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Blended Learning with Flipped Classroom through Contextual Teaching and Learning Approach to Increase Motivation and Learning Outcomes

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ABSTRACT

This study aims to determine the increase learning motivation and learning outcomes in engineering drawing lessons for class X TKRO 3 SMKN 1 Bulakamba in the even semester of the 2021/2022 academic year. This research is a classroom action research conducted in two cycles, where each cycle consists of four stages, namely: planning, action, observing and reflecting. The learning in the first cycle was carried out by blended learning with a flipped classroom, in the second cycle was carried out by blended learning with a flipped classroom using a contextual teaching and learning approach. Sources of data were obtained from 36 students of class X TKRO 3, learning motivation data was obtained from questionnaires via google form, while learning outcomes data were obtained from formative test and worksheet. Analyzing data using Microsoft Excel 2010. The results showed that students who had high and very high learning motivation were 22 students in the initial conditions, 29 students in the first cycle and 33 students in the second cycle or learning motivation increased by 31.8% in the first cycle and increased by 13.8% in the second cycle. While the average value in the initial conditions was 79 with learning completeness of 72.2%, the average value in the first cycle was 81 with learning completeness of 77.8%, and the average value in the second cycle was 82 with completeness learning by 91.7% or the average value increased by 2.53% in the first cycle and increased by 2.47% in the second cycle while learning completeness increased by 7.76% in the first cycle and increased by 17.9% in the first cycle.

Keywords: Flipped classrooms, Contextual teaching and learning, Learning motivation, Learning outcomes

INTRODUCTION

One of the government's steps to break the chain of transmission COVID-19 is to implement a social distancing policy, where people must carry out all their activities at home, such as working, studying, including worship. The implementation of this social distancing policy clearly has an impact on all sectors of life, including the education sector. Teaching and learning activities are forced to be carried out using a remote system. Since the beginning of March 2020, learning that was previously carried out face-to-face in class must be changed to a distance learning system based on the internet (online) which forces teachers and students to not be able to meet each other face to face.

Distance learning during the covid-19 pandemic was caused by various responses and changes in the learning system that could affect the learning process and the level of development of students in responding to the material presented [1].

To streamline the learning process carried out, you can use learning media technology in the form of platforms such as Google classroom, E-learning, Youtube, WhatsApp Group (WAG), Edmodo, Zoom, Googlemeet and other platforms that are able to support learning facilities from home [2]. However, in the implementation of distance learning, it is not fully implemented and runs well as expected, there are several obstacles/obstacles encountered in the field such as facilities and infrastructure barriers that are less supportive for the use of learning technology, the readiness of teachers, parents and students in the implementation of learning and characteristics different learners. The quality of learning is the impact caused by conditions like this, where teachers and students can initially communicate and interact directly in the classroom, but currently the interaction is limited to virtual spaces.

Problems that occur during distance learning include students finding it difficult to understand the learning material delivered by the teacher, students not feeling motivated to learn, students not mastering learning well. Efforts to overcome these problems, namely the teacher must be able to find other learning methods so that students can understand the material presented by the teacher so that students can master the learning material that is carried out properly and students can also be motivated to learn even though learning is done online [3]. Learning that is lacking in involving students to be active will cause students not to be able to use their abilities optimally in solving their problems [4]. Restrictions on learning activities make students' level of understanding of the material decrease, because alternatives to involving online learning media experience obstacles including the unpreparedness of teachers in using media, inadequate network access, availability of quotas, limited ownership of smartphones, lack of parental assistance, and lack of experience. in online class management [5]. By being faced with the current conditions, the teacher must be able to

develop the learning process effectively so as not to result in a decrease in the quality of student learning [6]. An interesting learning process by utilizing technological developments is needed by teachers to foster student learning motivation. Therefore, in conditions like this the teacher must be able to package effective learning and still prioritize the quality of learning so that it can arouse the enthusiasm of students in learning and succeed in obtaining maximum learning outcomes. To minimize the problems mentioned above, the government has set a strategy so that learning can be carried out face-to-face with a new policy regarding the implementation of limited face-to-face learning as stated in the Joint Decree of the Minister of Education, Culture, Research and Technology, the Minister of Religion, the Minister of Health and the Minister of Health. Domestic Affairs dated December 21, 2021 regarding Guidelines for the Implementation of Learning in the Covid-19 Pandemic Period. This joint decree of the four ministers contains a better and more detailed adjustment to the Limited Face-to-Face Learning (PTM) rules, while still prioritizing the health and safety of school residents as a top priority. Referring to the joint decree of the four ministers regarding Limited Face-to-Face Learning, it is stated that starting January 2022 all education units in the area of Enforcement of Community Activity Restrictions (PPKM) levels 1, 2 and 3 are required to carry out limited Face-to-face Learning (PTM). Local governments may not prohibit face-to-face learning (PTM) for those who meet the criteria. Parents/guardians of students can still choose limited face-to-face learning or distance learning for their children until the 2021/2022 academic year ends. In the latest Joint Decree of the four ministers, it was explained that the implementation of face-to-face learning was still limited and carried out based on the level of Implementation of Community Activity Restrictions (PPKM) while still implementing health protocols. For schools located in areas with PPKM level 1 and level 2 status, face-to-face learning can be carried out with 100% capacity and can be carried out every day with a maximum study period of 6 (six) hours of lessons in one day.

To respond to the duration of face-to-face learning which is still not maximized, a learning strategy is needed that can allow the subject matter to be delivered properly and optimally and can be understood by students. One strategy that can be applied in limited face-to-face learning during the Covid-19 pandemic for Engineering Drawing subjects is to implement blended learning with flipped classroom learning using a contextual teaching and learning (CTL) approach. With the use of this strategy, it is expected to increase students' learning motivation so that the achievement of learning outcomes can increase.

Blended learning is a learning method that combines face-to-face meetings with online materials in harmony. A blend of conventional learning where educators and students meet face-to-face and meet online

which can be accessed anytime and anywhere [7]. The blended learning learning model is carried out with the presence of a direct teacher and with electronic communication or the presence of the teacher can be done alternately between physical and virtual. Some class meetings are conducted with physical meetings (in traditional classrooms, namely face-to-face) and other meetings are held virtual. Another form of blended learning is a virtual meeting between educators and students, both of which are in different locations, but give each other feedback, ask questions, and answer. Blended learning is a learning facility that combines various modes of delivery, teaching models, and learning styles, introducing a variety of media options for dialogue between the facilitator and the person receiving the lesson. Blended learning is also a combination of face-to-face teaching and online learning, but more than that as an element of social implementation [8].

Flipped classroom is a type of mixed learning that collaborates synchronous learning through face-to-face with asynchronous learning through independent learning [9]. Flipped classroom learning is a model where the teaching and learning process is not like in general, namely in the learning process students learn the subject matter at home before class starts and teaching and learning activities in class are in the form of doing assignments, discussing material or problems that have not been understood by students. By doing assignments at school, it is hoped that when students experience difficulties, they can be directly consulted with their friends or with the teacher so that the problem can be solved immediately.

Basically, the concept of the flipped classroom learning model (reverse learning) is when the usual learning done in class is done first by students at home, and homework that is usually done at home is completed at school. The flipped classroom learning model utilizes learning media that can be accessed online by students. This model is not just learning to use learning videos, but more emphasis on how to use class time so that learning is more quality and can improve students' knowledge and critical thinking skills [10].

The reasons why the flipped classroom learning model is used are as follows; (a) Efficient use of class time, (b) more active learning opportunities for students, (c) increasing one-on-one interaction between students and teachers (d) student responsibilities for learning, and (e) dealing with various learning style [11].

Contextual Teaching and Learning (CTL) is a learning concept that helps teachers relate the material they learn to students' real-world situations and encourages students to make connections between their knowledge and its application in everyday life [12]. Contextual approach is a learning approach designed to help students solve problems by connecting the lessons learned with the context of everyday life. One component of contextual learning is modeling where in the

learning process demonstrate/present something as an example that can be imitated by every student [13].

So it can be concluded that bladed learning with flipped classrooms through a contextual teaching and learning approach is a learning method that combines face-to-face meetings in class with online/online meetings where before face-to-face offline learning in class is carried out, students first study the subject matter at home that has been delivered. previously online according to the tasks and instructions given by the teacher (viewing videos, listening to audio, reading books or doing worksheets) then at face-to-face meetings the teacher and students hold learning interactions according to the material that students have previously studied with a contextual approach using the model as examples that can be imitated by students.

The purpose of this study was to determine the increase in learning motivation and improve learning outcomes of Engineering Drawing Lessons on the Orthogonal Projection material.

RESEARCH METHOD

This research is an action research conducted in 2 (two) cycles, where each cycle consists of four stages, namely: planning, action, observing and reflecting. Learning in the first cycle was carried out by blended learning with a flipped classroom, while the learning in the second cycle was carried out by blended learning with a flipped classroom sing a contextual teaching and learning approach.

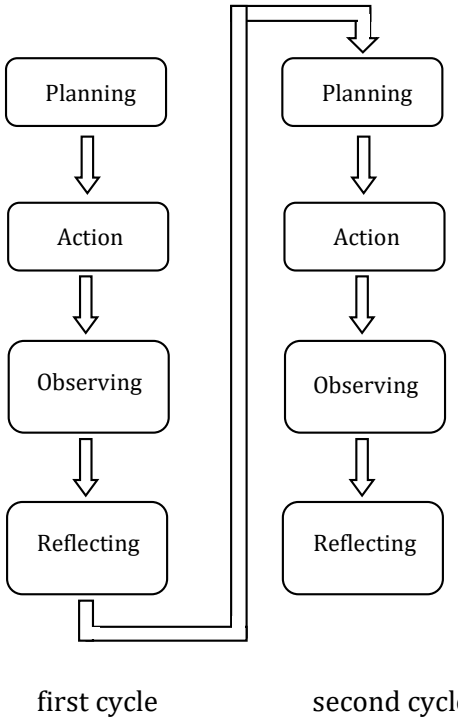

Figure 1. Action scenario chart

This research was conducted from January to March 2022 in the even semester of the 2021/2022 academic year. The subjects of this study were students of class X TKRO 3 SMK Negeri 1 Bulakamba Brebes in the even semester of the 2021/2022 academic year, totaling 36 students with 30 (thirty) male students and 6 (six) female students. While the object of this research is about learning motivation and student learning outcomes in the Engineering Drawing subject on the orthogonal projection material. The data sources in this study consisted of a list of formative test, a list of worksheets and a questionnaire on learning motivation. The tools used to collect data in this study were formative tests and worksheets (to analyze learning outcomes) and a learning motivation questionnaire (to analyze learning motivation). The formative test uses 20

multiple choice questions and is done online at home using a google form (for assessing the knowledge aspect) while the worksheet is done on A4 drawing paper at school (for assessing the skills aspect). Meanwhile, data on learning motivation was collected using a questionnaire containing questions as a research instrument. Questionnaire is a method of collecting data for respondents to be answered by giving several questions [14]. The way to collect data is by distributing questionnaires to pre-determined research subjects, which are given to respondents online via the internet using a google form. This questionnaire technique is efficient and feasible to apply for a fairly large number of respondents spread over a wide area. Then the researcher asked the subject's willingness to be a respondent in this study. The motivation questionnaire was made using a Likert scale. Likert scale is a scale used to measure perceptions, attitudes or opinions of a person or group regarding an event or social phenomenon, based on operational definitions that have been set by the researcher [15]. This scale is a psychometric scale that is commonly applied in questionnaires and is most often used for research in the form of surveys, including in descriptive survey research. The originator and creator of the Likert scale is Rensis Likert from the United States who published a report explaining its use. With a Likert scale, the variables to be measured are translated into variable indicators. Then the indicator is used as a starting point for compiling instrument items which can be in the form of statements or questions. The answer to each instrument that uses a Likert scale has a graduation from very positive to very negative in the form of words. The alternative answers in the Likert scale used were scored as follows:

Table 1. Likert scale

Statement	Item Score	
	Positive	**Negative**
Strongly agree	5	1
Agree	4	2
Indecisive	3	3
Disagree	2	4
Strongly disagree	2	5

After the answers from the respondents were collected, the data was then processed using Microsoft Excel and analyzed using qualitative descriptive by comparing the results of the questionnaires. The value of knowledge in the form of formative test results and the value of skills in the form of the results of the assessment of worksheet work are percentages to get the final score. Where the weight of the knowledge value is 40% and the weight of the skill value is 60%. The final score was then analyzed using Microsoft Excel and analyzed using quantitative descriptive by comparing the results of the final score. The results of the questionnaire analysis of learning motivation and learning outcomes in first cycle were compared with the initial conditions then the results of the analysis of learning motivation and learning outcomes in second cycle were compared with the results of the questionnaire analysis of learning motivation and learning outcomes in first cycle.

RESULT AND DISCUSSION

Study Motivation Analysis

Learning motivation is an encouragement, direction and resistance to behavior that comes from within students and from outside to increase understanding and knowledge. Efforts to increase student motivation, apart from within (intrinsic) students, teachers must also seek from outside (extrinsic) students, one of which is through the application of the flipped classroom learning model so that students feel more enthusiastic and enthusiastic in participating in learning in class because they are flipped. Classroom facilitates students to learn in a way that they think is easy and makes it easy for teachers to deliver learning materials [16].

The following shows the grouping of descriptive statistical results of students' learning motivation from the respondents' questionnaires before the action (pre-cycle), after the first action (cycle I) and after the second action (cycle II).

Table 2. Statistical data on learning motivation

Statistical Data	Pre Cycle	Cycle I	Cycle II
Mean	147	150	153
Standard Error	4	3	3
Median	159	157	157
Mode	135	165	140
Standard Deviation	22	20	18
Sample Variance	481	411	328
Kurtosis	0	0	0
Skewness	-1	-1	-1
Range	76	73	70
Minimum	97	100	105
Maximum	173	174	175
Sum	5134	5385	5494
Count	35	36	36

From the data above, it can be seen that there was an average increase in learning motivation from 147 in the pre-cycle conditions to 150 in the first cycle conditions and increased to 153 in the second cycle conditions. An increase also occurred in the acquisition of the maximum score from 173 in the pre-cycle condition, increasing to 174 in the condition of the first cycle and increasing to 175 in the condition of the second cycle, while the minimum score also increased from 97 in the pre-cycle condition, increasing to 100 in the condition of the first cycle and increased to 105 in cycle II conditions.

Meanwhile, the frequency for the learning motivation category for each condition is as follows:

Table 3. The results of the analysis of learning motivation

Motivation Learning	Frequency		
	Pre Cycle	Cycle I	Cycle II
Very high	4	7	9
High	18	22	24
Currently	9	5	3
Low	5	2	0
Very low	0	0	0

Learning motivation has increased with the following details: in the pre-cycle conditions, there were 22 students with very high motivation and high motivation, and 14 students with moderate and low motivation. In the first cycle, students motivation increased because learning was carried out using blended learning with a flipped classroom, where students who had very high motivation and high motivation increased to 29 students or increased by 31.8% for the high

and very high motivation categories. Meanwhile, those with moderate and low motivation decreased to 7 students. In cycle II, students motivation has increased from cycle I because learning is not only carried out with blended learning with flipped classrooms, it is also carried out with a contextual learning and teaching approach where students who have very high motivation and high motivation increase to 33 children or an increase of 13.8% for high and very high motivation categories. Meanwhile, those with moderate and low motivation decreased to 3 (three) students.

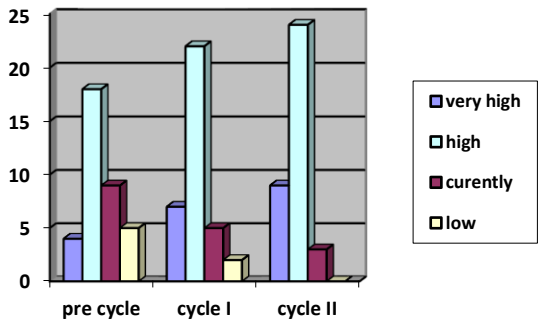

Figure 2. Learning motivation for each student condition

Analysis of Learning Outcomes

The following shows the grouping of descriptive statistical results of student learning outcomes from formative test results and worksheets on conditions before the action (pre-cycle), after the first action (cycle I) and after the second action (cycle II).

The application of blended learning with flipped classroom learning through a contextual teaching and learning approach in limited face-to-face learning during the Covid-19 pandemic can motivate learning and improve student learning outcomes because the application of this method is the application of a newly applied learning method that makes a new experience for students. students in learning, motivation and learning outcomes increase also because the learning method carried out combines online and offline learning, learning materials or materials are sent first to students before face-to-face hours in class are carried out so that students can be studied first at home (by default) maximal, repetitive, does not depend on time and place. When in class when face-to-face is carried out, the teacher only needs to review material that cannot be understood or only discuss practice questions or assignments. In addition, in contextual teaching Hing and learning with a learning process that presents shapes as examples that can be imitated by students will increase student motivation in learning and make it easier for students to understand the subject matter presented.

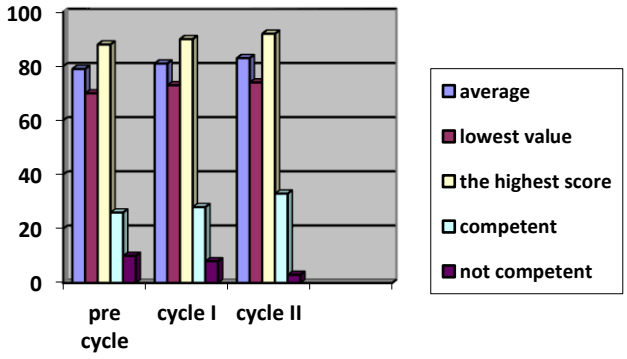

Figure 3. Learning outcomes for each student condition

Tabel 4. Statistical data on of learning outcomes

Statistical Data	Pre Cycle	Cycle I	Cycle II
Mean	79	81	83
Standard Error	1	1	1
Median	80	83	84
Mode	70	74	78
Standard Deviation	6	6	5
Sample Variance	34	31	28
Kurtosis	-1	-1	-1
Skewness	0	0	0
Range	18	17	18
Minimum	70	73	74
Maximum	88	90	92
Sum	2848	2928	2983
Count	36	36	36
Competent	26 (72,2%)	28 (77,8%)	33 (91,7%)
Not competent	10	8	3

These results are in line with research conducted by Maftukhatul Karim and Sigit Saptono which showed the effect of the Flipped learning method in increasing motivation with a percentage of 66.6% and at the same time this motivation was able to improve cognitive learning outcomes of MAN Salatiga students on cell material with a percentage of 46.7 % [17].

Research conducted by Wahyudin, et al also showed similar results that; (a) the learning process using the blended learning model of the flipped classroom in the Department of Automotive Engineering Education, Faculty of Engineering, State University of Makassar in the academic year 2020/2021 in the vocational learning strategy course is in the high category with a figure of 92.06%; (b) student learning outcomes after the application of blended learning model flipped classroom in the Department of Automotive Engineering Education Faculty of Engineering Makassar State University for the academic year 2020/2021 in the vocational learning strategy course is in the high category with an average score of 73.19; (3) student responses to the application of the flipped classroom blended learning model in the Department of Automotive Engineering Education, Faculty of Engineering, Makassar State University for the academic year 2020/2021 in the vocational learning strategy course in the very good category with an average score of 5.96 [18].

From these data, information can also be obtained that the contextual teaching and learning approach in learning can increase students' motivation and learning outcomes. This agrees with research by Selvianiresa and Prabawanto which states that the contextual teaching and learning (CTL) approach can be successful, when learning uses collaborative interactions with students, high activity levels in lessons, connections to real-world contexts, and integration of science content with content. other and skill areas[19].

Another study conducted by Pidia Guino concluded that the application of contextual teaching and learning (CTL) learning with optimal learning strategies and the use of appropriate media can also improve student learning outcomes. From the student learning outcomes test there was a significant increase where in the first cycle the posttest results were 18 students (60%) who finished studying. In the second cycle, a total of 27

students (90%), the total number of students who met the passing criteria (90%), had reached the classically determined indicator completion limit, namely 85% of students scored 70 [20].

CONCLUSION

The results showed that students who had high and very high learning motivation increased by 31.8% in the first cycle and increased by 13.8% in the second cycle. While the average value increased by 2.53% in the first cycle and increased by 2.47% in the second cycle, while learning completeness also increased by 7.76% in the first cycle and increased by 17.9% in the second cycle.

So it can be concluded that blended learning with flipped classroom using a contextual teaching and learning (CTL) approach can increase student motivation and learning outcomes.

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