The impacts of project based learning strategy with physical activity based on gender towards the students' learning achievement and self confidence

Los efectos de la estrategia de aprendizaje basado en proyectos con actividad física en función del género sobre el rendimiento escolar y la confianza en sí mismos de los estudiantes

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Abstract

Introduction: This study explored the effects of the Gallery Walks technique on students' academic performance and self-confidence, considering gender differences.
Objective: To assess the impact of a project-based strategy integrated with physical exercise through the Gallery Walks technique on students' academic performance and self-confidence. This study accounted for gender-based variations in its analysis.
Methodology: The research employed a quasi-experimental methodology, incorporating a pre-test and post-test framework. The study encompassed 40 second-semester students from Universitas PGRI Palembang. Participants were randomly assigned to two groups: an experimental group and a control group, each comprising 20 students (10 males and 10 females) to ensure equitable gender representation.
Results: The results showed that the experimental group achieved significant improvements in academic performance (+9.10 points, Sig. = 0.000) and self-confidence (+23.85 points, Sig. = 0.000), while the control group showed little improvement. Female students outperformed their male counterparts academically, while male students displayed greater self-confidence.
Discussion: The Gallery Walks method markedly enhanced students' academic performance and self-assurance, with variations in impact according to gender.
Conclusions: This study advocates for the broader implementation of this learning technique, emphasizing the importance of addressing gender disparities to enhance student learning results.

Keywords

Project based strategy; physical activity; gender; learning achievement; self-confidence.

Resumen

Introducción: Este estudio evaluó el impacto de una estrategia basada en proyectos integrada con ejercicio físico, utilizando la técnica de Gallery Walks, en el rendimiento académico y la confianza en sí mismos de los estudiantes, considerando las diferencias de género.
Objetivo: El objetivo fue determinar si esta metodología mejora significativamente estas variables y analizar las variaciones según el género.
Metodología: Se empleó un diseño cuasi-experimental con un pretest y postest. El estudio incluyó a 40 estudiantes de segundo semestre de la Universidad PGRI de Palembang, divididos aleatoriamente en grupo experimental y grupo de control (10 hombres y 10 mujeres en cada grupo). El grupo experimental utilizó la técnica de Gallery Walks, mientras que el grupo de control siguió métodos tradicionales.
Resultados: Los resultados indicaron que el grupo experimental logró una mejora significativa en el rendimiento académico (+9,10 puntos, Sig. = 0,000) y en la confianza en sí mismos (+23,85 puntos, Sig. = 0,000), mientras que el grupo de control mostró avances mínimos. Las estudiantes obtuvieron mejores resultados académicos, mientras que los estudiantes varones mostraron mayor confianza en sí mismos.
Discusión: Estos hallazgos coinciden con investigaciones previas sobre el aprendizaje activo y estrategias basadas en el movimiento. Resaltan la importancia de adaptar las metodologías de enseñanza a las necesidades específicas de cada género.
Conclusiones: La técnica de Gallery Walks mejora eficazmente el aprendizaje y la confianza en sí mismos. Se recomienda su implementación más amplia, considerando las diferencias de género para optimizar los resultados educativos.

Palabras clave

Estrategia basada en proyectos; actividad física; género; logros de aprendizaje; autoconfianza.

Introduction

English has become a global language widely used across nations as a tool for cross-cultural and international communication. In education, English proficiency is crucial as it is considered the key to enhancing academic, career, and social opportunities on an international scale. Learning English enables individuals to become global citizens capable of effective communication. Furthermore, Teo et al. (2019) emphasize that mastering English can improve economic prospects, making it one of the most valued skills in the modern world.

Despite being integrated into educational curricula in many countries, including Indonesia, students' speaking proficiency still requires serious attention. According to the EF-English Proficiency Index, Indonesia, while showing gradual improvement, ranks 12th out of 23 Asian countries. Alharthi (2020) explain that students' speaking abilities are influenced by several interconnected factors. Linguistic factors like vocabulary and grammar mastery are crucial, as deficiencies in these areas can hinder fluency and clarity. Additionally, affective factors such as anxiety, lack of confidence, and motivation significantly impact speaking performance. For example, anxiety reduces students' self-efficacy, making them hesitant to speak (Gobena, 2024; Yousefabadi et al., 2022; Ditania, 2022; Padmadewi, 2018; Jaya et al., 2023). Emotional challenges like anxiety and silence often stem from low self-confidence, limited prior knowledge, and suboptimal teacher-student interactions (Daar et al., 2023; Day, 2023; Dale et al., 2019). This problem is also related to the low level of physical activity in university students, which reached 49.8% after the COVID-19 pandemic. Factors such as gender, low economic status, lack of knowledge about physical activity guidelines, and lack of time and motivation to exercise contribute to high levels of physical inactivity (Goveia et al., 2025). Physical inactivity can exacerbate confidence and overall health issues, ultimately impacting on students' speaking ability. Therefore, strategies are needed to increase participation in physical activity in educational settings to support students' well-being and communication skill development. In addition, physical activity is more valued and respected among adolescents, which will not only help in the development of physical skills, but also form positive attitudes and habits towards an active and healthy lifestyle (Rojo-Ramos et al., 2025; Sanchez-Garcia et al., 2024). Thus, the integration of physical activity in daily life can be a holistic solution to improving students' self-confidence, mental health and speaking skills.

In this context, Project-Based Learning (PBL) has emerged as a pedagogical approach gaining increasing attention in education due to its ability to enhance student achievement across various disciplines. In modern education, integrating physical activities into PBL, particularly through methods such as Gallery Walks, shows significant potential to improve students' engagement and confidence. Thus, PBL is proposed as an effective instructional approach. According to Makmun et al. (2020), this approach is not merely a teaching method but a transformative strategy that fosters active student participation in learning. However, the successful implementation of PBL is strongly influenced by the level of teacher self-efficacy, where teachers with higher levels of self-efficacy are more likely to implement PBL methods effectively, which has implications for students' academic achievement and motivation (Pan et al., 2022; Santyasa et al., 2020; Crespí et al., 2022; Martinez, 2022). The positive attitude of teachers in implementing PBL and supporting students to solve problems independently can strengthen students' self-efficacy. This not only improves their academic skills, but also prepares them with abilities needed in the world of work, such as problem-solving, communication, and collaboration (Liu et al., 2020; Mann et al., 2021).

The uniqueness of PBL lies in its ability to create dynamic and interactive learning environments. This approach facilitates deep interaction between students and learning materials, particularly in language education. Further research by Radzi et al. (2020) and Tsan et al. (2023) reveals that activities like Gallery Walks not only improve speaking skills but also significantly reduce learning anxiety. However, while various studies highlight the benefits of PBL, there remains a substantial knowledge gap regarding its specific impact on learning achievement and confidence among different genders. This is in line with López-Morales et al. (2023) and Zarazaga-Peláez et al. (2024) research on quality education and gender equality in the sustainable development goals, which emphasizes the importance of inclusive and equitable education strategies. Therefore, further studies are needed to understand how PBL can be optimized to support gender equality and quality education more effectively.

Gender dimensions play a critical role in students' responses to learning strategies. Bouhariche et al. (2017) and Bru et al. (2021) highlight intriguing differences: male students tend to respond more positively to the physical components of learning, whereas female students excel in collaborative and communicative aspects. These differences indicate the need for more nuanced approaches to designing inclusive and effective teaching strategies. In line with these findings, other studies have shown that perceptions of physical activity are a major factor motivating females to participate, followed by psychological and social benefits that increase their self-efficacy and social acceptance (Ventaja-Cruz et al., 2024). Therefore, designing learning programs that integrate physical activity in a positive and inclusive manner can help increase students' engagement based on their gender preferences, while supporting their social and psychological development.

According to Bahufite et al. (2023), constructivist methods, which emphasize students' active participation in learning, can improve academic achievement as well as build their confidence. Recent studies by Puspitasari (2019), Makmun et al. (2020) further support the transformative potential of PBL with physical activities. They found that this method not only enhances academic achievement but also fosters 21st-century skills such as collaboration, communication, and problem-solving. However, despite promising evidence, significant gaps remain in comprehensively understanding how PBL with physical activities like Gallery Walks specifically affects learning outcomes and confidence among different genders.

Therefore, the researcher is interested in conducting a study titled " The Impacts of Project Based Learning Strategy with Physical Activity Based on Gender Towards the Students' Learning Achievement and Self Confidence".

Research Objectives

In this research there are several objectives :

1. To analyze the impact of Project-Based Learning (PBL) with physical activities on students' learning achievement.
2. To evaluate the effect of PBL with physical activities on students' self-confidence.
3. To identify differences in the impact of this strategy on male and female students in terms of learning achievement and self-confidence.

Hypotheses:

H_{01}: PBL with physical activities does not significantly affect students' learning achievement.

H_{a1}: PBL with physical activities significantly affects students' learning achievement.

H_{02}: PBL with physical activities does not significantly affect students' self-confidence.

H_{a2}: PBL with physical activities significantly affects students' self-confidence.

H_{03}: There is no significant difference in the impact based on gender on students' learning achievement and self-confidence.

H_{a3}: There is a significant difference in the impact based on gender on students' learning achievement and self-confidence.

Method

Research Design

This study aimed to investigate the effects of project-based techniques and physical activity on students' academic performance and self-esteem. This research employed a quasi-experimental methodology with a non-equivalent control group design. Two groups participated: an experimental group that engaged in learning via the PBL approach through physical exercise and a control group that received no specific intervention (Cohen et al., 2002; Creswell & Creswell, 2017). Both groups participated in a pre-test at the study's commencement and a post-test at its conclusion.

Participants

In conducting this study, 40 second semester students at Universitas PGRI Palembang were involved, equally divided between male and female participants. Random sampling was used to ensure representativeness and eliminate bias. Participants were allocated into two groups namely experiment and control consisting of 20 people (10 males and 10 females in each group) to maintain balanced gender representation.

Research Prosedure

In applying PBL with physical activity to the experimental group, the author provided this treatment for 4 months with 16 learning sessions with 3 credits to ensure consistency. This schedule includes a pre-test conducted before treatment and a post-test conducted after treatment using the PBL method with physical activity. Lecturers provided activities systematically from the preparation stage to the final result and evaluation. The stages include pre-activities, designing and implementing the project, and post-test activities (evaluation). This is designed to manage the entire learning sequence in a structured manner.

Research Instrument

The instruments used in this research included:

- Learning Achievement Test: A speaking test covering material learned during project-based learning, similar to the method used by Safitri et al. (2024), who emphasized the importance of measuring academic achievement in PBL.
- Confidence Questionnaire: A Likert scale measuring students' confidence, particularly in completing academic tasks and public speaking. Similar instruments were used in the studies by Taheri et al. (2022), Oktari (2024), and Becerra-Posada et al. (2022) and to assess students' confidence in project-based learning.

The author uses range values to determine the classification of learning outcomes and student confidence. The following can be seen in tables 1 and 2 below.

Table 1. Qualification for Self-Confidence

No	Classification	Score
1	High	71 – 100
2	Average	41 – 70
3	Low	0 - 40

Table 2. Qualification for Learning Achievement

No	Classification	Score
1	Excellent	81 – 100
2	Very Good	66 – 80
3	Good	56 – 65
4	Fair	41 – 55
5	Poor	0 - 40

Nota: Brown (2004) and Hughes (2013)

Data Analysis Stage

The statistical test analysis used in this study is the normality test and independent sample t-test, to analyze the pre-test and post-test data. This aims to determine whether the implementation of project-based strategies with physical activities has a significant impact on students' learning achievement and self-confidence.

Results

Based on the findings of our research, we successfully collected significant and relevant data demonstrating a strong relationship between the implementation of Project-Based Learning (PBL) integrated with physical activities and improvements in students' learning outcomes and confidence levels. These

findings provide valuable insights into how PBL combined with physical activities can serve as an effective approach to enhancing academic achievement and boosting students' self-confidence.

Table 3. The Result of Normality and Homogeneity Test of Research Data

Variables	Group	Test	Sig. of Saphiro-Wilk test	Levene statistic
Learning Achievement	Experimental group	Pre-test	0.100	0.695
		Post-test	0.095	
	Control group	Pre-test	0.060	
		Post-test	0.175	
Self-confidence	Experimental group	Pre-test	0.870	0.081
		Post-test	0.785	
	Control group	Pre-test	0.893	
		Post-test	0.285	

Table 3 shows the results of normality and homogeneity tests conducted to ensure that the pre-test and post-test data in the experimental group and control group follow a normal distribution. From the data, the normality and homogeneity values for both groups were obtained >0.05, which indicates that both variables have homogeneous variances based on the Levene Statistic value which is also >0.05. Parametric statistical tests using the t-test on the IBM SPSS 22 program were conducted to analyze significant differences in learning outcomes and confidence levels among the students.

Table 4. Frequency, Mean of Students' Learning Achievement and Self-Confidence

NO	Variables		Pre-test		Post-test		Mean Differen Pre- and Post-test Exp. Within	T-Value Pre- and Post within Exp. (Sig.)	Mean different Pre and Post-test Cont Within	Pre- and Post-test within Cont. (Sig.)	Mean Difference Pre- and Post-test between Exp. & Cont.	T-Value Post-test between Exp. & Control (Sig.)
			Mean Exp	Mean Cont	Mean Exp	Mean Cont						
1	Learning Achievement		49,05	49,65	58,15	49,20	9.100	2.161	0.450	0.115	8.650	1.625
								0.00		0.152		0.015
	a	Excellent	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	b	Very Good	71.00	0.00	75.00	0.00	4.00	2.00	0.001	0.00	4.00	2.00
	c	Good	61.50	60.42	63.12	60.43	1.620	0.001	0.001	0.001	1.619	0.001
	d	Fair	47.60	50.12	50.42	48.62	2.820	1.520	1.500	1.51	1.32	1.500
	e	Poor	30.00	32.00	40.00	29.00	10.00	3.00	3.00	3.00	7.00	3.00
2	Self-confidence total		54.20	50.80	78.05	65.00	23.85	4.50	14.18	3.52	9.67	2.500
								0.00		0.002		0.001
	a	High	28.05	27.15	38.15	30.55	10.10	3.40	3.40	3.40	6.70	3.400
	b	Average	4.45	4.80	4.00	4.90	0.45	0.10	0.10	0.10	0.35	0.10
	c	Low	10.30	12.80	18.10	16.85	7.80	4.05	4.05	4.05	3.75	4.05
3	Gender											
	Learning Achivement	Female	52.4	49.5	56.7	51.3	4.30	1.20	1.80	0.15	2.50	0.50
		Male	50.5	47.6	53.3	49.5	2.80	0.90	1.90	0.30	1.90	0.30
	Self-Confidence	Female	44.9	44.7	53.8	41.7	8.90	2.50	3.00	1.80	5.90	1.95
		Male	53.2	54.6	62.5	56,7	9.30	3.80	2.10	1.60	7.20	2.50

A comprehensive analysis of the learning outcomes and confidence levels of the students was carried out by the author using the independent t-test. This analysis was based on the table that was presented before. This investigation includes a comprehensive assessment of the learning outcomes and levels of confidence exhibited by the pupils. The use of the Project-Based Learning (PBL) strategy in conjunction with physical activities resulted in enhanced learning results for the students, as demonstrated in Table 4 above.

Among the participants in the experimental group, the average difference between the results of the pre-test and the post-test was 9.10. According to the results of the t-test, which had a significance value (Sig.) of 0.000, the statistical value that was created was 2.161, which is lower than the significance level (alpha) of 5%. To the contrary, the mean difference between the scores on the pre-test and the post-test was 0.45 in the group that served as the control. On the other hand, the significance value (Sig.) of 0.152 and the t-test statistic of 0.115 were both higher than the significance level (alpha) of 5%, which indicates that the changes that occurred in the control group were not statistically significant.

The comparison results showed that the experimental group had a statistically significant increase in their scores between the pre-test and post-test, while the control group showed no significant change in their scores. The mean difference in post-test scores between the experimental and control groups was 8.650, with a t-test value of 1.625 and a significant value (Sig.) of 0.015. This shows that problem solving with PBL through physical activity is beneficial in improving students' learning outcomes. Based on these findings, the combination of project-based learning (PBL) with physical activity resulted in a significant increase in student learning outcomes in the experimental group compared to the control group. This is in line with Purnomo et al. (2024), Anwer et al. (2018) and Lee (2023) research, that the problem-based learning model can improve student learning outcomes. Problem solving is an important component in life, therefore problem solving skills must be included in every lesson.

According to the findings of a statistical analysis of the data pertaining to the students' levels of confidence, it was discovered that the implementation of Project-Based Learning (PBL) in conjunction with physical activities had a positive impact on the increase in the students' levels of confidence. Table 4 reveals that the experimental group had a mean difference of 23.85 points between their scores on the pre-test and their scores on the post-test results. This gap exists between the two sets of scores. The value of the significance value (Sig.) is 0.000, and the value of the t-test statistic is 4.50. Both of these values are significant.

The mean difference between the scores on the pre-test and the post-test for the control group was 14.18, with a significant value (Sig.) of 0.002 and a t-test statistic of 3.52. This indicated that the control group was significantly different from the experimental group. Given these facts, it is easy to get the conclusion that there is a statistically significant difference between the mean scores on the pre-test and the scores on the post-test for both groups. This conclusion may be reached because of the way in which these findings have been presented. Due to the fact that the significance values are lower than the threshold of 5%, this is the case.

In addition, the overall difference in post-test scores between the experimental group and the control group is 9.67, which suggests that project-based learning (PBL) that incorporates physical activities has an impact on the students' level of self-assurance. Both the significance value (Sig.) of 0.001 and the t-test statistic of 2.500 provide proof that this difference is statistically significant. Both of these statistics are considered to be statistically significant. These data indicate that, in contrast to the control group, the experimental group had a significant increase in the level of self-assurance displayed by its students as a consequence of the implementation of PBL while they were participating in physical activities.

Students who participated in Project-Based Learning (PBL) with physical activities showed a more substantial improvement in both their academic achievement and their self-confidence, as seen in Table 4. The experimental group's female students achieved an average score of 4.30 with a T-value of 1.20, whereas the group's male students achieved an average score of 2.80 with a T-value of 0.90. This indicates that the female students were more successful in their learning than the male students. Comparatively, the control group exhibited either a slight improvement or even a decline in performance. In the experimental group, female students achieved an average score of 8.90 with a T-value of 2.50, whereas male students achieved an average score of 9.30 with a T-value of 3.80. This indicates that female students had a higher level of self-confidence than male students. According to the standard deviation, the variety in results was more among female students compared to male students in terms of learning accomplishment. On the other hand, the variation was greater among male students in terms of self-confidence. This is a reflection of the fact that the distribution of outcomes within genders is different. Accordingly, the application of project-based learning (PBL) with physical activities has a considerably good impact on enhancing students' learning accomplishment as well as their self-confidence, as indicated by the collection of data. The influence, on the other hand, appears to be more constant for female students in terms of their academic accomplishment, but male students have bigger average improvements in self-confidence, albeit with more diverse results.

Based on the results of research using the Independent t-test, PBL with physical activity significantly affects learning achievement and student confidence. This can be explained that, for Hypothesis 1, PBL improves students' learning achievement.

The null hypothesis (H_{01}) is rejected.

The alternative hypothesis (H_{a1}) is accepted.

For Hypothesis 2, PBL also increases students' self-confidence.

The null hypothesis (H_{02}) is rejected.

The alternative hypothesis (H_{a2}) is accepted.

Meanwhile, Hypothesis 3 shows a difference in impact based on gender, where females experience a greater improvement in learning achievement, while males show a higher increase in self-confidence.

The null hypothesis (H_{03}) is also rejected.

The alternative hypothesis (H_{a3}) is accepted

This study demonstrates the positive impact of PBL with physical activities on students' learning outcomes and self-confidence, with gender-based differences.

Discussion

Based on the research findings, it can be concluded that the implementation of Project-Based Learning (PBL) combined with physical activities significantly impacts the improvement of students' learning achievement and self-confidence. Statistical results show that the experimental group engaged in PBL with physical activities experienced a greater increase compared to the control group, which did not participate in the intervention. This aligns with the findings of Chen & Yang (2019) , which indicated that integrating physical activities into PBL can enhance student engagement, subsequently improving academic achievement and self-confidence. According to Umar & Ko (2022) E-Learning models combined with project-based learning, team cohesion, and flipped learning during the COVID-19 pandemic significantly improved students' cognitive outcomes, which contributed to improved learning achievement. Project-based learning in E-Learning allows students to learn more interactively and applicatively, increasing learning engagement and effectiveness. In addition, PBL techniques increase student engagement by enabling knowledge and information sharing and discussion. Thus, the PBL approach is highly recommended for educational use by students and should be encouraged in universities (Almulla, 2020).

The statistical test results reveal that the experimental group applying PBL with physical activities showed a significant increase in learning outcomes, with a mean difference in pre-test and post-test scores of 9.10 and a significance value of 0.000 (below 5%). In contrast, the control group experienced only minimal improvement, with a mean difference of 0.45 and a significance value of 0.152, which was not significant. This indicates that PBL with physical activities has a more substantial effect on enhancing students' learning outcomes compared to conventional approaches applied to the control group. This improvement is supported by the findings of Al-Bahadli et al. (2023) and Che-Aron & Matcha (2023), who also stated that PBL can increase students' motivation and participation in learning, which contributes to their academic achievement compared to traditional learning. This increase in learning outcomes indicates that PBL with physical activities can optimize students' involvement in the learning process, thus improving their understanding of the material. This supports previous findings that a project-based approach can increase students' motivation and participation, which contributes to better academic achievement.

Regarding self-confidence, the experimental group experienced a highly significant increase (mean difference of 23.85, t-test value of 4.50, and significance value of 0.000), indicating that PBL with physical activities not only enhances learning outcomes but also has a positive effect on students' self-confidence. Conversely, the control group also experienced an increase, but with a smaller mean difference of 14.18 and a significance value of 0.002, which still indicates a significant difference but not as substantial as the experimental group.

This increase in self-confidence aligns with the findings of Durrani et al. (2024) , which highlight the importance of physical activities in boosting students' confidence, enabling them to feel more comfortable speaking or working in teams. In this context, PBL integrated with physical activities provides

students with opportunities to develop their social and emotional skills, positively impacting their confidence.

In more detailed results regarding gender differences, it was found that male students in the experimental group showed greater improvement compared to female students. The mean difference in learning achievement for males was 9.30 with a t-test value of 3.80, while for females it was only 8.90 with a t-test value of 2.50. Similarly, in terms of self-confidence, male students showed a mean difference of 6.80 with a t-test value of 1.62, while female students only had a mean difference of 1.30 with a t-test value of 0.20.

The more significant improvement in learning achievement for females aligns with findings in research that suggest females often outperform males in learning outcomes, especially in structured educational environments involving project-based learning. Research by Namaziandost et al. (2019) shows that female tend to perform better academically compared to male, especially in learning contexts that involve collaboration and active engagement, female outperform male in fluency, and men outperform in accuracy. According to Idrizi et al. (2023), which notes that academic achievement gaps between males and females are often smaller when social and psychological factors are controlled.

On the other hand, the greater improvement in self-confidence for males could be influenced by social and psychological tendencies, where males may feel more comfortable or motivated in contexts involving physical activities. This suggests that gender affects how PBL with physical activities impacts self-confidence. According to Dale et al. (2019), that there is an impact of physical activity on children's self-esteem, highlighting that boys often experience a greater increase in self-confidence due to physical activity, especially in competitive and social environments. These findings are similar to the study by Tanaka (2023) and Slapsinskaite et al. (2020), who observed gender differences in response to project-based approaches with physical activity. Some students tend to be more motivated in contexts involving physical activity, which can affect their learning outcomes and self-confidence. This explanation is in line with Ferro et al. (2023) research which shows that how students assess their academic achievement and pedagogical skills can be influenced by physical activity, the learning approach used, and gender factors. However, Olowookere et al. (2020) cautioned that these differences could be influenced by various factors, including the type of intervention provided and individual social or psychological characteristics.

It is important to note that these results reflect not only gender differences but also the type of intervention (experimental vs. control). Compared to the control group, both males and females in the experimental group showed greater improvements, with females excelling in learning outcomes and males benefiting more significantly in self-confidence. Therefore, further research is needed to explore the social, psychological, and pedagogical factors that influence gender differences in learning outcomes and student self-confidence

Conclusions

Based on the research findings, it can be concluded that the implementation of Project-Based Learning (PBL) combined with physical activities has a significant impact on improving students' academic achievement and self-confidence. Through this approach, students are not only able to overcome learning challenges more effectively but also develop their psychomotor, cognitive, and critical thinking skills. This creates a strong foundation for both academic progress and personal development.

The role of educators in this process is crucial, as they are responsible for designing an education system that is responsive to advancements in science and technology. Educators must continually update their skills and knowledge to adapt teaching methods that meet students' needs, one of which is by applying PBL, proven to effectively enhance students' self-confidence and academic achievement.

The success of education largely depends on the creativity and responsibility of teachers in facing existing challenges. Teachers who can adjust teaching methods to students' needs are able to create an environment that stimulates intellectual and emotional development, as well as improve their learning outcomes. Therefore, well-planned lessons, the use of relevant technology, and supportive relation-

ships between teachers and students are critical to improving academic achievement and self-confidence.

In addition, the development of teachers' professionalism is becoming increasingly important due to the continuous evolution of curriculum and technology. Teachers must be able to participate in training and enhance their skills to contribute more to educational and social progress. With an approach like PBL, it is expected that students will not only achieve better academic results but also build deep self-confidence.

The application of PBL with physical activities has proven to have a significant positive impact on improving students' learning outcomes and self-confidence. Therefore, investment in teacher professional development and the adjustment of the education system to be more responsive are crucial to creating a generation that is skilled, creative, and ready to face future challenges.

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