning From Home in its implementation requires the support of mobile devices. It is a challenge for both teachers and students to master technology in learning in these conditions. In addition, teachers must also be able to carry out the teaching and learning process or provide assessments/evaluations to students face-to-face (done online). The research objective is to determine the use of alternative assessment-based portfolios in biology learning. The authors want to introduce web-based portfolios as alternative assessments in biology learning in this study. Alternative assessments can support students to understand biology lessons with the task of making lab reports, making herbariums, drawing, writing widespread scientific reports, etc. These are collected in the form of website links. The research method used is a literature study that the author has carried out. The results obtained are using a web-based portfolio as an alternative assessment in biology learning, which is still not widely applied even though this assessment is very efficient to apply in biology learning during the Covid-19 pandemic. This research concludes that every lesson that has been carried out certainly needs to be assessed on student learning outcomes in following each lesson that has been followed. In this case, an alternative web-based portfolio assessment is one of the

solutions to evaluate the performance and work of students so that all activities carried out can be rewarded with value.

Keywords: Biology Alternative Assessment, Web Based Portofolio

A. Introduction

The Covid-19 pandemic has affected almost all aspects of human life. To break the chain of transmission of the virus, the government has put many restrictions in place (Kurniasari et al., 2020). One of the steps taken by the government is to carry out online learning so that students continue to receive an education. This is following the Circular Letter of the Ministry of Education and Culture Number 4 of 2020 concerning the Implementation of Education Policies in the Emergency Period for the Spread of Corona Virus Disease (COVID-19), which is reinforced by the Secretary General's Decree Number 15 of 2020 concerning Guidelines for the Implementation of BDR during the Covid 19 emergency (Kemendikbud, 2020). This condition is a challenge for teachers to carry out the learning process and carry out assessments for students.

The industrial revolution 4.0 occurred around 2010. The development of industry 4.0 impacts various fields, including the field of education. The teaching and learning activities process utilizes digital technology (Davis, 2015).

Therefore, teachers face many challenges in the era of the industrial revolution 4.0, including one of them conducting an assessment of students. Teachers are required to assess students by utilizing and collaborating between education and technology in the era of industrial revolution 4.0.

Assessment and evaluation of learning in social and physical distancing carried out at home can use the remote assessment method. With the rapid development and advancement of technology today, remote assessment is possible and facilitated, especially with the internet network. Teachers can use application media connected to the internet network to conduct online assessments and evaluate learning outcomes. The evaluation can be in quizzes, online tests, individual assignments, or other online assessment forms using the internet (Muali et al., 2018).

Nuril (2020) carried out previous research on The Effect of Electronic Portfolio Assessment on Improving the Scientific Literacy of Class Xi Students in Biology Subjects. The study obtained results that electronic portfolio assessments could be suitable for use by educators.

This research uses a web-based portfolio assessment that can generate benefits for both academics and schools to support student needs, one of which is student improvement. The portfolio is creativity that students and parents can see at any time. Educators can evaluate portfolios to reflect on themselves for the better.

Biology learning in learning from home currently allows educators or teachers to innovate in creating significant assessments for students; according to Firmansyah et al. (2019) One of the assessments presently considered to have many advantages is portfolio assessment. Today's online learning allows educators or teachers to innovate in creating significant assessments for students. According to Firmansyah et al. (2019), one of the assessments that is currently considered to have many advantages is portfolio assessment.

Thus, this research is expected to be a reference for biology teachers to use a web-based portfolio as an alternative assessment of biology learning during the COVID-19 pandemic.

B. Literature Review

1. Learning From Home

One form of alternative learning that can be carried out during the Covid-19 emergency is Learning From Home. According to Moore, Dickson-Deane, &Galyen (2011), Learning From Home is learning that uses the internet network with accessibility, connectivity, flexibility, and the ability to bring up various types of learning interactions. Research conducted by Zhang et al. (2004) shows that the internet and multimedia technology can change how knowledge is conveyed and be an alternative to learning carried out in traditional classrooms.

Learning From Home in its implementation requires the support of mobile devices such as smartphones, tablets and laptops that can be used to access information anywhere and anytime (Gikas & Grant, 2013). The use of mobile technology has made a significant contribution in education, including achieving distance learning goals (Korucu & Alkan, 2011). Various media can also be used to support the implementation of online learning. For example, virtual classes use Google Classroom, Edmodo, Schoology services (Enriquez, 2014; Sicat, 2015; Iftakhar,

2016), and instant messaging applications such as WhatsApp (So, 2016). Online learning can even be done through social media such as Facebook and Instagram (Kumar & Nanda, 2018).

In addition, Learning From Home triggers contributions between students and teachers because to be able to do Learning From Home effectively requires a good internet network when conducting online learning.

2. Basic Concepts of Alternative Assessment

Alternative assessment is an assessment of the acquisition, application of knowledge and skills that show students' abilities in processes and products (Herman et al., 1992). Alternative assessment is any assessment that is not a standardized test type assessment. Alternative assessment includes any assessment in which students respond from a list (such as multiple-choice, true/false, or matching). Alternative assessments have short answer questions, essays, products, practices, oral presentations, demonstrations, exhibitions, and portfolios (Ronis, 2011).

Alternative assessment has advantages because it can assess multiple intelligences and is recognized as an assessment that is by the workings of the brain; this is in line with what Airasian (1991) and Zainul (2001) said about alternative assessment, which is also known as performance assessment, they stated that Performance assessment could include multiple intelligence assessments, namely: 1) visual-spatial, 2) kinesthetic, 3) musical, 4) interpersonal, 5) intrapersonal, 6) logical-mathematical, 7) verbal-linguistic, and 8) naturalist abilities.

Alternative assessment is also one of the urgencies that educators can use, especially in biology subjects. Educators must be able to adjust the competencies that students must achieve with the creativity of the work done by students to carry out alternative assessments.

3. Portofolio Assessment for Students

Etymologically, a portfolio can be interpreted as a collection (documents, files, bundles). So portfolio means collecting physical evidence of activity performance (individual, group, or institution) as accurate data carried out by the person concerned. A portfolio assessment assesses performance and work results so that all activities carried out can be rewarded with value. Portfolio assessment assesses processes and products, so they are widely used because they are classified as authentic-objective-accurate assessments. It is not enough to evaluate students only with tests to measure cognitive aspects of academic abilities. Still, assessments must be carried out objectively and authentically, covering various psychological aspects of students. Teachers must access students in multiple ways and different parts of student activities (Erman, 2007).

4. Advantages and Disadvantages of Portfolio Assessment

Some of the advantages and disadvantages of an assessment using a portfolio among these advantages are; (1) Since the portfolio consists of classroom instruction products, it can be immediately integrated with instruction. (2) Portfolios provide opportunities for students to show what they can do. (3) Portfolios can encourage students to be reflective learners and improve their ability to evaluate the strengths and weaknesses of their work. (4) Portfolios can help students take responsibility for setting goals and evaluating their progress. (5) Portfolios can provide an advantage for teachers and students to collaborate and reflect on student progress. (6) Portfolios effectively communicate with parents by showing concrete examples of student work and demonstrating progress. (7) Portfolios can provide a mechanism for student-centred and student-directed conferences with parents. (8) Portfolios can provide parents with concrete examples of student development over time and their current skills. While the weakness is that students will need a longer time to complete, although, in the process, it becomes an advantage for students. If the portfolio is used as the basis for summative tests, the reliability will be relatively low (Miller, Linn, & Gronlund, 2009).

Among these advantages and disadvantages, many benefits can be obtained from the use of portfolio assessment during the current pandemic when used by teachers. Because students also get benefits in the form of increasing student creativity, students can reflect on the work that students do.

C. Methodology

This research uses literature review. A literature review is where data collection is carried out through searching for information using books, articles and other literature (Brooks & Simon, 2013).

The Literature Study Research carried out by this researcher is in more detail in the form of a method of collecting literature data or research whose objects are obtained from various library information. The literature used is related to web-based portfolios as an alternative assessment in biology learning so that the theoretical basis is formed. This theoretical basis is used to analyze how to use alternative assessments during a pandemic, especially in biology learning.

D.   Findings and Discussion

1. Findings

Use of Alternative Web-Based Portfolio Assessment in Biology Learning

Biology is one of the subjects in high school. Learning does not only require a superficial understanding, but requires the ability to analyze, synthesize, interpret graphs and images, identify, discuss, present, observe, and draw conclusions. There are pictures and graphs; to understand them, students need to be given an exercise that can force students to understand the images and graphs. Students can be given the task of explaining the pictures in group discussions, then presenting them in front of the class. Other alternative assessments that can be used to support students to understand Biology lessons include making practical reports, making herbariums, drawing, writing popular scientific essays, etc. (Gloria, YL, 2012)

An assessment or assessment in biology learning consists of two types, namely conventional assessments in the form of written assessments or tests, generally used in various assessment activities at school. Next is an alternative assessment. This assessment consists of multiple assessments, including work assessments, product assessments, project assessments, and portfolio assessments. Work assessment is an assessment that encourages students to demonstrate competence. Product assessment is an assessment that requires students to display a product. Project assessment is an assessment that requires students to complete tasks within a certain time. Portfolio assessment is carried out by assessing various kinds of students' works in a particular field-collected collectively to find out students' development, interests, achievements, and creativity within a certain period (Wikarya et al., 2018).
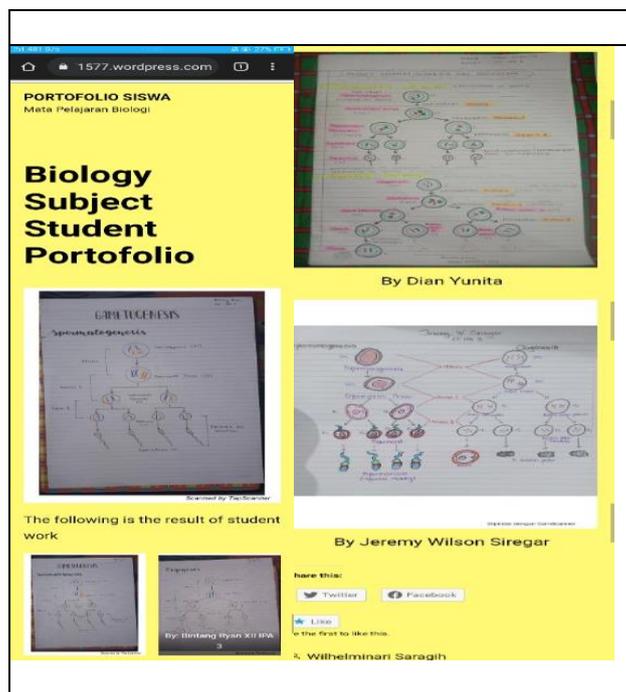

Figure 1. The results of the publication of student work

A web-based assessment portfolio utilises information and communication technology, also known as an electronic portfolio (e-portfolio) or web folio. Web based Portfolio memuat kumpulan bukti elektronik oleh penggunanya. The collection can contain videos, images, dialogues, simulations, reference links, electronic files, multimedia, etc. (Chang, 2002). This Web-Based Portfolio Assessment is an assessment that occurs on the internet, increasingly being used to record and evaluate student behaviour or map students' academic progress using the concept of e-portfolio assessment that combines the functions and characteristics of computers with network technology

In portfolio assessment, teachers can take advantage of the web that students can access. On the web, students can publish works, especially in learning biology, which impacts increasing

student creativity. Students can also compete to publish their work on the web. Students can see the posted work from time to time. This affects the development and improvement of creativity for students in publishing a work that has been made.

2. *Discussion*
Application of Assessment with Web-Based Portfolio Techniques

In high school biology learning, an assessment can be made using a portfolio technique. An assessment can be made using the portfolio technique in high school biology learning. This is an opportunity for students to reflect to improve their competence. In addition, students become more enthusiastic and motivated to learn. Portfolio assessments made by students are based not only on the content written and documented by students but also on students' creativity in presenting the form of their portfolios. This assessment is expected to explore the abilities possessed by students (Firmansyah et al., 2019).

The application of portfolio assessment to online learning activities is, in principle, almost the same as the application of portfolio assessment to offline learning activities. The difference is that portfolios in offline learning are usually printed and then neatly bound as physical evidence. In contrast, with the application of portfolio assessment to online learning activities, portfolios are summarized more efficiently in the form of website links that can be directly shared to be read and share experiences with other people or other students. In addition, the application of portfolio assessment in online learning can improve students' literacy skills and explore students' abilities by reading their portfolios (Nuril, 2020).

Using a web-based portfolio as an alternative assessment in biology learning has an advantage; among these advantages are (Chang, 2002): First, it is concise. By using a web-based portfolio, you can minimize space as a place to store student assignments, especially in biology subjects. This use is also more efficient because storage can also be neater so that it is easy to find and facilitate assessment by educators. This is because the web-based portfolio in biology learning can be enjoyed by students who are satisfied with reviewing their work and can be higher motivation for students. After all, they can try their best to show the best work from other friends. Another advantage is that it is timeless. The portfolio created can be stored for a relatively long time and helps students collect their continuously growing works without a time limit.

In contrast to the usual portfolio where files, participants' work products are more vulnerable to being lost because they are stored in less secure places. Third, be flexible. Educators, both teachers and parents, portfolio work can be monitored anywhere and anytime. In addition, educators can comment directly on the student's biology portfolio web. Students send an email to the educator to collect the web-based biology portfolio. You don't have to collect a portfolio face-to-face, but you can do it online. Likewise, teachers can provide feedback directly on the portfolio page through the comment box provided. This is very effective and efficient, especially during a pandemic like today. A web-based portfolio is a combination of a computer device or gadget with network technology in its application.

If students do not have gadgets or an area with very minimal internet access, this web-based portfolio cannot be used optimally in the learning assessment process. Then, assessing the portfolio takes a lot of time by educators while the material that must be delivered is very much (Suardana, 2007).

The obstacle that may be faced in implementing portfolio assessment during online learning is that all student work must be assessed and returned to students at every meeting. Of course, this takes quite a bit of time. But for the teacher, this condition is the most enjoyable because the teacher gains valuable experience after reading the students' learning journals. Teachers can also see students' creativity from the portfolio they have created. The competence of each student can be assessed from their portfolio. Although learning is carried out online, the teacher gets an overview of the competencies possessed by students by presenting a portfolio of each student.

E. Conclusion

Portfolio assessment has the following advantages: (1) Since the portfolio consists of classroom instruction products, it can be readily integrated with instruction. (2) Portfolios provide opportunities for students to show what they can do. (3) Portfolios can encourage students to be reflective learners and improve their ability to evaluate the strengths and weaknesses of their work. (4) Portfolios can help students take responsibility for setting goals and evaluating their progress.

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