



Implementation of Student Effectiveness Using Project-Based Learning (PJBL) Learning Model to Improve Learning Outcomes in Class X-ATU 1 Student at SMKN 1 Gondang

¹Imega Syahlita Dewi, ²Denny Dwi Purnomo

^{1,2} Science Education Study Program, College of Teacher Training and Education, STKIP PGRI Nganjuk

Email Correspondence: imegasyahlita@stkipnganjuk.ac.id

Article Info

Article History

Received: Jan, 20th, 2024

Revised: June, 22th, 2024

Published: June, 30th, 2024

Keywords

Project Based Learning,
PJBL

Abstract

This research was conducted with the aim of improving student learning outcomes using the Project Based Learning (PJBL) learning model in the subjects of Physics Science students at SMK Negeri 1 Gondang. This type of research uses the Classroom Action Research (PTK) method. The subjects are class X-ATU1 students at SMK Negeri 1 Gondang totaling 32 students. This research has a good impact on educational approaches that emphasize learning through real-world projects, where students are actively involved in exploration, collaboration, and problem-solving. Real-world relevance and active student engagement are key focuses in PJBL, which encourages the development of critical thinking skills, creativity, and skills. This can be conveyed through the results of cycle I & cycle II research, in cycle I with 22 students showing a percentage of 68%, and carried out again in cycle II there was an increase in learning outcomes with 30 students showing a percentage of 82%. So in this study in cycles I&2 experienced an increase in student learning outcomes.

© 2024 Creative Commons Attribution 4.0 International

Citations: Dewi, I S & Purnomo, D D. (2024). Implementation of Student Effectiveness Using Project-Based Learning (PJBL) Learning Model to Improve Learning Outcomes in Class X-ATU 1 Student at SMKN 1 Gondang. *Science Education and Application Journal (SEAJ)*. 6(1). 47-52.

INTRODUCTION

Education has a fairly broad meaning, depending on which point of view we assess an education. On the other hand, education has a meaning as an effort to educate the nation. In addition, education also aims to improve the quality of society in Indonesia. It is recorded in Law No. 20 Article 3 (2003) concerning education which is interpreted as an increase as well as the development of skills possessed by students. The improvement that occurs can be in the form of more knowledge, more honed skills possessed, equipped with noble attitudes and morals, ability to think critically, and others.

According to Suprihatiningrum (2013: 90), elaborated his opinion on the meaning of an educator which is defined as an individual with strengths and abilities that are shared or taught to others through the teaching system. Educators act as a source in the formation of motivation, besides that educators also interact directly with students in the teaching process equipped with learning resources as support in teaching.

The IPAS learning process is sought to be followed well by students. However, in its implementation, teachers often find students who are less interested in the lesson, and are not motivated to learn the material. This can be seen from student activities which include lack of attention to the material taught, participation in learning, and not doing the tasks given.

This symptom is the lack of teaching and learning interaction that occurs, both interaction between students and other students and student interaction with teachers during learning.

The problems mentioned above based on the conditions of the data are events that are often found in the presentation of science material in the 2023/2024 academic year, the average absorption of science subjects. For example, in the presentation of Quantities and units of material. During learning activities, students' attention and participation tend to be lacking. Even when given homework, only certain students do the assignment, while other students wait for the results of their friend's work to be copied. This condition results in low student understanding of the material so the expected learning outcome ranking has not been achieved. The ineffectiveness of the learning process and has not had an impact on improving student learning outcomes is an indicator that the methods used by teachers in presenting measurement subject materials have not been effective.

The project-based learning learning model is innovative learning that is student-centered and places teachers as motivators and facilitators, where students are given the opportunity to work autonomously to construct their learning (Trianto, 2014: 42).

This is possible because by using the role-playing method, interaction between students and interaction between students and teachers will grow and be maintained through role play which is the scope of the learning method. In addition, through the role-playing method, students have the opportunity to compete, learn together, be able to think critically and make correct decisions and conclusions about the material that has been learned. Learning conditions like this make it easier for students to understand and take meaning from the material taught, so it is expected to have an impact on improving learning outcomes.

Based on the reasons and considerations described above, classroom action research was conducted entitled Improving Learning Outcomes About Measurement through Role-playing Methods in Students.

METHOD

This type of research is Classroom Action Research (PTK) as a Classroom Action Research (PTK) or Classroom Action Research (CAR) effort to change the real conditions that exist now in the direction that can be expected. PTK is a research that aims to improve the process of implementation and improve the learning outcomes of students in the classroom and involve teachers in the implementation process PTK can be an evaluation for all teachers in improving competence when carrying out learning for the better.

According to Wina Sanjaya (2009), PTK is a process that involves reflecting on learning problems in the classroom to overcome them by practicing various planned activities and assessing the results of each therapy. According to Arikunto (2005), research topics are everything, people, or objects related to research variables. Students of SMK Negeri 1 Gondang in class X-ATU 1 were used as research subjects. This research was conducted to improve students' understanding of science subjects.

The subject matter studied is to describe the relationship between principal quantities & derived quantities with their functions This research is located at SMKN 1 Gondang | Nganjuk City. The subjects of the study were grade X students of SMKN 1 Gondang totaling 34 students consisting of 16 boys and 18 girls. This class was chosen by the researcher because the class is the responsibility of the researcher as the teacher of the class.

The research method used to see the achievement of the application of this learning model is Classroom Action Research. Classroom Action Research is an examination of learning activities in the form of an action, which is deliberately raised and occurs in a class together. The work procedure in classroom action research consists of four components, namely planning, acting, observing, and reflecting, all four of which are a cycle.

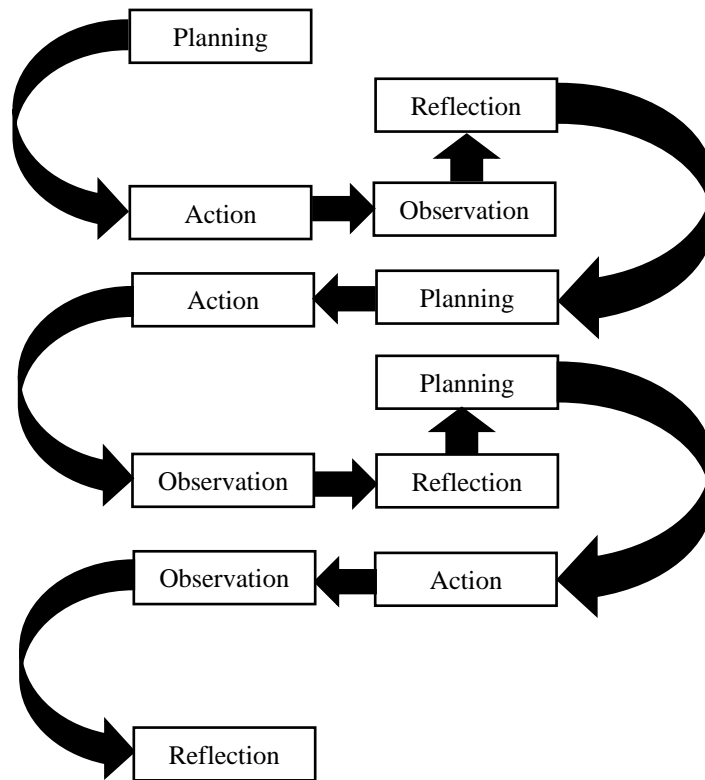


Figure 1. PTK Cycle Kemmis and MC Taggart Models

knowing the improvement of student learning outcomes in grouping parts of symbols Quantities and Units, identifying the names of elements forming units about measurement. The data obtained are analyzed using the percentage formula.

$$Na = \frac{X}{Xm}$$

Information:

- Na = Affective Value
- X = Score obtained
- Xm = Maximum Score

Table 1. Student Creativity Criteria

Value	Creativity Criteria
81 – 100	Very High
61 – 80	Tall
41 – 60	Keep
21 – 40	Low
0 – 20	Very Low

Based on observations during learning, it can be seen that the actions taken by the teacher already refer to the lesson plan that has been prepared. However, from the results of the student evaluation analysis, it is known that student learning outcomes are classically incomplete, as we can see in the following table:

Table 2. Average Value of Student Creativity

No	Observed aspects	Average score	Category
1.	Planning	80,0	Very High
2.	Implementation	84.5	Very High
3.	Action	75,5	Tall
Creative Student		77.5	High

RESULTS AND DISCUSSION

This class action research is carried out in 2 cycles, in each cycle 3 meetings are held. At the end of each meeting, teachers who also act as researchers provide evaluations to students. In its implementation, researchers collaborate with senior teachers as observers. Based on the results of research using the Project Based Learning (PjBL) learning model from cycle I to cycle II, researchers experienced an increase as expected. In this study in the final stage of each cycle, students are asked to do evaluation questions, where these evaluation questions can measure student learning outcomes, especially in science subjects. The following is a comparison of learning outcomes in thematic learning of science subject content from before the action to the end of cycle II.

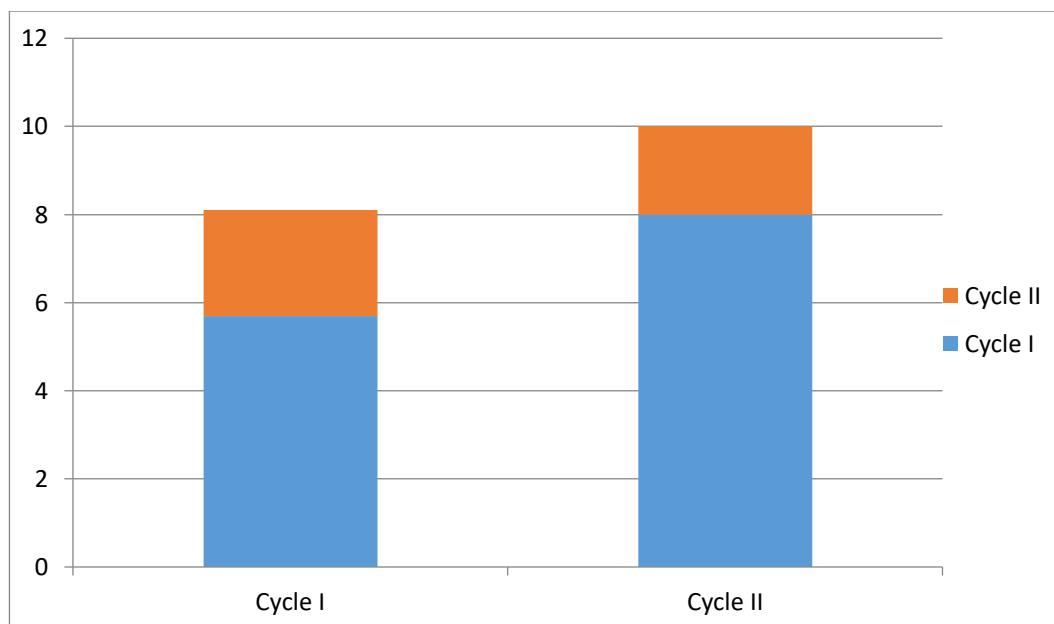


Figure 2. Diagram of Learning Outcomes in Class X-ATU 1 Students

Based on observations during learning, it can be seen that the actions taken by the teacher already refer to the lesson plan that has been prepared. However, from the results of student evaluation analysis, it is known that student learning outcomes are classically incomplete.

With the application of the PBL learning model, students gain new knowledge and experience in understanding and solving related to the human skeleton and its functions. The application of PBL will stimulate solving problems according to their abilities. It should be stimulated and encouraged to recognize, formulate, and solve problems according to one's ability. At the end of each meeting, the teacher informs students to learn the next material, so that the next learning can run smoothly. The most dominant teacher activity is by adding projector props to clarify the fifth phase (analysis and evaluation of the problem-solving

process). The addition of the media aims to allow students to listen to the reinforcement provided by the teacher. In the second cycle, teachers also change the form of problems in LKK into one problem with many answers. This is done to improve overall student understanding so that student learning outcomes are further improved. In the process of presentation and class discussion, teachers provide motivation so that students are more active in responding.

The application of the Problem-Based Learning learning model can improve student learning outcomes about the human skeleton and its functions, with learning completeness at the second meeting of the second cycle reaching 84% or 29 students out of 34 students who have completed learning. The average increase in learning outcomes of Cycle II students.

CONCLUSION

From the results of learning activities that have been carried out in as many as two cycles with each cycle consisting of two meetings and based on all discussions and analyses that have been carried out, the following conclusions can be drawn: By applying the *Project Based Learning* (PJBL) learning model can improve student learning outcomes as shown by the completeness of classical learning that continues to increase.

SUGGESTION

From the results of research and data obtained from the previous description, the IPAS teaching and learning process is more effective and provides optimal results for students, as teachers need to pay attention to several things, namely implementing the PJBL model. requires careful preparation, so teachers must be able to determine or choose topics that can be applied with the PJBL model Teachers should more often learn with various learning methods and models, so that students can find new knowledge, and acquire concepts and skills. so that students can solve the problems they face in everyday life,

THANK-YOU NOTE

The author would like to thank the big family who always motivates, the supervisors who have helped and guided, and the SMK Negeri 1 Gondang who have allowed us to conduct research.

REFERENCES

- Ahmad Sudrajat. 2008. Development of Psychomotor Assessment Devices. Online.
- Anggraini, P. D., & Wulandari, S. S. (2021). Analysis of the use of project-based learning models in increasing student activity. *Journal of Office Administration Education (JPAP)*, 9(2), 292-299.
- Arikunto, S. 2007. *ResearchActionClass*. Jakarta: Bumi Aksara.
- Eliza, F., Suriyadi, S., & Yanto, D. T. P. (2019). Increasing students' psychomotor competence through the Project Based Learning (PjBL) learning model at SMKN 5 Padang. *INVOTEK: Journal of Vocational and Technology Innovation*, 19(2), 57-66.
- Ridwan A. Sani & Sudiran (2012). Improve teacher professionalism through classroom action research. Medan : Cita Pustaka.
- Septaria, K., & Rismayanti, R. (2022). The effect of scientific approach on Junior High school students' Scientific Creativity and Cognitive Learning Outcomes. *Jurnal Penelitian dan Pengkajian Ilmu Pendidikan: e-Saintika*, 6(3), 173-189.

- Septaria, K., Nissak, K., & Wulandari, S. A. (2023). Student Identity and Guided Inquiry Learning in Junior High School Students: A Correlation Analysis. *Jurnal Penelitian Pendidikan IPA*, 9(10), 8351-8358
- Nurika, L., Septaria, K., & Setyaningsih, S. (2024). Implementing Science Creativity In Junior High School Students Using A Pirporsal Learning Model On Energy Resources. *INKUIRI: Jurnal Pendidikan IPA*, 13(1), 36-41.
- Septaria, K., Fatharani, A., Dewanti, B. A., & Utami, Z. R. (2024). Satuan Pendidikan Aman Bencana (SPAB) Berbasis Partisipatory Rural Appraisal di Madrasah Aliyah Sunan Santri Lamongan. *TAAWUN*, 4(02), 229-240.
- Septaria, K. (2022). Kemampuan Bertanya Versus Hasil Belajar Kognitif Mahasiswa: Analisis Korelasi Kemampuan Bertanya Pada Level Mahasiswa IPA. *EDUPROXIMA (Jurnal Ilmiah Pendidikan IPA) Universitas Bhinneka PGRI Tulung Agung*, 4(2), 60-71.
- Sholekah, A. W. (2020). Increased motivation and learning outcomes of science environmental pollution material through the PjBL model of grade VII students of SMPN 9 Salatiga. *Journal of Mathematics and Natural Sciences Education*, 10(1), 16-22.
- Septaria, K. (2023). MEDIA ULAR TANGGA DAN LITERASI: ANALISIS PENGARUH PADA MATERI MITIGASI BENCANA BANJIR PADA SISWA SEKOLAH MENENGAH PERTAMA. *SPEKTRA: Jurnal Kajian Pendidikan Sains*, 9(1), 1-13.
- Sugiharto, N. C. D., Listyaningsih, L., & Sujatmiko, T. (2023). Increasing Student Interest and Learning Outcomes with Project Based Learning (PjBL) at SMK Negeri 2 Bojonegoro. *Journal on Education*, 6(1), 3256-3264.
- Suprihatiningrum, J. (2013). *Learning Strategies, Theories and Applications*. Yogyakarta: Ar-Ruzz Media.
- Qolbyatin, N. A., Septaria, K., & Wulandari, S. A. (2023). Quartet Learning Media and Student Argumentation: Development Analysis and Correlation in Science Learning in Junior High Schools. *INSECTA: Integrative Science Education and Teaching Activity Journal*, 4(2), 138-150.
- Trianto. (2014). *Designing Innovative, Progressive and Contextual Learning Models*. Jakarta: Prenadamedia Group.
- Wiriaatmadja, R. (2009). *Research Methods Class Action*. Bandung: PT. Teenager. Rosdakarya.