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ANALYSIS OF PJOK TEACHERS' STRATEGIES IN THE IMPLEMENTATION OF PROJECT BASED LEARNING MODEL TO INCREASE STUDENT CONFIDENCE

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Kata Kunci:

Kepercayaan Diri,
PJOK Sekolah Dasar,
Project Based
Learning, Strategi
Gurut.

Abstrak

Tujuan penelitian ini adalah menganalisis strategi guru PJOK dalam implementasi Project Based Learning (PjBL) serta keterkaitannya dengan peningkatan kepercayaan diri siswa. Metode yang digunakan adalah pendekatan kualitatif deskriptif dengan desain studi kasus instrumental di SDN 2 Bayongbong. Sumber data terdiri atas guru PJOK, dan siswa kelas V yang dipilih secara purposive sampling. Teknik pengumpulan data meliputi observasi partisipatif pasif, wawancara mendalam semi-terstruktur, dan studi dokumentasi. Analisis data menggunakan model Miles, Huberman & Saldana. Hasil penelitian menunjukkan empat strategi utama: perencanaan (proyek miniatur lapangan dari bahan bekas), pelaksanaan (pengelompokan heterogen), monitoring dan pendampingan (observasi, scaffolding bertahap, konsultasi luar jam), dan evaluasi (penilaian proses, peer assessment, refleksi bersama). Pengelompokan heterogen merupakan strategi paling dominan karena memicu peer modeling alami. Kesimpulan penelitian ini adalah implementasi PjBL dengan strategi pengelompokan heterogen terbukti efektif meningkatkan kepercayaan diri siswa, yang ditandai dengan perubahan perilaku dari malu menjadi berani presentasi, kesiapan menghadapi tantangan, serta rasa bangga.

Keywords:

Self-Confidence,
Elementary Physical
Education, Project
Based Learning,
Teacher Strategies .

Abstract

The purpose of this study is to analyze Physical Education (PJOK) teachers' strategies in implementing Project-Based Learning (PjBL) and their relationship to the improvement of students' self-confidence. The method used was a descriptive qualitative approach with an instrumental case study design at SDN 2 Bayongbong. Data sources consisted of Physical Education (PJOK) teachers and fifth-grade students selected through purposive sampling. Data collection techniques included passive participatory observation, semi-structured in-depth interviews, and document analysis. Data analysis utilized the Miles, Huberman & Saldana model. The research results revealed four main

strategies: planning (miniature field projects using recycled materials), implementation (heterogeneous grouping), monitoring and guidance (observation, gradual scaffolding, and after-school consultations), and evaluation (process assessment, peer assessment, and shared reflection). Heterogeneous grouping was the most dominant strategy because it triggered natural peer modeling. The conclusion of this study is that the implementation of PjBL with the heterogeneous grouping strategy has proven effective in boosting students' self-confidence, as evidenced by behavioral changes from shyness to boldness in presenting, readiness to face challenges, and a sense of pride.

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INTRODUCTION

Physical Education, Sports, and Health (PJOK) has a strategic role in shaping students' affective and social competencies, especially self-confidence (self-confidence). Through movement activities, games, and social interactions, PJOK provides space for students to explore their own capacity and build courage. Student-centered learning (student-centered) is proven to be able to create meaningful experiences, which is an important foundation for the development of confidence from an early age (Juliantine, 2025). The study also confirmed that the learning model in PJOK significantly affects students' confidence and responsibility in elementary school.

However, achieving this ideal goal faces serious challenges on the ground. Based on the education profile report published by Garut Regency Communication and Information Service (2024), the limited facilities and teachers' understanding of innovative learning models are still the main challenges in the implementation of PJOK learning in the Garut Regency area. This condition makes it difficult for teachers to design learning that is able to activate students optimally, so that students tend to be passive and less involved. Supriyatno, (2023) strengthen these findings by showing the dominance of conventional models that are still teacher-centered in PJOK learning practices.

SDN 2 Bayongbong, as one of the public elementary schools in Bayongbong District, Garut Regency, also felt this dynamic. Initial observations indicate that some students still show indecisiveness, lack confidence when asked to appear in front of the class, and tend to be passive in group activities. This phenomenon indicates that efforts to develop confidence through PJOK learning still require deep innovation.

One of the potential pedagogical innovations is the model Project Based Learning (PjBL). Simonton et al., (2020) in his study of PjBL in physical education underscores the great potential of this model in developing 21st century skills, including collaboration, creativity, and confidence. PjBL places students as learning subjects through exploration, investigation, and the creation of contextual

collaborative projects. The PjBL syntax starting from the fundamental question to the publication of the project naturally trains students to make decisions, take responsibility, and present the results of the work. This process hypothetically contributes significantly to the strengthening of confidence.

Various studies have shown a positive influence of PjBL on self-confidence. prove that there is a significant influence of the PjBL model on student confidence. (Jodhipati et al., 2024) Subianto, (2025) reported an increase in student confidence of up to 84% after the implementation of PjBL in elementary schools. jSyafuddin, (2024) It also emphasized that the project-based learning model in physical education is able to create a more meaningful learning experience and encourage active student participation.

However, most of the studies use a quantitative approach that focuses on proving the influence or effectiveness of the PjBL model. As a result, the question of how teachers' strategies implement this model, especially in the midst of limitations and specific contexts such as SDN 2 Bayongbong, remain unanswered. In fact, the success of the implementation of PjBL is highly dependent on teachers' strategies in designing, facilitating, and evaluating learning. PJOK teachers in various regions admitted that they did not know the structure of the implementation of PjBL before receiving assistance. Obstacles such as difficulties in compiling process assessment instruments, limited facilities, (Yusfi et al., 2024)Yusfi et al., (2024) and the dynamics of students' ability to work together are real challenges that require special strategies from teachers.

Based on the research gap, this research has urgency to be carried out. The purpose of this study is to analyze in depth the strategies applied by PJOK teachers in implementing the PjBL model and understand their relationship with efforts to increase student confidence at SDN 2 Bayongbong, Garut Regency. The novelty of this research lies in a qualitative-interpretive approach that focuses on the meaning of teachers' pedagogical processes and strategies as complex phenomena in the specific context of schools. The contribution of this research is expected to provide contextual and in-depth understanding for teachers, school principals, and the Garut Regency Education Office in designing sustainable professional development programs that are more targeted. Practically, the findings of this study are also a reference for PJOK teachers in adapting PjBL according to field conditions.

METHODOLOGY

Research Methods

This study uses a qualitative approach with a descriptive type. This approach was chosen because the focus of the research is not on variable measurement or hypothesis testing, but on an in-depth understanding of meaning, subjective experiences, and social processes that take place when PJOK teachers implement the model *Project Based Learning* (PjBL). Teachers' strategies cannot be explained only by statistical figures, but require an exploration of how to think, adjust, and interpret

daily learning practices. The design used is an instrumental case study, where one case (SDN 2 Bayongbong) was chosen deliberately because it was able to provide in-depth insight into the phenomenon of teachers' strategies in the implementation of PjBL (Stake, 2006). This design allows researchers to capture the complexity, peculiarities of context, and the natural dynamics of learning without intervention. In accordance with the characteristics of qualitative research, the design of this research is flexible and can develop during the process in the field (Sugiyono, 2013: 25-27)

Research Location

The research was carried out at SDN 2 Bayongbong, Bayongbong District, Garut Regency, West Java. The location was chosen *purposively* with consideration: (a) the school has implemented the PjBL model in PJOK learning; and (b) based on initial observations, it was found that there were symptoms of low student confidence that were interesting to explore in more depth.

Data Source

Data sources were selected by purposive sampling with the following criteria: having direct experience, willing to share experiences openly, and being able to provide *information-rich cases*. Based on these criteria, the data sources in this study consist of PJOK teachers, and class V students.

Table 1.
Research Data Sources

Yes	Role	Quantity	Remarks
1.	PJOK Teacher	1 person	Central actor, >5 years experience
2.	Grade V students	7 people	Selected based on a variety of confidence levels

The number of participants is not statistically determined, but based on the principle of data saturation, which is when new information no longer provides a significant addition to the researcher's understanding

Data Sources and Types

The data in this study consists of two types:

1. Primary data: Obtained directly from in-depth interviews with PJOK teachers and students, as well as direct observation of the PjBL learning process.
2. Secondary data: Obtained from documents such as teaching modules, teacher anecdotal notes, student project results, and school profiles (SDN 2 Bayongbong, 2024). Secondary data serves as a reinforcement and complement of primary data.

Data Collection Techniques

Data collection is carried out through three complementary techniques:

1. Observations

The researcher is present in PjBL learning without being directly involved as a teacher. Observations are focused on:

- a. the way teachers open, facilitate, and close learning;
- b. verbal and non-verbal interaction between teachers and students;
- c. students' responses to each stage of PjBL
- d. Behaviors that indicate confidence (e.g., the courage to question, refute, presentation, or avoidance).

Observations were carried out 3-4 times according to the duration of one project cycle. Observation notes are written in the form of descriptive and reflective field notes.

2. Interview

Interviews are conducted face-to-face with open-ended question guidelines, but remain flexible following the direction of participants' answers.

- a. The interview with PJOK teachers lasted 60–90 minutes for 2–3 times to explore: the background of the understanding of PjBL, the reasons for choosing certain strategies, successful and failed experiences, and perceptions of changes in student confidence.
- b. Interviews with students last 20–30 minutes in a relaxed setting (after school hours or during breaks) to delve into feelings, challenges, and key moments during the project.

All interviews were recorded with the participant's permission and transcribed verbatim (verbatim).

3. Documentation studies

The researcher collected relevant documents such as lesson plans, teaching modules, student progress records, and project results (presentation videos, posters, or group reports). Documentation is useful for comparing teachers' plans with the reality on the ground.

Credibility Test

To ensure the credibility of the findings, the study used three strategies:

1. Source triangulation: Compare information from teachers and students.
2. Triangulation technique: Comparing the results of observations, interviews, and documentation on the same focus (e.g., teachers' strategies in motivating students).
3. Member check: After the transcript is completed, the researcher reconfirms to the participant (especially the PJOK teacher) to ensure that the researcher's interpretation is in accordance with the participant's intentions. Corrections from participants will be used to revise the findings.

In addition, the researcher also extended participation in the field to build trust (rapport) with participants so that the information obtained was more natural and not made up.

Data Analysis Techniques

The data analysis in this study was carried out interactively and simultaneously at the same time as the data collection process, not after completion. This analysis model consists of four interrelated components, namely data collection ((Miles et al.,

2014) Data Collection), data reduction (Data Reduction), data presentation (Data Display), as well as conclusion and verification (Conclusion Drawing/Verification). The four components do not run linear, but form an interactive cycle where researchers can go back and forth between components until the data is saturated.

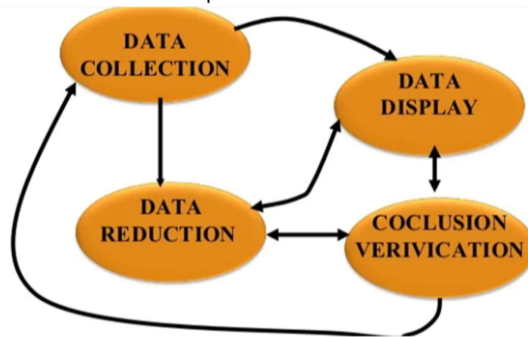


Image 1.

Miles, Huberman & Saldaña Interactive Data Analysis Model (2014)

As illustrated in Figure 1, the four components do not run linearly but form an interactive cycle. The details of each stage of analysis in this study are as follows:

1. Data collection: all data from interviews, observations, and documentation is regularly collected, recorded, recorded, and stored.
2. Data condensation: researchers select, focus, simplify, and transform raw data from transcripts and field notes. Only citations related to "teacher strategy" (planning, facilitation, evaluation) and "self-confidence" (courage, initiative, independence) are taken.
3. Data display: the data that has been reduced is organized into an easy-to-understand narrative description, matrix, or chart. The researcher created a summary table of teacher strategies and changes in student confidence per project stage.
4. Conclusion drawing: researchers interpret data, look for patterns, and temporarily test findings with field evidence. Conclusions were verified through re-observation and discussion with participants.

RESULTS

The results of this study were compiled based on data collected through in-depth interviews with PJOK (ER) teachers and grade V (SIS) students, passive participatory observation, and documentation studies at SDN 2 Bayongbong. The data

presented are the result of a reduction of interview transcripts and field notes that have gone through the verification process.

1. PjBL Learning Planning Strategy

Based on interviews with PJOK (ER) teachers, the implementation of the Project Based Learning (PjBL) model at SDN 2 Bayongbong began in stages. The teacher explained that in 2024 PjBL will only be implemented in grades I and IV, then starting in 2025 until now all classes have used the PjBL model. The main reason teachers chose the PjBL model is because this model is student-centered. The teacher stated: "Why did I choose PjBL in sports learning? Because PjBL is very student-centered. Which is where participants or students can solve the problems they are facing." (ER, interview).

Regarding the difference with the conventional model, teachers revealed that conventional learning focuses on final grades and uses lecture methods or individual assignments, while PjBL focuses on the core problems that students will face. This has an impact on significant differences in RPP planning. The project designed for grade V students is to create miniature sports fields, such as volleyball courts, soccer courts, and basketball courts. The learning resources used are simple, coming from used materials such as cardboard and sticks. Teachers also involve students in the preparation of tools and materials.

The learning objectives that teachers want to achieve through PjBL include three main things: improving problem-solving skills, developing student skills, and increasing student independence. The results of observation during the three meetings showed that the teacher never gave a long lecture at the beginning of the lesson. Instead, the teacher directly directs students to triggering questions such as "what is the size of the field and what is the shape of the field" as a way of introducing the project.

2. PjBL Learning Implementation Strategy

At the implementation stage, the most prominent strategy applied by teachers is heterogeneous grouping. Teachers divide students based on three categories of ability: low, intermediate, and active. The three elements are distributed evenly into each group. The teacher explained the grouping mechanism: "For me, dividing the group is seen from the ability of students starting from low, medium and active, so I divide the three elements so that they are equally in one group." (ER, interview)

This strategy is specifically designed to address students who are shy or lack confidence. The teacher stated: "Yes, it is by mixing evenly starting from active, ordinary and quiet children, so not all group A is quiet, group B is active, but each group is equal." (ER, interview)

During the project process, teachers act as observers. The teacher observes the extent to which the students are able to master or solve the problems they face.

The results of the researchers' observations confirmed that teachers consistently divided groups heterogeneously and never let students choose their own groups.

3. Mentoring and Monitoring Strategy

In the monitoring stage, teachers make observations by going around while looking at student development. The focus of observation included the speed of students' response to the teacher's instructions, problem-solving skills, and the dynamics of interaction between group members. Teachers open consultation opportunities outside of class hours, both during break hours and after school, for students who need additional assistance.

When finding a group that is experiencing conflict or difficulty, the teacher applies a gradual scaffolding approach with the following procedure: "I first research the child's difficulty in what part so that I understand what I am doing, after I know the difficulty, then I give the understanding little by little until the child really understands and can solve the problems faced by their group." (ER, interview) From the monitoring results, the most visible aspect of development is the readiness of students to face challenges. Teachers observe that students become better prepared to face various challenges in learning.

4. PjBL Learning Evaluation Strategy

Teachers implement evaluation strategies that emphasize the process, not just the final product. The assessment does not only use the rubrics provided, but starts from the beginning of the problem-solving process until the student successfully solves the problem. The teacher stated: "For my first assessment, it is not only the rubric that is provided, only from the beginning of the problem-solving process until it succeeds in solving the problem." (ER, interview).

The work process is the main consideration in the assessment, not just the final result of the project. Teachers also involve students in the assessment process through a peer-to-peer assessment mechanism, which aims to enable students to assess their peers and assess themselves. After the project is completed, the teacher reflects with the students. The form of reflection carried out is to explain the problem-solving process that students have gone through.

5. Increased Student Confidence

Based on the teacher's observations, there is a change in the level of student confidence after participating in PjBL learning. Confidence changes are most often seen when students are making presentations. The teacher explains: "The more often their presentations are more ready to explain what they are doing." (ER, interview)

The teacher gave concrete examples of changes in student behavior: "The first time there was a student in grade 5 he was completely shy to do other activities or groups, when there was a problem solving they discussed in the group, thank God there was a change when he was able to explain what their group had done and he was not shy to explain it." (ER, interview)

According to the teacher, the factor that contributes the most to the growth of student confidence is group work with heterogeneous groupings. The teacher

explained: "All three are influential, but the most influential is during group work. Because indeed the distribution is also even, starting from the smartest, intermediate, and less active. So, students who lack confidence can be pushed by smart or active ones." (ER, interview)

A specific strategy that teachers devised to push students out of their comfort zones is to generalize the groups, not to group smart students with smart or shy students with shyness. The teacher stated: "I equate the children with each child so that they can be encouraged and actively motivated." (ER, interview)

In addition to self-confidence, another aspect of attitude that has also developed is the change in behavior from embarrassed to shameless, and from incapable to able.

Confirmation from Students

The results of interviews with grade V students confirm the above findings. The student stated: "After the learning I have learned, I feel brave to come forward and be confident." (SIS, interview) Students also expressed feelings of joy and pride after completing the project: "After I completed the project given by the teacher, I felt very happy and proud of myself for successfully completing the assignment/project given by the teacher." (SIS, interview) Students prefer the PjBL model to the lecture model because of the challenges: "I prefer to be given group assignments rather than lectures because I think if I am given a group/project assignment, there will be a challenge for me." (SIS, interview).

The observation results showed that during the presentation, all groups paid attention to the group that was presenting well.

Implementation Constraints

The main obstacle faced by teachers in the implementation of PjBL is the limited time to work on projects. The teacher stated: "What often happens is that the time from the beginning of the lesson to the end of the lesson is sometimes enough sometimes not when making a project." (ER, interview)

To overcome these obstacles, teachers identify specific difficulties felt by students, both in terms of inadequate equipment and obstacles in the group. The individual approach per group is the solution that teachers apply.

DISCUSSION

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This discussion aims to answer the purpose of the research, which is to analyze the strategies of PJOK teachers in the implementation *Project Based Learning* (PjBL) and its relationship with increasing student confidence at SDN 2 Bayongbong. Based on the results of qualitative data analysis referring to the model Miles *et al.*, (2014), data that has gone through the stages of reduction, presentation, and verification will be discussed in depth below.

1. The Meaning of PjBL Learning Planning Strategy

The findings on the gradual implementation of PjBL at SDN 2 Bayongbong show that the success of the implementation of innovative learning models is highly dependent on the

readiness of teachers and students. This phased approach reflects the principle of readiness in pedagogical change, where changes do not have to be made simultaneously but can be adapted to local capacity.

The planning strategy of the field miniature project from used materials shows the creativity of teachers in overcoming the limitations of facilities. Research Siregar *et al.*, (2025) confirms that the implementation of PjBL in physical education in primary schools has the potential to increase student engagement as well as the development of their physical, social, and emotional skills. In PjBL, students not only learn theory but also apply it in real-world situations through relevant and interesting projects.

The fundamental difference between the PjBL RPP and the conventional model indicates a shift from teacher-centered learning to student-centered learning. It is supported by Yusfi *et al.*, (2024) who reported that before the mentoring, most teachers were still confused and did not understand how a good PjBL model was applied in PJOK learning. After socialization and mentoring, all teachers understand the concept of good PjBL.

2. The Meaning of PjBL Learning Implementation Strategy

Heterogeneous grouping as the most dominant strategy in this study identified three mechanisms. First, *peer modeling* in which quiet students imitate more active friends. Second, *natural scaffolding* from peers. Third, a space for participation that ensures quiet students are not marginalized.

Research Kusmaedi & Ma'mun, (2025) and Juliantine, (2025) prove that student-centered learning through the *Peer Teaching* significantly affects students' confidence and responsibility in elementary school. This research emphasizes that through movement activities, games, and social interactions, PJOK provides space for students to explore their own capacity and build courage.

The findings of this study are in line with the results of the study Angraini, (2026) at SDN 113 Pekanbaru which shows that the application of the PjBL model is able to increase student involvement, foster confidence, and encourage responsibility in the learning process. The obstacles faced, such as limited facilities and differences in students' ability to collaborate, were also found in this study.

The novelty of this study lies in the identification of heterogeneous groupings as a specific mechanism that explains how PjBL increases confidence at SDN 2 Bayongbong, which has not been extensively elaborated in previous studies.

3. The Meaning of Mentoring and Monitoring Strategy

Approach *scaffolding* The gradual steps implemented by teachers reflect student-centered mentoring practices. Findings on students' readiness to face challenges are in line with research Angraini *et al.*, (2025) which proves that the STEAM-PjBL learning model has a significant effect on the confidence of elementary school students. This study confirms that STEAM-PjBL is a learning model that theoretically has the potential to influence student confidence.

Research Siregar *et al.*, (2025) shows that the implementation of PjBL in physical education in primary schools has the potential to increase student engagement as well as the development of their physical, social, and emotional skills. In this model, students are not only recipients of information but also active actors in the learning process. The willingness of teachers to open consultations outside of class hours shows a commitment to student success. Yusfi *et al.*, (2024) emphasized that continuous mentoring is very important because PJOK

teachers in various regions admitted that they did not know the structure of the implementation of PjBL before receiving assistance.

4. The Meaning of PjBL Learning Evaluation Strategy

An evaluation strategy that emphasizes process over the final product demonstrates an understanding of authentic assessment in PjBL. Siregar *et al.*, (2025) emphasized that in PjBL, students are not only recipients of information but also active actors in the learning process. They are invited to plan, implement, and evaluate projects related to physical activities or sports.

The practice of peer-to-peer assessment and joint reflection applied by teachers trains students to think reflectively. Research Anggraini *et al.*, (2025) shows that comprehensive assessments, including aspects of the process, peer-to-peer assessment, and self-reflection, have high validity for students' affective development.

Reflection along with a focus on the problem-solving process teaches students that challenges are part of the learning process, not indicators of failure. This is in line with the PjBL principle that projects must be presented and evaluated collaboratively.

5. The Meaning of Increasing Student Confidence

The findings of increasing student confidence are the core of this study. Research Anggraini *et al.*, (2025) statistically it is proven that the STEAM-PjBL learning model has a significant effect on the confidence of elementary school students.

Research Kusmaedi & Ma'mun, (2025) and Juliantine, (2025) reinforcing that student-centered learning has been shown to be able to create meaningful experiences, which is an important foundation for the development of confidence from an early age. The study also confirmed that the learning model in PJOK significantly affects students' confidence and responsibility in elementary school.

The peer modeling mechanism identified as the most dominant factor in this study is supported by the findings of the study. Angraini, (2026) at SDN 113 Pekanbaru. The study proves that the application of the PjBL model is able to foster confidence and encourage students to be more responsible in the learning process.

The feeling of pride expressed by students shows that there is an intrinsic motivation in PjBL learning. This is in line with Siregar *et al.*, (2025) which states that PjBL not only improves students' conceptual understanding but also develops affective aspects, including confidence and satisfaction with the work that has been completed.

6. Implementation Obstacles and Solutions

Time constraints are a common challenge in the implementation of PjBL. Angraini, (2026) In his research at SDN 113 Pekanbaru, he also identified that the main obstacles to the implementation of PjBL include limited facilities and differences in students' ability to collaborate.

Yusfi *et al.*, (2024) reported that before receiving assistance, PJOK teachers did not know the application and structure of the implementation of the PjBL model. Obstacles such as difficulties in compiling process assessment instruments and limited facilities are real challenges that require a special strategy from teachers.

The success of teachers at SDN 2 Bayongbong in overcoming obstacles through the identification of specific problems and individual approaches shows that teachers' flexibility in identifying and overcoming specific obstacles is the key to the successful implementation of PjBL.

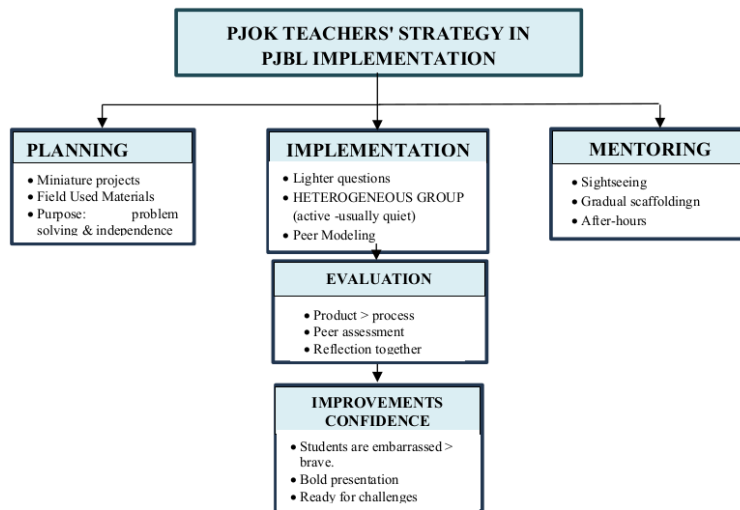


Figure 2.

PJOK Teacher's Strategy Flow in Increasing Student Confidence

Based on the diagram, the PJOK teacher's strategy in the implementation of PjBL starts from the planning stage (a field miniature project from used materials with the aim of problem solving and independence), followed by the implementation stage (triggering questions, heterogeneous grouping as key mechanisms, and peer modeling), then the monitoring and mentoring stage (observation around, scaffolding gradual, after-hours consultations), and evaluation stages (processes take precedence over products, peer assessment, and joint reflection). These four stages are simultaneously and integrated to contribute to increasing student confidence, which can be seen from the change in student behavior from shy to dare to present, dare to ask questions, ready to face challenges, feel proud of their achievements, and increase intrinsic motivation.

CONCLUSION

Based on the results of the analysis, the strategy of PJOK teachers at SDN 2 Bayongbong in the implementation of PjBL includes four main integrated strategies. The planning strategy includes a field miniature project from used materials that aims to develop problem solving and student independence. The most dominant implementation strategy is heterogeneous grouping that triggers natural peer modeling as the main mechanism of confidence improvement. Monitoring and mentoring strategies are carried out through walking observation, gradual scaffolding,

and consultations outside of class hours. The evaluation strategy emphasizes the process, involves peer-to-peer assessment, and ends with joint reflection.

These four strategies contribute to increasing student confidence, which can be seen from changes in behavior: from shy to brave presentations, ready to face challenges, feeling proud of achievements, and increasing intrinsic motivation. The main obstacle faced is the limited time constraints of project work, which is addressed by identifying students' specific difficulties and an individualized approach per group.

The practical implication of this study is that PJOK teachers are advised to map the characteristics of students before forming heterogeneous groups, as well as design projects tailored to the available time allocation. The limitation of this study is that it is only carried out in one school with a duration of one project cycle, so further research is recommended at different levels of education with a longer duration and more participants.

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