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The Influence of the Play–Teach–Play Model on Students' Freestyle Swimming Skills

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ABSTRACT

This study aims to determine the effect of the Play–Teach–Play (PTP) model on Students' Freestyle Swimming Skills. The research method used was an experimental approach with a One Group Pretest pretest-posttest design, involving 32 third-grade students from SDN Bagendit 1 as research samples selected through purposive sampling. The instrument used was an observation sheet of basic aquatic skills, which included aspects of body position, leg movement, arm movement, and breathing. The results showed a significant improvement in freestyle swimming skills after the implementation of the Play–Teach–Play model. The Paired Sample t-test yielded a significance value of 0.000 ($p < 0.05$), with the mean score increasing from 11.19 (pretest) to 18.16 (posttest), resulting in a gain of 6.97. This finding proves that the Play–Teach–Play model is effective in improving students' freestyle swimming skills through the stages of play, technical instruction, and reapplication in the form of enjoyable games. It can be concluded that the Play–Teach–Play model has a significant effect on enhancing students' freestyle swimming skills.

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INTRODUCTION

Physical education is an essential component of the education system that plays a vital role in developing students' physical, motor, cognitive, affective, and social aspects (Sudarsinah, 2021). Through physical education, students not only gain physical fitness but also learn important values such as cooperation, sportsmanship, and responsibility (Hufadz et al., 2025). One area of physical education that provides wide-ranging benefits but often receives less attention is aquatic activity or water sports, such as swimming (Hafina et al., 2019).

Swimming is not merely a sport but also an important life skill. In an archipelagic country like Indonesia, swimming skills are highly relevant to geographical conditions (Wicaksana & Rachman, 2018). Basic aquatic skills such as floating, gliding, and breathing

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techniques form the foundation that must be mastered by students from an early age so they can progress to more complex swimming techniques (Adha, 2020). However, in many schools, aquatic learning faces various challenges in terms of facilities, human resources, and limited teaching methods or models.

Field observations show that many elementary and secondary students have not yet mastered basic aquatic skills optimally. This may be due to several factors, including lack of motivation, fear of water, rigid learning approaches, and limited emotional engagement during the learning process (Sardiyanah, 2020). Traditional and monotonous teaching methods often make students feel pressured and less able to enjoy swimming lessons (Putra & Andala, 2020).

Elementary school students have distinct characteristics — they love to play, are physically active, and have short attention spans (Sabani, 2019). Therefore, fun and interactive teaching approaches are needed to engage them actively and effectively develop their basic aquatic skills (Sawitri et al., 2024). One approach that has gained attention in physical education is the Play–Teach–Play (PTP) model (Permana & Istiadah, Noorlaila, 2018).

This model consists of three main stages: play, to stimulate interest and motivation; teach, to systematically deliver technical instruction; and play again, to apply the learned skills in an enjoyable context (Ningrum, 2020). PTP is adapted from the principles of active learning that integrate students' affective and cognitive engagement through meaningful physical activities (Idawati, 2019). Its strength lies in combining cognitive and motor learning aspects within a playful environment, which is highly relevant for aquatic learning, where feelings of safety, confidence, and enjoyment strongly influence success.

Previous studies have demonstrated the effectiveness of the PTP model in teaching ball games and traditional sports (Butarbutar et al., 2024). However, its application in aquatic learning contexts remains limited and rarely explored in depth. The novelty of this study lies in integrating the Play–Teach–Play model into aquatic learning within a school setting that emphasizes a holistic and contextual approach. Unlike previous studies that focused on field-based games, this research adapts the method to a water environment, which poses unique challenges and characteristics (Karisman et al., 2024).

Furthermore, this study emphasizes the affective and motivational aspects of students as key indicators of learning success, not merely technical outcomes. Thus, the approach not only assesses motor skill improvement but also examines changes in students' attitudes and comfort levels toward water activities—an aspect rarely quantified in other studies (Pohan, 2017) (Pohan, 2017). The study also incorporates game-based visual learning media, such as colourful floaters, floating targets, and challenge-oriented games, to enhance student engagement in each session. Such approaches are still uncommon in aquatic learning literature, which often focuses on technical instruction with little variation.

Given the low level of freestyle swimming skills among students and the lack of teaching methods or models that address children's emotional and psychological needs, this study is both important and relevant. The findings are expected to contribute to the

development of an alternative, practical learning model for physical education teachers, particularly in improving the effectiveness of aquatic instruction. By applying the Play–Teach–Play model systematically, students are expected not only to improve their technical swimming skills but also to develop long-term interest in water activities, confidence, and water safety awareness. This research also aims to bridge the gap between enjoyable learning theories and field practices that are often rigid and teacher-centred.

METHODS

This study employed an experimental method using a One Group Pretest pretest-posttest design, which falls under the category of quasi-experimental research. This design involves a single group of subjects who are first given a pretest to measure their initial condition before the treatment is administered. The same group then receives a specific treatment that becomes the focus of the research. Afterwards, a posttest is conducted to determine any changes or effects resulting from the treatment. This design allows the researcher to compare the results before and after the treatment within the same group, thereby providing an overview of the treatment's effectiveness, even though it does not include a control group for comparison.

The population in this study consists of all third- to sixth-grade students at SDN Bagendit 1 who participate in swimming learning activities. This range of grades was chosen because students at these levels generally possess adequate physical readiness, motor coordination, and basic abilities to engage in structured swimming lessons. In addition, they regularly participate in swimming activities that are part of the school's physical education program. The sample of the study was determined using a purposive sampling technique, which involves selecting participants based on specific considerations or criteria relevant to the research objectives. From this population, 32 students who met the established criteria were selected as the research sample. The criteria for selecting the sample were as follows: Actively participating in regular swimming lessons at school; Having a basic level of swimming ability (not yet mastering all techniques of the freestyle stroke); Being in good physical health and condition, allowing them to take part in the entire training program without risk of injury; Falling within the appropriate age and motor development range for applying the Play–Teach–Play model (approximately 8–12 years old); Having obtained permission from parents or guardians to participate in the study and swimming activities. The classes whose students met these criteria were included proportionally, resulting in a total of 32 participants. This number was considered representative of the basic swimming skills of elementary school students who actively participate in swimming activities.

The instrument used in this study was adapted from Ernawan (2013), designed to assess students' basic freestyle swimming skills. There are four evaluation indicators: body position, leg movement, arm movement, and breathing. Each indicator is scored on a 1–4 scale, with higher scores indicating better performance.

This study employed an experimental method with a One Group Pretest-Posttest Design approach. The research procedure was carried out in three main stages, namely:

Pretest

In this stage, the researcher conducted an initial measurement of students' freestyle swimming ability before the treatment was given. The test used an observation sheet or evaluation instrument covering several aspects, including body position, leg movement, arm movement, and breathing. The purpose of the pretest was to determine the students' initial ability level as a baseline for comparison after the treatment.

Treatment Using the Play Teach Play (PTP) Model

The treatment was conducted over 12 sessions, applying the Play Teach Play learning model. Each session consisted of three main phases: Play 1 (Initial Play): Students engaged in enjoyable water activities such as chasing balls, walking in water, or object relays. The goal was to build comfort and motivation in the aquatic environment. Teach (Instruction Phase): The teacher delivered fundamental swimming techniques gradually, including face immersion, gliding, breath-holding, and leg movements. Students practiced the techniques in a structured manner under the teacher's guidance. Play 2 (Play with Technique): Students played again by applying the learned techniques in fun activities such as gliding races, line swimming, or technical relays. This phase reinforced skills naturally through play.

Posttest

After completing all treatment sessions, the researcher re-measured the students' freestyle swimming ability using the same instrument as in the pretest.

Data analysis aimed to determine the effect of the Play Teach Play model on students' basic aquatic abilities. The first step was testing data normality using the Shapiro-Wilk test to ensure a normal distribution. If the Sig. Value> 0.05, the data were considered normally distributed, and analysis continued using the Paired Sample t-Test (Analyze → Compare Means → Paired-Samples T Test). The result was interpreted from the Sig. (2-tailed) value: if Sig. < 0.05, it indicated a significant effect, meaning the Play Teach Play model effectively improved students' basic aquatic abilities. Conversely, if the data were not normally distributed (Sig. < 0.05), the Wilcoxon Signed Rank Test was used as a non-parametric alternative.

RESULTS AND DISCUSSION

Result

Descriptive Analysis

This section presents the results of the descriptive analysis of the participants' freestyle swimming ability. The descriptive analysis was conducted to provide an overview of the pretest and posttest data obtained from 32 participants. This data was used to determine the extent of improvement in freestyle swimming skills after the implementation of the designed training program or treatment. The analysis includes the calculation of the mean (M), total score (ΣX), and standard deviation (σ) from the pretest, posttest, and gain scores (the difference between the two). The complete descriptive analysis results of the freestyle swimming skills are presented in Table 2 below:

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Table 1.
Descriptive Analysis

Variable	Statistical Source	Pretest	Posttest	Gain
Freestyle Swimming	N	32	32	32
	M	11,19	18,16	6,97
	ΣX	358	581	223
	σ	1,768	1,868	1,402

Based on Table 2, which presents the descriptive analysis of freestyle swimming ability data, information regarding the pretest, posttest, and gain scores from 32 participants was obtained. The mean score (M) during the pretest was 11.19, indicating that the participants' initial ability in freestyle swimming was still relatively low. After the treatment or training program was administered, the posttest mean increased to 18.16, showing a significant improvement in freestyle swimming skills. The difference between the two, or the gain, was 6.97, reflecting the average improvement in participants' abilities after completing the program.

The total score (ΣX) also showed an increasing trend, from 358 in the pretest to 581 in the posttest, with a difference of 223. This further confirms that, in general, all participants experienced progress in their freestyle swimming skills. The standard deviation (σ) in the pretest was 1.768, while in the posttest it was 1.868, indicating that the distribution of participants' scores in both tests was relatively homogeneous, with a slight increase in variation after treatment. The gain's standard deviation of 1.402 suggests that the improvement in abilities among individuals was relatively consistent, with no significant disparities between students.

Normality Test

Before conducting the hypothesis test, a normality test was first performed on the pretest and posttest data of freestyle swimming skills. The normality test aims to determine whether the research data are normally distributed or not. In this study, the Shapiro–Wilk test was used because the sample size consisted of 32 participants, which is more appropriate for samples below 50. The decision criterion is that if the significance value (Sig.) is greater than 0.05, the data are considered to be normally distributed. The results of the normality test using the Shapiro–Wilk method are presented in Table 3 below.

Table 2.
Results of the Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Preetest	.110	32	.200*	.979	32	.763
Posttest	.134	32	.153	.960	32	.283

Based on the results of the normality test using the Shapiro–Wilk method, the significance value for the pretest data was 0.763, and for the posttest data was 0.283. Since both significance values are greater than 0.05, it can be concluded that the data are normally distributed. Therefore, the data meet the normality assumption, and the subsequent analysis can use a parametric test, namely the Paired Sample t-test.

Hypothesis Testing

After the data were confirmed to be normally distributed based on the normality test results, the next step was to conduct a hypothesis test to determine whether there was a significant difference between the pretest and posttest results of the participants' freestyle swimming ability. The hypothesis test used was the Paired Sample t-test, as the data were obtained from two measurements taken from the same group, before (pretest) and after (posttest) the treatment. The decision-making criteria are as follows: If the Sig. (2-tailed) value < 0.05, there is a significant difference between the pretest and posttest results. Conversely, if the Sig. (2-tailed) value > 0.05, there is no significant difference. The complete results of the Paired Samples t-test are presented in Table 4 below.

Table 3.
Results of the Tests of Normality

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Preetest - Posttest	-6.969	1.402	.248	-7.474	-6.463	-28.110	31	.000

Based on the results of the Paired Sample t-test, the significance value (Sig. 2-tailed) was 0.000, which is smaller than 0.05 ($p < 0.05$). This indicates that there is a significant difference between the pretest and posttest results of students' freestyle swimming skills. The mean difference value of -6.969 shows that the posttest scores increased compared to the pretest scores. Therefore, it can be concluded that there was an improvement in freestyle swimming skills after the treatment was applied.

Results of the Paired Sample t-test showed a significant improvement in freestyle swimming skills after the implementation of the Play-Teach-Play (PTP) learning model. The significance value of 0.000 ($p < 0.05$) indicates a statistically significant difference between the pretest and posttest results. The increase in the mean score from 11.19 to 18.16 demonstrates that the PTP approach was effective in enhancing the participants' technical ability and performance in freestyle swimming.

The Play-Teach-Play model begins with a play-based experience, where participants are introduced to game-like situations that resemble real swimming contexts without excessive technical pressure. The "Teach" phase then provides an opportunity for learners to acquire proper swimming techniques—such as body positioning, arm-leg coordination, and breathing rhythm. In the final "Play" phase, participants apply the skills they have learned back into a game-based setting. This cyclical process has proven effective as it integrates enjoyment, repetitive practice, and direct feedback from the instructor.

These findings align with motor learning theory (Schmidt, R. A., & Lee, 2005), which states that motor skills develop optimally through repetitive practice, feedback, and

application in real-life situations. In this study, participants improved their abilities through meaningful and systematic movement repetition, where the play phases helped reinforce motor patterns and fostered a natural understanding of movement.

Furthermore, according to the principles of sports training (Bompa & Buzzichelli, 2019), physical and technical performance improves most effectively when training follows the principles of specificity, overload, and continuity. The PTP model embodies all three principles: play activities relevant to freestyle swimming (specificity), gradual increases in challenge (progressive overload), and sustained repetition and application throughout the learning process (continuity).

From a psychological perspective, this model also has a positive impact on motivation and self-confidence. Referring to self-efficacy theory (Bandura, 1997), success during the play stages enhances participants' belief in their swimming skills. This confidence, in turn, motivates them to be more engaged and focused during the "Teach" phase and more prepared to apply their skills during the final "Play" stage.

These findings are consistent with Putra & Wibowo (2021), who found that game-based learning models significantly improve swimming skills by creating an active and enjoyable learning environment. Similarly, Nugroho (2020) reported that coordination- and fun-based training enhances swimming skills while reducing water anxiety. Moreover, Rahayu & Prasetyo (2022) emphasized that direct feedback from coaches in a game-based context accelerates the development of correct motor patterns.

Thus, the Play–Teach–Play model can be regarded as an effective and comprehensive approach to teaching freestyle swimming because it integrates principles of motor learning theory, sports training theory, and learner psychology. The significant improvement verified by statistical analysis ($p = 0.000$) reinforces that a game-based approach combined with technical instruction produces better learning outcomes compared to traditional training methods.

CONCLUSION

Based on the research results and data analysis, it can be concluded that the implementation of the Play–Teach–Play (PTP) learning model has a significant effect on improving freestyle swimming skills. The Paired Sample t-test produced a significance value of 0.000 ($p < 0.05$) with an increase in the mean score from 11.19 (pretest) to 18.16 (posttest) and a gain of 6.97. The PTP model proved effective by combining play experiences with technical instruction and subsequent application through games. This process not only enhances freestyle swimming technique but also develops motor coordination, muscular strength, tactical understanding, and participants' learning motivation.

Theoretically, these results support motor learning theory and principles of sports training, emphasizing the importance of repetition, feedback, and progressive adaptation to training loads. The application of the PTP model strengthens movement patterns through direct experience, thereby increasing the effectiveness of skill

learning. Therefore, the Play–Teach–Play model can be recommended as an efficient and engaging learning strategy, suitable for swimming training and other sports requiring complex motor coordination.

Practically, the findings of this study offer important implications for various stakeholders. Swimming coaches can apply the PTP model as a more interesting and effective training strategy. Physical education teachers are encouraged to use this model to create active and meaningful learning experiences that match students' characteristics. Additionally, sports institutions and schools can use these findings as a basis for designing play-based training programs that foster both motivation and motor skill development. Future research is recommended to involve a larger sample size, include additional variables such as motivation, coordination, or muscular strength, and test the model's effectiveness in other swimming styles or sports to broaden the generalizability of the findings.

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