Analysis of Student Learning Motivation using Project-Based Learning Method

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ABSTRACT

This study aims to ascertain student motivation for learning in the Elementary Mathematics Education Research Course by utilizing the Project-Based Learning (PjBL) method. The sample for this study is made up of 37 PGSD students at Yogyakarta State University. The data collection methods used were observation, a questionnaire focused on student motivation to learn, and student-led project evaluation. The data analysis technique employed is descriptive statistical analysis. The findings indicated that students' motivation for learning elementary mathematics research subjects was high, and their projects were excellent.

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1.   INTRODUCTION

Learning is a process of change through internal appreciation that occurs in each individual who comes from within and outside himself through interactions with the surrounding environment (Suardi, 2018). In addition, Aritonang (2008) states that learning is a process everyone carries out to produce new behaviour changes as a manifestation of the learning experience. So it can be concluded that learning is a process undertaken by each individual through interaction with the surrounding environment resulting in changes in one's behaviour.

While learning is a process of interaction between students and lecturers and with learning resources in the learning environment (Suardi, 2018). In the learning process, curiosity can form students to use their minds more and be active in observing things to achieve self-satisfaction, relieve boredom, and be motivated to learn something they do not know (Irdalisa et al., 2021). Learning is a learning activity that is carried out to gain experience, broaden knowledge horizons, and increase abilities in terms of individuals and groups so that those who initially do not know become aware (Hilmiatussadiah, 2020). According to Syachtiyani and Novi (2021), learning can also be said to acquire knowledge and knowledge from educators to students in mastering the material, forming attitudes, and honing student skills. In addition, Yanti (2020) also states that effective learning requires high learning motivation. If learning motivation is low, learning potential will decrease. So it can be concluded that

learning is an activity to use his thoughts and be active in observing something to achieve self-satisfaction, relieve boredom, and motivate him to learn the unknown.

Motivation is a psychological urge to take action to achieve the goals that have been set (Badaruddin, 2015). Agree with Susanti (2019), motivation is the basic impulse that moves a person to enter into a process and is able to maintain his behaviour until he reaches his goal. Motivation reflects the behavioural characteristics of students and how they have a stable interest when carrying out learning activities (Juliya & Herlambang, 2021). Motivation plays an important role in strengthening student learning to solve problems. Students must have determination, optimism, and think about the future to achieve learning goals. So it can be concluded that motivation and learning are a combination that cannot be separated because through proper learning motivation,

Based on the observations made to Yogyakarta State University students, students still lack the motivation to learn because distance learning is one of the causes of the lack of student motivation. It can be seen that around 75% of students attending student lectures are passive and take notes, and about 80% of students lack motivation during lectures. This can be seen when the lecturer finishes teaching or explains and allows students to ask questions or have opinions, only two or one people; no one even wants to take advantage of the opportunity. Students often go in and out of the lecture room during lectures, resulting in a lack of concentration on learning. Thus, it affects the enthusiasm and attention of students toward learning. Yanti (2019) stated that students are motivated to learn if they pay close attention to the lesson and read the material to understand the lesson's content.

When the learning process occurs, there is an interaction between lecturers and students that allows lecturers to recognize students' characteristics and potential (Kaharuddin & Hajeniati, 2020). Therefore, lecturers have challenges stimulating and maintaining learning motivation and can find reliable and reliable methods to foster student learning motivation. As well as being able to involve students in learning activities, it can develop thinking skills in solving problems so that it can increase student enthusiasm for learning. Selection of a good learning method is a method that is by the material to be delivered, student conditions and available infrastructure and learning objectives.

One method that will be used is to apply Project Based Learning(PjBL). Project-based learning is an innovative learning method that emphasizes contextual learning through complex activities. According to Amini (2015), project learning (Project Based Learning) allows students to broaden their knowledge and learning skills so that learning becomes more meaningful and learning activities become more interesting. Numerous relevant research findings, such as Abidin's (2021) research on project-based learning models and the effect of learning motivation on learning outcomes, indicate that learning motivation has an effect on students' productive material for computer engineering courses. Ganefo (2020) conducted another study on Project-Based Learning (PjBL) learning models to boost motivation and competence in drawing general arrangements. It demonstrates that by implementing the Project-Based Learning (PjBL) learning model, students' motivation and competence in learning to draw general ship plans can be increased. This increases students' familiarity with the teacher-assigned subject matter, as students are required to collaborate with their group friends to explore the teacher-assigned material. Using the Project-Based Learning method, the researchers determined the level of student learning motivation for PGSD students at Yogyakarta State University. This type of research is extremely rare, particularly in the Elementary Mathematics Education Research course at the tertiary level. The purpose of this study, as stated previously, is to ascertain undergraduate students' level of motivation for learning at university, specifically about the Project-Based Learning (PjBL) method used in the course. The findings of this study are expected to serve as a benchmark for future improvements and increases in students' motivation to learn.

2. METHODS

This is a descriptive study using a survey method. This research was conducted at Yogyakarta State University as part of the Primary School Teacher Education study program. The population for this study was students at Yogyakarta State University majoring in Elementary School Teacher

Education. The sample size was 37 students. To assess student motivation for learning through the Project Based Learning method, an instrument in the form of a motivational questionnaire with a statement of twenty numbers is used to assess student motivation for learning. The questionnaire contains both positive and negative statements, and the learning process emphasizes project-based learning, which is expected to prepare students to conduct field research. The following table summarizes the percentages of students who are motivated to learn:

Table 1. Category Percentage of Student Learning Motivation

Category Percentage	
75% - 100%	Very High
50% - 74.99%	High
25% - 49.99%	Low
0% - 24.99%	Very Low

3. FINDINGS AND DISCUSSION

Student Learning Motivation

The student learning motivation questionnaire consists of 8 indicators and 20 statement scales. The questionnaire given was in the form of a closed questionnaire to 37 students. The following is a tabulation of data and the percentage of student answers.

Table 2. Student Learning Motivation Questionnaire

No	Statement	Response %
A	Indicator: Activity Duration	
1	I read at least one article a day on primary school mathematics education research. (+)	50
2	I study elementary mathematics education research for 3 hours every day. (-)	59
B	Indicator: Activity Frequency	
3	I often review articles about elementary mathematics education. (+)	50
4	I can not do the assignments given by the lecturer regarding the teaching and learning of elementary mathematics education research. (-)	49
C	Indicator: Its Persistence on Activity Goals.	
5	I do research assignments for elementary mathematics education according to the instructions given by the lecturer. (+)	91
6	I always do research assignments for elementary mathematics education in accordance with the direction of the lecturer. (+)	89
D	Indicators: Fortitude, Tenacity, And Ability In Facing Activities And Difficulties To Achieve Goals.	
7	I am happy when lecturers give assignments regarding elementary mathematics education research. (+)	64
8	Assignments given by the lecturer I always do with the group with pleasure. (+)	84
9	I ask the lecturer or friend if there is an explanation regarding the assignment and material that I do not understand. (+)	88

10	I have never done a group assignment on elementary mathematics education research. (-)	40
11	I have never asked the lecturer even though the material and assignments given by my lecturer did not understand it. (-)	39
E	Indicator: Devotion And Sacrifice To Achieve Goals.	
12	I can solve a problem in a research if the lecturer gives direction about the assignment given. (+)	76
13	I always look for articles from various sources. (+)	82
14	I never look for articles. (-)	39
F	Indicator: Level of Aspirations To Be Achieved With The Goals Done.	
15	By deepening research in elementary mathematics education, I can easily put it into practice in the field. (+)	79
16	I do not believe that primary school mathematics education research is of much use to me. (-)	39
G	Indicator: Achievement Qualification Level.	
17	I get a reward from the lecturer because my elementary mathematics education research has been indexed. (+)	56
18	I've uploaded my article but it's not indexed yet. (-)	73
H	Indicator: Direction of Attitude towards Activity Target	
19	I follow primary school mathematics education research studies with all my heart. (+)	84
20	I cannot fully participate in elementary mathematics research lessons. (-)	36

Students' motivation to learn was examined based on the data results above in the Elementary Mathematics Education Research course. Statements 2, 3, 5, 9, 13, 16, 18, and 19 refer to elementary mathematics education research. For example, the duration of activities in statement 2 has a negative value with an overall percentage of 59%, which falls into the low category. The statement, "I study elementary mathematics education research for three hours a day," indicates that student learning activities in elementary mathematics education research are short-lived.

The second indicator's frequency of activities includes statement number 3, which has a positive value with a 50% low category percentage. When a student says, "I frequently read articles on elementary mathematics education," it's safe to assume that only half of the class does this frequently as well. Statement No. 5 contains the third and final indicator, the persistence of the organization's activity goals, with a positive value of 91 % and a very high category. It can be concluded from the statement "I do research assignments for elementary mathematics education in accordance with the instructions given by the lecturer" that students always do research assignments for elementary mathematics education in this manner.

It's statement number 9 has an 88% positive value in the Fortitude, Tenacity, and Ability in Facing Activities and Difficulties to Achieve Goals indicator, which is a very high category. If I don't understand assignments or materials, I ask for clarification from my lecturer or a fellow student." This statement indicates that students seek clarification from their professors and peers about assignments or materials they don't understand. Regarding Devotion and Sacrifice to Achieving Goals, statement 13 has a positive value and a very high percentage of 82%, which is the fifth indicator. According to the statement, students are constantly on the prowl for articles on the latest developments in the field of elementary mathematics research.

With a negative percentage of 79.1 % in the high category, statement 16 reveals the aspirations to be achieved with the goals achieved as the sixth indicator. A student's statement that "By deepening elementary school mathematics education research, I can easily put it into practice in the field" indicates

that students study the material in order to make it easier to apply it in the classroom. According to the Achievement Qualification Level, a statement at number 18 has a negative percentage of 73% in the "high" category in the seventh indicator. The statement "I have uploaded my article, but it has not been indexed" so that it can be concluded that the student has written an article but has not been indexed. The statement at number 19 in the eighth indicator, which measures his attitude toward the activity targets, has a positive percentage of 84% in the very high category. Primary school mathematics education research lectures are enthusiastically taken by students who say, "I follow primary school mathematics education research learning with all my heart."

Table 2 shows that student's motivation to learn is on the high side, with an average of 63 %. Therefore, it is possible to conclude that the Project-Based Learning method can affect student learning motivation in mathematics education research courses. Studying at school ends with an assessment of the science practice exam, which is in line with Handayani's (2020) research that shows students are motivated to complete project work that is free of burden and produces the maximum results. Students can also benefit from PjBL. According to Wahyudi (2021), PjBL aims to help students become more engaged and active and provide them with a wider range of learning options.

b. Results of Student Assignments Using Project Based Learning (PjBL) Methods

Project-Based Learning is given to students to complete research conducted by students in elementary mathematics education research courses. According to Serin (2019), the application of PjBL in the learning process allows students to build knowledge in a real context, where the main idea in PjBL is to allow students to investigate problems in the real world that will enable students to gain new knowledge, explore their abilities in critical thinking, problem-solving, and independent work. The results of the project assessment can be seen in table 3.

Table 3. Project Research Results

No	Project Title	Score
1	Adaptability and student engagement in online mathematics learning	88
2	Textbook analysis	91
3	Student involvement in online mathematics learning in terms of their learning style	91
4	Assessing students' adaptive attitudes and their independence in learning mathematics online	92
5	Assessing students' motivation and involvement in online mathematics learning	91
6	Assessing students' adaptability and engagement in online math classes	89
7	Assessing student involvement and parental involvement in online mathematics learning	88
8	Assessing spatial reasoning and mathematical performance of elementary school students	87
9	Examining the online learning motivation of elementary school teacher candidates and their relationship to their involvement in mathematics courses	89
10	Student involvement and student independence in online mathematics learning	88
11	Relationship between mathematics anxiety and elementary school students' geometry problem solving ability	89
12	Textbook analysis	92

The results of student projects in the Elementary Mathematics Education Research course using the Project Based Learning (PjBl) method make it easier for students to work on their project assignments. The value obtained by students for making materials for making project assignments, with an average of 89 being in the very good category, is greater than the standard value of the completeness criteria determined by the lecturer of 70. The highest achievement in this project is because the project has been

designed since the beginning of the lecture, the project has undergone a process of guidance and revision of each meeting through the tasks given. So that the final task is good and according to the desired expectations, the achievement of learning objectives is well achieved. The project value which tends to be low indicates that students experience a fairly long learning process and it is difficult to achieve the expected project. Therefore, it can be concluded that the research project carried out by the students was very good. Because of this, it can be concluded that the research projects undertaken by students are excellent. Project-Based Learning is impacted by a study conducted as part of the Mathematics Education Research course. As a result, students in these studies are already well-versed in the subject matter and can apply what they have learned right away. In addition, it teaches students how to collaborate on research projects. According to Indrawati (2016)'s research, incorporating the PjBL model into the Advanced Macroeconomic Theory course can boost student motivation. This is the case. According to research, an increase in students' motivation to learn leads to an increase in their ability to retain information. Using project-based learning can positively impact students' motivation and collaboration skills, (Shin, 2018). In addition, students' responses to a post-project survey indicated that they had a positive view of project-based learning.

4. CONCLUSION

Based on the findings and discussion, it can be concluded that students' motivation for learning in the Mathematics Education Research course at Yogyakarta State University is quite high. By comparison, the research projects completed are excellent. Further research suggests conducting on a larger scale, not just at one university, so that learning motivation can be compared across universities that use the Project-Based Learning method.

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