Analysis of the Effectiveness of the Project-Based Learning (PJBL) on Students' Learning Interests Class X OTKP SMK Negeri 1 Gunungsitoli

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Abstract - This study is motivated by the limited effectiveness of conventional teaching methods and the low learning interest observed among vocational high school students. Project-Based Learning (PjBL) was selected as an alternative approach to enhance instructional effectiveness and stimulate student engagement. The research aims to evaluate the effectiveness of the PjBL model and its influence on the learning interest of Grade X OTKP students at SMK Negeri 1 Gunungsitoli. Using a qualitative descriptive method with an inductive approach, data were collected through classroom observations, focus group discussions (FGDs), and documentation review. The results show that the implementation of the PjBL model was effective, as indicated by an observation score of 86.3, categorized as "effective." Furthermore, FGD findings revealed increased student learning interest, particularly in indicators such as attention, enthusiasm, and participation.

Keywords: *Project-Based Learning (PjBL), Learning Interest, Vocational Education, Qualitative Research, Student Engagement*

I. INTRODUCTION

Education is essentially a conscious and planned process that aims to develop the potential of students to the maximum so that they can contribute positively to the environment and the surrounding community. Law Number 20 of 2003 concerning the National Education System states that education functions to develop abilities and shape the character and civilization of a dignified nation in order to educate the life of the nation. In this context, schools as formal educational institutions have a strategic role in creating a conducive learning environment. One of the most

important elements in the success of education in schools is the role of teachers, who not only function as teachers, but also as guides, facilitators, and motivators in the learning process.

According to Suprihatiningrum (2013), an educator must have the ability to design and manage effective learning, and be able to share his knowledge with students through an appropriate approach. This requires teachers to have creativity and innovation in choosing the appropriate, relevant, and contextual learning model. In practice, the learning process ideally takes place as a planned two-way communication between teachers and students, which aims to create a transformation in the realm of knowledge, skills, and attitudes (Trianto, 2014). However, it is undeniable that in the reality on the ground, many teachers still use conventional learning approaches that are less able to encourage active student participation, resulting in low interest and motivation to learn.

The changes in the curriculum that now lead to the 2013 Curriculum require a learning approach oriented to the formation of character and competencies in the 21st century. In this case, the implementation of an active, collaborative, and contextual learning model is very important. One of the learning models that is considered relevant to these demands is Project Based Learning (PjBL). This model emphasizes the learning process through real projects designed to provide a more meaningful learning experience. Daryanto (2014) stated that PjBL is a learning model that uses projects or activities as the core of the learning process, where students are encouraged to study, evaluate, and reflect on their learning experiences. A similar opinion was also conveyed by Al-Tabany (in Mulyono & Agustin, 2020), who said that PjBL provides space for students to complete complex tasks independently and in groups, so that they can grow critical thinking and problem-solving skills.

Vocational High Schools (SMK), as vocational education institutions that aim to prepare graduates who are ready to use the world of work, urgently need an applicative learning model and are able to bridge theory with real practice. One of the majors in vocational schools that is relevant for the implementation of PjBL is Automation and Office Governance (OTKP). In this department, students are required to have practical skills in managing documents, personnel administration, and utilizing office technology. Therefore, the application of the PjBL model is believed to be able to provide a concrete learning experience and increase student involvement in the learning process.

However, in reality, there are still many teachers who feel hesitant or lack confidence in implementing innovative learning models such as PjBL. This has an impact on the low participation and interest in learning of students in the learning process. In fact, interest in learning has a crucial role in determining learning success. Fadillah (2016) revealed that interest in learning is a person's love for learning activities, which is grown through experience, participation, and habits, and does not appear suddenly or spontaneously. Sardiman (2011) also emphasized that interest in learning can foster enthusiasm and attention, so that it becomes the main factor in student learning success. Meanwhile, Slameto (2010) highlighted that learning interests are greatly influenced by the environment and learning methods used by teachers. Thus, learning interests must be created and fostered systematically through a meaningful and engaging learning process.

This research is motivated by the phenomenon of low interest in learning of class X OTKP students at SMK Negeri 1 Gunungsitoli in the subject of Office Technology. Based on the results of initial observations and information from the subject teachers, it was found that students tended to be passive and less interested in participating in theoretical learning. Realizing this, teachers try to apply the PjBL model as an alternative learning approach that is expected to increase students' interest in learning. The initial results of the implementation showed an increase in student participation and enthusiasm in participating in learning activities.

Departing from these problems, this study aims to analyze the effectiveness of the Project Based Learning learning model in increasing students' learning interest in class X OTKP SMK Negeri 1 Gunungsitoli. This research is expected to contribute both theoretically and practically, especially in the development of innovative learning strategies in the vocational school environment. In addition, the results of this research can also be a reference for educators in implementing a learning model that is more in line with the characteristics of students and the demands of the current curriculum.

II. METHODS

This research employs a descriptive qualitative method to analyze the effectiveness of the Project-Based Learning (PjBL) model and its impact on students' learning interest. According to Sugiyono (2008), qualitative research examines natural settings with the researcher as the key instrument, while Azwar (2007) defines descriptive research as focusing on systematic and factual presentation of data. The study was conducted at SMK Negeri 1 Gunungsitoli with participants from class X OTKP 2. Seven students were selected through purposive sampling for Focus Group Discussions (FGD), representing varying academic levels and engagement. Data were gathered through non-participant classroom observation, FGDs, and document analysis (including the syllabus, RPP, attendance, and learning documentation). Instruments used included structured observation sheets, semi-structured interview guides, and document review checklists. Observation data were interpreted using an effectiveness rubric ranging from 50–100 to assess aspects of PjBL implementation such as collaboration, creativity, and student involvement. Qualitative data were analyzed using the Miles and Huberman interactive model, encompassing data reduction, data display, and conclusion drawing. To ensure data trustworthiness, the study applied credibility (through triangulation), transferability (contextual detail), dependability (audit trails), and confirmability (researcher reflection). The research was carried out in three phases: (1) Pre-field – proposal preparation and initial observations; (2) Fieldwork – data collection through classroom engagement and FGDs; and (3) Post-field – data analysis and result validation.

III. RESULTS AND DISCUSSION

The results of the observation provide an overview for the researcher to answer the problem formulation in Chapter 1 related to the effectiveness of the Project Based Learning (PjBL) learning model in class X OTKP SMK Negeri 1 Gunungsitol. The presentation of the results of the observations that have been carried out by the researcher is presented in the following table:

Table 1. Data Results on Observation Procedures

A. Determining the Fundamental Question (start with the essential question)
Aspects that emerge:
• The teacher starts the class with a question. • The teacher begins by presenting phenomena related to the learning material. • The teacher asked about the phenomenon displayed by the teacher. • Students respond to the teacher's questions. • Students listen to the presentation of phenomena from the teacher. • The phenomenon displayed by the teacher is relevant to the material. • Students are interested in the presentation of the teacher phenomenon.
Aspects that do not appear:
• The teacher again responded to the students' answers. • The teacher leads students to formulate problems in the material to be studied. • The teacher invites students to explore the cases or phenomena presented by the teacher.
Researcher's Note:
• In the early stages of learning, the teacher will provoke students' insights through an essential/fundamental question related to the material to be run. The teacher displays a phenomenon that will involve students in criticizing. • Student experience is less involved in case examples and communication tends to be one-way only. The delivery of learning objectives is also clearly visible.

B. Design a plan for the project

- The teacher divides the student study groups.
- Students feel happy with their group.
- Students love study groups.
- Teachers collaborate with students in designing projects/practical activities to be carried out.
- Students and teachers talk/respond to each other.
- Teachers provide group flexibility in determining the product/project design.

Aspects that do not appear:

- The teacher divides the groups randomly.
- Students received the results of the group division from the teacher with open arms.
- There is collaboration between teachers and students in each learning group.
- Introduction of tools and materials required during project/practice work.

Researcher's note:

- Learning will be held in groups and teachers give students the flexibility to determine how they practice projects/practices.
- Teachers divide groups based on seating and not by equal age distribution and equal distribution of students' intelligence levels. Teachers also dominate learning too much.

C. Preparation of project implementation schedule (create a schedule)

Aspects that emerge:

- Teachers and students collaborate to develop a schedule.
- Teachers give students the flexibility to prepare project schedules.
- Teachers select things that are not related to the implementation of the project.
- The planned activities are in accordance with the material in the learning.
- The teacher asks for students' responses regarding the things that students choose in doing the practice.
- Students give each other feedback, input, and suggestions with their fellow groups.
- The teacher asks students to give reasons for choosing a method/technique.

Aspects that do not appear:

- Teachers and students agree on a *timeline.*
- Teachers and students set *deadlines.*
- The teacher asks students to work on the project in a new way/technique that is different from other groups.

Researcher's note:

- Teachers and students collaborate on several group schedules and students independently manage project work time with a number of provisions from the teacher.
- The appearance of the group is determined by the teacher as well as the collection of material that has been done by the group. Teachers do not divide the grid of project work techniques, the group has the right to determine for themselves.

D. Monitor the students and the progress of the project

Aspects that emerge:

- Teachers monitor practical activities.

- The teacher acts as a mentor and tutor.
- The teacher provided input to the group regarding the results of the practice that had been done.
- The teacher ordered to make an activity report.
- The teacher reviews every activity that has been and will be carried out.
- The teacher provides input/suggestions and solutions to complaints.
- Teachers correct weaknesses and mistakes and give tolerance.

Aspects that do not appear:

- The teacher provides facilities for students during the work on the project.
- The teacher makes an activity rubric.
- Students ask for the teacher's response and submit complaints.

Researcher's note:

- The teacher will see the extent of the progress that has been made by each group, verbally the teacher will direct, give input and improve.
- Teachers are still dominant in guiding students, while a number of equipment/facilities such as computers are only provided by students. Teachers do not use rubrics during student monitoring.

E. Assess the Outcome

Aspects that emerge:

- Students have called activity reports.
- One of the students presented the results of the practice as a group representative.
- The teacher gives a response after the group finishes presenting the report.
- A question and answer session between the presenter and other groups during the presentation.
- The teacher gives feedback.
- The teacher chooses students to respond randomly.
- There is a contrast between groups.

Aspects that do not appear:

- The teacher conducts the test results.
- Students actively respond.
- Students are seen to be active in the classroom evenly.

Researcher's note:

- Reports will be made by the group before the group presets in front of the class, the presentation is delivered by one of the students in each group. The teacher responded to the presentation by giving a deeper presentation of the presenter. The teacher designates the student to give feedback and the group that responds frequently will stand out in the learning.
- The teacher does not take the test during the presentation. Only a few students looked very active and the group was more active as well.

F. Evaluate the Experience

Aspects that emerge:

- Teachers carry out reflection on practical activities.
- The teacher gives input and suggestions.
- Students are enthusiastic about learning.
- The relevance of the project to the real life of the student will be educated in the future.
- Reflection is done individually and in groups.
- Experience sharing activity/sharing session.

• Teachers reward students.
Aspects that do not appear:
• Students are happy with the results of their teamwork. • There is a sustainability of practice. • Hold a discussion at the end of the lesson.
Researcher's note's:
• After all groups present the results of the project/practice, the teacher will conduct an individual written test. After that, the teacher will give input and motivation to the students and tell the relevance of the material they are learning to their major. • Because only one person presents the results of the practice, other students in the same group are less likely to take roles. In the final stage of learning, there is no meaningful discussion and the teacher does not provide clarity on the sustainability of the materials and practices that have been carried out.

The results of the interviews provide an idea that the application of the model *Project Based Learning (PjBL)* In class X, OTKP SMK Negeri 1 Gunungsitoli has a quite positive influence on students' interest in learning. Most students feel more interested and motivated when learning begins with spark questions, real-life case examples, and active involvement in group discussions and project completions. They showed a positive response to learning methods that gave them flexibility in determining project design and practice products, as well as freedom of opinion in the group.

In addition, students feel helped in understanding the material when the teacher provides guidance, motivation, and appreciation for their work. Presentation activities, question and answer sessions, and group work are also means that encourage collaboration and increase a sense of responsibility for learning outcomes. Although there are several challenges, such as the lack of interest of some students in group work or difficulty understanding the material, in general PjBL is able to create a more active, meaningful, and fun learning atmosphere. This model is also considered relevant to the needs of students to face the challenges of the world of work that demands critical thinking, communication, and cooperation skills.

1. Effectiveness of Project Based Learning Model

The implementation of the PjBL learning model in class X OTKP showed very significant results in terms of effectiveness. Based on the results of observations conducted by the researchers, a total score of 86.3 was obtained from the range of 50 to 100. This score is included in the "Effective" category according to the classification used. This assessment is based on eight indicators of PjBL learning activities, namely: (1) determination of fundamental questions, (2) collaborative project planning, (3) preparation of project implementation schedules, (4) monitoring of project progress, (5) testing of project results, (6) evaluation of learning experiences, (7) student involvement in discussions, and (8) giving appreciation for student work.

During the learning process, the teacher begins by conveying phenomena relevant to the students' daily lives, followed by group formation and joint project planning of students. The teacher acts as a facilitator who guides the students during the work on the project. The results of the observation showed that all groups were able to follow the flow of activities well, actively discuss, and show work results in accordance with the indicators set out in the RPP.

Project activities not only facilitate students to understand the material, but also provide space for them to express ideas, collaborate in teams, and take responsibility for assigned tasks. This is in accordance with the characteristics of PjBL which emphasizes experiential learning and real problem solving. Thus, it can be concluded that the PjBL model is effectively applied in class X OTKP because it meets the indicators of success in the implementation of learning.

2. The Influence of the PjBL Model on Students' Learning Interests

The effect of the application of the PjBL model on students' learning interests was analyzed based on FGD interviews with seven students randomly selected from class X OTKP 2. Each

participant showed the emergence of indicators of learning interest after participating in learning with the PjBL model.

P1 students expressed a feeling of happiness and active involvement in learning. She feels more motivated because she is given the freedom to develop a project plan with the group. P2 students showed four indicators of interest in learning at once: involvement, interest, attention, and realization of desire to learn. This is shown by high enthusiasm in compiling project work schedules and dividing tasks with group mates.

Students in P3 to P7 also showed similar indicators, such as actively asking questions to the teacher, noting important points during group discussions, and showing a desire to complete assignments on time. The majority of students stated that this method made them feel that learning was more enjoyable and not boring like conventional learning that relied more on lectures and theories.

Based on the results of the interviews, it can be concluded that the PjBL model encourages the emergence of students' learning interests from affective aspects (feelings of pleasure and interest), cognitive (attention to material), and psychomotor (active involvement and real actions). This interest in learning is very important because it is an internal driving factor in learning success. Therefore, the implementation of the PjBL model has a positive influence on increasing students' interest in learning.

3. Discussion of Findings

The findings in this study strengthen the view of experts that the PjBL learning model is one of the effective approaches to increase student participation and learning motivation. Daryanto (2014) stated that PjBL is able to develop students' ability to think critically and solve real problems. This is reflected in the students' experience in planning, implementing, and evaluating learning projects directly.

Furthermore, the theory of learning interest proposed by Slameto (2011) is also proven in this study. Indicators of learning interest such as feelings of pleasure, engagement, attention, and desire to learn appear consistently in students after project-based learning is implemented. More intense interaction between students with materials, teachers, and peers also strengthens their emotional and intellectual involvement in the learning process.

Practically, the application of PjBL at SMK Negeri 1 Gunungsitoli shows that this approach is very suitable for the context of vocational learning, where practice and direct application are prioritized over theory. The projects given reflect real-world work situations, so students can understand the relevance of the material to their future professional lives. This is also in line with the goals of the 2013 Curriculum which emphasizes the development of 21st century skills, such as creativity, collaboration, communication, and critical thinking.

4. Implications of Research Findings

The implications of these findings are crucial for teachers, students, and educational institutions. For teachers, the results of this study provide evidence that the use of the PjBL model can increase the learning effectiveness and learning interest of students, so that it can be a viable alternative compared to conventional lecture methods. Teachers are encouraged to design more interactive, contextual, and collaborative learning.

For students, the implementation of PjBL creates a more enjoyable and meaningful learning experience. They not only understand the material cognitively, but also develop social and technical skills that are essential to meet the challenges of the world of work. For schools, this research is a reference to evaluate and improve learning strategies, especially in the vocational field. Schools can integrate the PjBL model in the curriculum as well as provide training to teachers to implement this model effectively. Thus, this research makes a theoretical and practical contribution to the development of effective and innovative learning models, as well as encouraging the improvement of the quality of vocational education in Indonesia.

IV. CONCLUSION

Based on the results of the discussion and analysis that has been carried out, it can be concluded that the Project Based Learning (PjBL) learning model has proven to be effective in increasing the learning interest of students in class X of OTKP SMK Negeri 1 Gunungsitoli for the 2021/2022 Academic Year. This effectiveness can be seen from the observation results which show an objective score of 86.3, which is included in the "Effective" category, and a subjective score of 13.7. This indicates that the application of the PjBL model is able to create a more lively, interactive, and engaging learning atmosphere for students to actively engage in the learning process. The success of this model is also highly determined by the suitability of the implementation steps carried out by teachers, such as presenting relevant case examples, forming groups, assigning project responsibilities, and involving students in discussions and presentation of results.

Furthermore, the results of in-depth interviews conducted with several students showed that PjBL had a real influence on the growth of interest in learning. The students admitted that they felt more interested and motivated when they were given space to create, work together in a team, and experience firsthand the learning process through the projects developed. The students' responses showed that they showed two to four indicators of learning interest, such as curiosity, enthusiasm, attention to the material, and activeness in asking questions or giving opinions. Thus, the application of the PjBL model not only increases students' understanding of the material, but also builds a positive attitude towards the learning process itself. This model is particularly relevant to apply in 21st century learning, as it not only emphasizes cognitive aspects, but also fosters soft skills such as communication, collaboration, and responsibility in group work.

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