

Peer and self assessment in e-learning using moodle and whatsapp as scaffolding to improve students 'ability to be self-learners

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Abstract. Online learning (e-learning) as a solution for learning activities during the Covid 19 pandemic in Indonesia. This study aims to describe student learning outcomes in developing Classroom Action Research proposals through the Peer and Self Assessments method in e-learning using Moodle and Whatsapp. The study design was a pre-experimental design using One Shot Case Study. The research subjects were students of Biology Education Study Program at the University of Muhammadiyah Surabaya who took the Classroom Action Research course in the even semester of the academic year 2019/2020 with a purposive sampling technique. Data collection techniques through product performance assessment and student response. Data were analyzed descriptively. The results showed that the use of Peers and Self Assessment can encourage students to be actively involved in building knowledge, attitudes, and behavior to become independent learners.

1. Introduction

The Covid 19 pandemic outbreak that hit Indonesia has affected teaching and learning activities from early childhood to higher education. Online learning (e-Learning) which was put in place by the government as a solution to the implementation of learning activities during the Covid 19 pandemic in Indonesia. The development of e-Learning – during this period has been widely designed to support and facilitate the learning process commonly known as the Learning Management System (LMS) [1]. One example of LMS is Moodle.

Since the Covid 19 pandemic, e-learning at the Muhammadiyah University of Surabaya has used the Moodle platform as a means of online learning. Suryonoin [2] explained that Moodle as an open source software that supports the application of e-learning with an integrated mindset that has a variety of learning support functions that are easy and can be monitored through the e-learning portal. Furthermore Indrawan (2017) adds that Moodle provides the same appearance as a web page in general, with features to present classes (courses) where teachers can upload course material, assignments, and evaluations. Utilization of this facility has an impact on learning outcomes. The results showed that the use of Moodle can improve learning outcomes (Muazizah, 2016) and student attitudes towards subjects (Azis, 2015). However, the use of Moodle is also time-limited because it is used by all lecturers at the University of Muhammadiyah Surabaya, so it needs to be combined with other media to overcome the limitations of virtual communication, one of which uses the Whatsapp application.

Whatsapp is one of the social media applications that has been widely used in the community to date. This cross-platform messaging application allows anyone to exchange messages for data communication, carry out online chat, share files, exchange photos and more. Whatsapp feels cheaper and can reach wherever students are. The results of the study of [3] explain that there is an influence of using WhatsApp on student learning activities while learning. Student centered learning paradigm (student centered) should be able to remain implemented in e-learning, scaffolding is needed, Scaffolding in learning is a strategy that is a bridge that is used to build what students already know to something they do not know. One of the scaffolding strategies used in this

course is the Self Assessment and Peer Assessment methods. where this learning can encourage students to be involved in building knowledge, attitudes, and behaviors actively and independently.

Student centered learning paradigm (student centered) should be able to remain implemented in e-learning, for this reason scaffolding is needed in learning. As a learning strategy, Scaffolding is a bridge used to build what students already know to something they don't know. One of the scaffolding strategies used in this course is the Self Assessment and Peer Assessment methods. where this learning can encourage students to be involved in building knowledge, attitudes, and behaviors actively and independently.

Scaffolding refers to the temporary support provided by teachers, more expert friends, tutors, or computers to help students solve problems or perform tasks that they cannot accomplish independently [4]. When knowledge acquisition takes place, the scaffolding gradually decreases to transfer learning responsibilities to students. Finally, the information internalizes within students. make learners who are independent (self-regulated, independent learner) and can solve problems [5].

One of the achievements of the classroom action research subjects is that students can develop Classroom Action Research proposals through literature studies. In this drafting process students learn how to prepare the proposals referred to, where there are systematic and criteria for preparing a good and correct proposal. [6] explains that Self assessment is the involvement of students (students) in identifying criteria or standards to be applied in learning and making decisions regarding the achievement of those criteria and standards. In this case Self Assessment is a process in which students are responsible for assessing their own learning outcomes. Whereas Peer Assessment is a process in which a student evaluates the learning 7 outcomes of peers or other students of the same level. The results show that authentic self assessment can develop problem solving abilities and manage students' self [6], and students benefit from feedback from Peer Assessment so that it can help teachers in learning [8].

According to Larisey in [9] students need to be given the opportunity to learn directly, critically, and be given the opportunity to also be involved in assessment. Assessing student learning outcomes and peer learning outcomes trains students to think critically and are directly involved in monitoring their learning outcomes. [10]states that in order to become a Self Regulated Learner, students must be able to diagnose the learning situation that is being faced, use and monitor certain strategies to solve the problem, and be motivated to be involved in the learning situation until the problem is resolved. This study aims to describe student learning outcomes through the Peer and Self Assessment methods in preparing Classroom Action Research proposals, and to determine student responses in the use of Peers and Self Assessment as an effort to improve students' abilities to become independent learners.

2. Method

This research is a case study in the Classroom Action Research lecture in Biology Education Study Program, University of Muhammadiyah Surabaya. The study design was a Pre-experimental design using One Shot Case Study [11]. The research subjects were 12 students of Biology Education Study Program in 2017, who took Class Action Research courses in the even semester 2019/2020. The research subjects were taken by using purposive sampling technique.

In a few meetings at the beginning, students conducted literature study analysis articles from various journals to compare between classroom action research (CAR) and non-CAR research and then the results of the analysis were discussed together. Subsequent meetings they were asked to prepare a class action research proposal according to a systematic class action research proposal, then conduct a Self Assessment where the student concerned assessed his own work using the rubric of the class action research proposal assessment rubric. In addition, a peer assessment is conducted where students participate in evaluating research proposals on the work of their friends, using the same rubric for evaluating proposals. According to Falchikovin [12], students can be asked to provide one of the feedback or assessment (or both) to a friend on a product or performance, which is based on good criteria for products or events that allow students to be involved in the assessment.

The collection and distribution of files in the form of PTK proposal products, the results of Self and Peer Assessment are carried out using Whatsapp social media. Students do a Self and Peer

Assessment offline because this activity requires sufficient time for students to analyze their friends' proposals. Furthermore, the results of Self and Peer Assessment are discussed on campus e-learning using Moodle and Whatsapp.

In this e-learning page using Moodle, there is a discussion room for the Classroom Action Research course. Students can access campus e-learning pages via laptops or Smart phones using their accounts that have been confirmed in advance by the campus e-learning helpdesk. Every student can ask questions and give a rebuttal or input in this e-Learning discussion with facilitation and monitoring of lecturers. Furthermore, students are asked to revise the proposal based on the results of the discussion on e-Learning and the results of their Self and Peer Assessment provided through Whatsapp. In addition to the product assessment rubric (proposal), a questionnaire instrument containing questions was asked to find out their responses in the use of self and Peer Assessment through e-Learning using Moodle and Whatsapp.

3. Result and Discussion

1. Peer Assessment

Peer Assessment in this study uses a proposal product assessment rubric which is modified from [13]. This product evaluation rubric covers 21 aspects of proposal preparation. These aspects consist of: (1). Systematic proposal; (2). Title of research proposal; (3). Research background; (4). Formulation of the problem; (5). Research purposes; (6). Benefits of Research; (7). Literature review; (8). Study relevant research results; (9). Framework of thinking; (10). Indicators of research success; (11).Types of research; (12).Research design; (13).Research subjects; (14).Time and place of research; (15).Research variable; (16).Definition of operational variables; (17).Research procedure; (18).Data collection technique; (19).Data collection instruments; (20).Data analysis technique; (21). References used. The acquisition score of each aspect in this product assessment rubric uses 3 criteria with numbers 1 to 3 according to the rubric used by referring to the rating scale of less, enough, good and very good. The score obtained from the Peer Assessment results is shown in Figure 1 below.

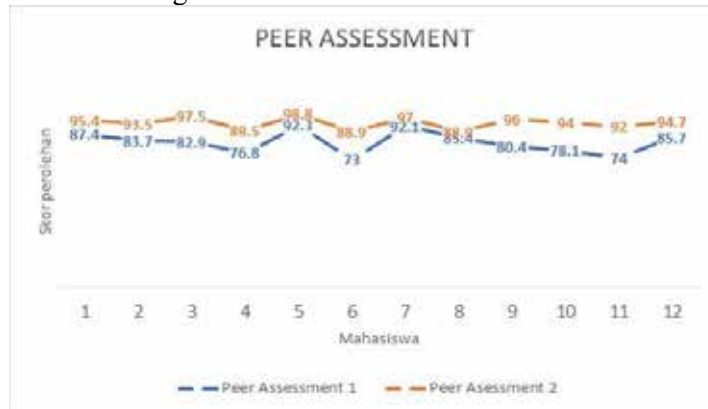


Figure 1. Graph of Peer Assessment Results

The Peer Assessment results for each student are carried out twice, then each Peer Assessment result is averaged by the class. Input or suggestion of each Peer Assessment is recapitulated to be given to the students concerned. Based on the graph in Figure 2. The Peer Assessment results obtained an average score for obtaining a proposal of 82.65 in the 1st Peer Assessment and an average score of 93.85 in the 2nd Peer Assessment.

2. Self Assessment.

The assessment rubric used in Self Assessment uses 21 aspects which are the same as the Peer Assessment but the acquisition score uses numbers 1-5 consisting of 5 criteria in sequence from the highest, which is very sure my work is correct; sure that my job is right; doubt my work; not sure my job is correct; very unsure of the truth of my work. To find out the basis for selecting the criteria, in each aspect the reasons for selecting the criteria are added. The results of Self Assessment are shown in the following chart:

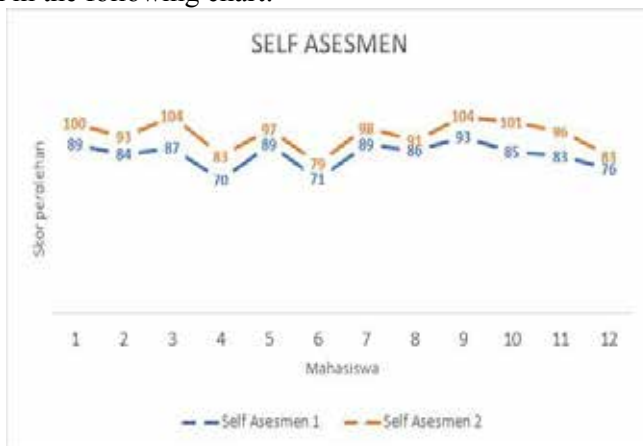


Figure 2. Self Assessment Results Graph

3. Student responses

To find out students' responses to the use of Self and Peer Assessment, a questionnaire containing 10 questions was given with yes or no criteria. The results of the questionnaire are displayed as follows:



Figure 3. Student Response Diagram

Based on the results of the questionnaire, it is known that 100% of students stated that self and peer assessment can challenge students to think, stimulate critical thinking, can evaluate their performance, practice responsibility, practice respecting the opinions of friends, practice responsibility. 75% of students stated that self and peer assessment practice honesty and increase self-confidence, be active, and encourage honesty. 84% of students stated that they were beneficial and encouraged courage, 58% of students stated that they could increase understanding, and as many as 92% of students stated that self-filling and peer assessment was time-consuming.

Based on the graph in Figure 1. The Peer Assessment Graph can be seen that there is an increase in the score of the PTK research proposal products they produce. The average score for obtaining a proposal evaluation of 82.65 in the 1st Peer Assessment increased to 93.85 in the 2nd Peer Assessment. If observed, there is a "learning process" in students when they are before and after the revision of the proposal. This increase is in accordance with what was stated by Piaget in [14], that the individual only learns and develops his mind, when he uses his mind by carrying out cognitive processes in the process of discovery or constructing his own understanding.

Self and Peer Assessment is a way of assessing learning outcomes centered on students. Judging from the ability to be tested, this method can be applied to assess cognitive abilities and psychomotor and affective abilities of students. Based on the graph in Figure 2. Self Assessment Results, it is known that there is an increase in the acquisition value of each student's proposal product followed by an increase in self-confidence. The score of the Self Assessment improvement is shown by the highest number of scores, where there is confidence in the students if their work is correct in the results of the 2nd Self Assessment. This improvement occurs because they have better evaluate their performance based on feedback from friends, find out where their proposal is wrong and try to make revisions according to the criteria set out in the assessment rubric. This is in line with what [15] stated, that the habit of thinking in Self Assessment shows that there is a connection between metacognitive and reflection in a person. Furthermore [16] explain that having metacognitive knowledge means caring about the thought process when thinking. In this case students have the ability to choose, use and monitor learning strategies for predetermined learning goals. In addition, self-assessment is based on a natural tendency to examine self-learning progress. In terms of student responses, all students agreed that Self and Peer Assessment challenged students to think, encourage critical thinking, be able to evaluate their performance, practice responsibility, practice respecting the opinions of friends, even though as many as 75% of students felt that filling self and peer assessment took a lot of time. As something new in e-Learning using Moodle and WhatsApp, students should try to find their own information via the internet. Information media and technology skills or skills using information media and technology, according to [17] as a source of literacy in learning is one of the skills that students must master in the current era. This is an important part as a more sustainable preparation for work life.

4. Conclusions

Self and Peer Assessment have a positive impact on improving the average grade acquisition on cognitive skills and student performance in preparing class action research proposals. From the affective aspect, Self and Peer Assessment can increase student confidence, the ability to choose, use and monitor learning strategies as part of independent learners.

5. References

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