

The Effectiveness of the Problem Based Learning Model with *Blended Learning* on the Motivation to Learn and Mathematical Literacy of Grade IV Elementary School Students

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Abstract

Bintarti 2023. Learning activities are inseparable from the role of the teacher. Effective learning activities are not as a whole influenced by teacher professionalism. Comparing one learning model with another can be a step towards obtaining a good learning model for students. Because based on that, the purpose of this research is to know the description of the effectiveness of the problem-based learning model with blended learning in increasing the learning motivation of fourth grade elementary school students. This effectiveness can be seen from the indicators of achievement. The achievement of these indicators are (1) Management of the implementation of learning, from the aspect of this criterion it appears that the laptop and cellphone media contain the Google Meet application to support virtual learning; (2) Indicators of the communicative process, there appears to be a reciprocal relationship between learning media and students, students and students, and students and teachers; (3) Student responses, in this section the responses of the students were very happy. They participate in learning activities enthusiastically, independently, like teaching materials and like the learning model applied by the teacher: (4) learning activities, students are not under pressure and all learning is student-centered; and (5) learning outcomes, out of 30 students all got grades that matched and even exceeded the KKTP set by the teacher. Meanwhile, from the aspect of learning motivation, the results showed that the learning motivation of fourth grade elementary school students who studied using the problem-based learning model with blended learning was greater than those who studied with the problem-based learning model.

Keywords: *blended learning, problem based learning, motivation and mathematical literacy*

1. Introductions

The development of science and technology requires all elements to work. Teachers must really understand their role. Growing motivation to learn and increasing students' abilities according to their interests and nature is the main thing. The transition of the essence of learning from offline to online is also a challenge for teachers in increasing student learning motivation. Therefore, there is an assumption that student learning motivation will determine the results achieved by students, both in the cognitive, affective and psychomotor domains of students.

Mathematical literacy skills are also found in the implementation of the 2013 curriculum, where in the mathematics lesson content being developed, it is seen that there is a need for a balance between mathematics with numbers and mathematics without numbers, so that to be able to master mathematics without numbers, good mathematical literacy skills are needed. (Syahlan, 2015). Mathematical literacy is included in one aspect Asesmen Kompetensi Minimum (AKM) which is part of the benchmark Asesmen Nasional (AN) (Widianti & Hidayati, 2021). Mathematical literacy skills are important for students to have because they can help solve problems that are closely related to real life (Putra & Vebrian, 2019: 4). Students can also understand mathematics more deeply in terms of mastery of the material and also the use of facts, concepts and how to solve problems and communicate them (Fatwa, dkk, 2019).

Education that originally implemented face-to-face learning had to change to distance learning . Based on the results of interviews with class IV teachers at SDN 4 Randublatung, it was found that many students still had difficulty understanding contextual problems and stating statements about these problems. (Hidayat, dkk, 2018). This problem is supported by data on student learning outcomes in class IV student learning outcomes data on mathematics content. Where the number of class IV students at SDN 4 Randublatung is 30 students, with 17 male students and 13 female students. In Mathematics, many students get scores below the KKM. Of the 30 students, 16 students (53.33%) have not met the KKM and 14 students (46.66%) have exceeded the KKM, with the KKM being 70.

2. Research Methods

In this research, quantitative research methods were applied. According to Creswell in Syafnidawaty (2020), quantitative understanding is an effort to investigate problems. This problem is the basis for researchers to collect data, determine variables and then measure them with numbers

so that analysis can be carried out in accordance with applicable statistical procedures. The purpose of conducting quantitative research is none other than helping in drawing conclusions or helping in generalizing accurate theoretical predictions. Based on the problems stated previously and the objectives to be achieved, the type of research used in this research is experimental quantitative research. “*Posttest Only Control Design*”. In this research design, the researcher used two classes which were used as an experimental class and a comparison class. Class selection is carried out randomly. In both classes, an initial test regarding mathematical literacy skills was given which was carried out randomly. Next, treatment was given to the experimental group in the form of Problem Based Learning with Blended Learning for a period of one month. After comparing the initial and final tests, the researcher can compare the averages obtained in the two classes to see whether the application of problem-based learning treatment with blended learning applied in the experimental class is able to provide greater changes. The researcher uses a research approach, namely a quantitative approach. According to Sugiyono (2015) technique Quantitative research is based on the philosophy of positivism which is used to examine certain samples or populations. If in general the sampling technique is carried out randomly, so that research conclusions can be generalized to the population from which the sample was taken. The required data is collected using research instruments and the data analysis used is qualitative in nature which aims to test the hypothesis that has been applied.

3. Result and Analysis

Learning model *porblem based learning* with *problem based learning* can be said to be effective in increasing student motivation and learning outcomes. Based on the results of the research above, the picture obtained is that:

1. The average mathematical literacy of fourth grade elementary school students who study using the problem based learning model with blended learning is the same as KKM 60.
2. The number of fourth grade elementary school students who have completed learning using the problem based learning model with blended learning is more than 75%.
3. The learning motivation of fourth grade elementary school students who study with the problem based learning model with blended learning is greater than those who study with the problem based learning model.

4. The mathematical literacy of fourth grade elementary school students who study using the problem based learning model with blended learning is greater than those who study using the problem based learning model.

Based on the discussion above, a temporary conclusion can be drawn that blended learning with problem based learning is suitable for teachers to apply in teaching mathematics subjects in fourth grade elementary school.

Blended Learning is basically a combination of the advantages of face-to-face and virtual learning. According to Moebs and Weilbelzahi quoted from Husama, Blended Learning is defined as a mixture of online and face-to-face meetings in one integrated learning activity. The objectives of Blended Learning according to Husamah are as follows:

1) Helping students to develop better in the learning process according to their learning style and preferences (self-choice).

2) Providing practical-realistic opportunities for teachers and students to learn independently, be useful and continue to develop.

3) Increased flexible scheduling for students, by combining the best aspects of face-to-face and online learning.

The problem based learning model is also commonly called the problem based learning model. According to Darmadi (2017:117) problem-based learning is a learning approach that presents contextual problems so that it stimulates students to learn. In classes that apply the problem-based learning model, students work in teams to solve real-world problems. The problems given to students are used to tie curiosity to the lessons learned. Problem based learning is driven by challenges, real problems, and students work in small collaborative groups. Students are encouraged to be responsible for their group and organize the learning process with the help of the instructor or teacher.

Another view by Samuel Agus Triyanto & Chandra Adi Prabowo (2020: 47), the value of learning effectiveness is important for educators to know as a basis for determining various academic decisions. Based on the research results, it can be concluded that the Lesson Study-based Blended-PBL learning model is effective in improving students' cognitive learning outcomes. This effectiveness is strongly supported by the Lesson Study process, the reflection results of which show that synchronization between online and face-to-face learning in the classroom must receive special attention. Lesson study carried out using peer-to-peer principles supports an educator's self-development in creating quality learning. The development of the times is accompanied by complex

problems, which must be balanced with improving the quality of learning and the quality of educators through lesson study.

So the problem based learning model with blended learning has high effectiveness in increasing student motivation and learning outcomes. So by referring to these results, the results of the research conducted by researchers also show positive results. The results of research that has been carried out have also obtained similar results to previous studies. So the problem based learning model with blended learning can be applied by teachers in any class, even in elementary school classes. The average mathematical literacy of fourth grade elementary school students who study using the problem based learning model with blended learning is the same as KKM 60.

The number of fourth grade elementary school students who have completed learning using the problem based learning model with blended learning is more than 75%. The learning motivation of fourth grade elementary school students who study with the problem based learning model with blended learning is greater than those who study with the problem based learning model. The mathematical literacy of fourth grade elementary school students who study with the problem based learning model with blended learning is greater than those who study with the problem based learning model.

4. Closing

Based on the results and discussion at the beginning, research conducted at SDN 1 Randublutung in the control class and SDN 4 Randublutung in the experimental class has shown effective learning. This effectiveness can be seen from the indicators of achievement. Achievement of these indicators, namely

Management of learning implementation, from this criteria aspect, it appears that the problem based learning model with blended learning involves learning media that characterizes blended learning. These media are laptops and cell phones that contain the Google Meet application to support virtual learning.

With the indicators of effective learning above, it can be said that the problem based learning model with blended learning is effective in increasing mathematical literacy, namely by achieving:

The average mathematical literacy of fourth grade elementary school students who study using the problem based learning model with blended learning is the same as KKM 60.

The number of fourth grade elementary school students who have completed learning using the problem based learning model with blended learning is more than 75%. The mathematical literacy

of fourth grade elementary school students who study with the problem based learning model with blended learning is greater than those who study with the problem based learning model. From the aspect of learning motivation, the results showed that the learning motivation of fourth grade elementary school students who studied using the problem based learning model with blended learning was greater than those who studied using the problem based learning model.

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