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Improving Freestyle Swimming Skills Through Integrated Training Methods (Block Practice, Random Practice, and Video Feedback) for Children Aged 8-10

Aditya Wibowo[1], Widiastuti[2], Nofi Marlina Siregar[3]

[1,2,3] Fakultas Ilmu Keolahragaan dan Kesehatan, Universitas Negeri Jakarta, Indoneisia

email: aditya.wibowo@mhs.unj.ac.id[1] , widiastuti@mhs.unj.ac.id[2] , nofims@mhs.unj.ac.id[3]

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Abstract

This study aims to improve freestyle swimming skills in children aged 8-10 years through the implementation of an integrated training method (block practice, random practice, and video feedback). The background of this research is the presence of technical stagnation, children's boredom due to repetitive instructional methods, and their confusion in understanding verbal corrections from coaches.This action research employs the Kemmis and McTaggart model,conducted in two cycles consisting of planning, action, observation, and reflection stages. The research subjects consisted of 20 students from the Ash-Shiddiqiyyah Islamic Elementary School Swimming Club. Data were collected using freestyle swimming skill tests with a success indicator defined as at least 80% of students achieving the "Good" category.The results showed a very significant improvement in skills. In the pre-cycle stage, classical completeness was 0%, with all students (20 children) only reaching the "Fair" category. In Cycle I, completeness increased to 70%, with 14 students achieving the "Good" category. After improvements indiscipline and a more comprehensive movement evaluation focus, the completenesslevel in Cycle II increased to 95%, with 19 students in the "Good" category. In conclusion, the integrated training method proved to be highly effective in addressing technical stagnation and improving freestyle swimming skills in children aged 8-10 years. Future research is recommended to examine the long-term retention of swimming skills, compare the effectiveness of individual and integrated training methods, and involve larger and more diverse participant groups to enhance the generalizability of the findings.

Keywords: *Freestyle swimming, Integrated training method, Block practice, Random practice, Video feedback, Children aged 8–10 years.*

INTRODUCTION

Swimming is an essential life skill that contributes to physical health, personal safety, and overall human development. In Indonesia, swimming is recognized as an important component of physical education that supports both sport achievement and national health outcomes (Rezki et al., 2022). As a maritime nation, where approximately two-thirds of the

Alamat Koresponden : Universitas Negeri Jakarta, Indonesia
Email : aditya.wibowo@mhs.unj.ac.id

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territory consists of water, swimming competence is particularly important for preventing drowning and other water-related accidents. According to the Indonesian Pediatric Society (2023), drowning is the second leading cause of accidental death among individuals aged 1–24 years in Indonesia. This problem is closely associated with the limited provision of structured water orientation and swimming instruction during childhood (Cenderadewi et al., 2023). Consequently, the development of swimming skills from an early age through families, schools, and swimming clubs has become a critical educational and public health priority.

The importance of swimming education is also reflected in the practices of educational institutions. Based on an interview with the principal of Ash-Shiddiqiyyah Islamic Elementary School, swimming is a mandatory activity incorporated into the curriculum, extracurricular programs, and sports development pathways because it is considered one of the sports recommended in Islam. Beyond its educational and cultural value, swimming provides substantial benefits for children's physical, motor, cognitive, social, and emotional development. According to Meinel and Schnabel (2018), children aged 8–10 years' experience rapid progress in motor learning abilities. Participation in swimming activities during this developmental stage has been shown to enhance flexibility, balance, muscular endurance, motor coordination, and cognitive functioning (Sinclair & Roscoe, 2023). Therefore, effective swimming instruction is particularly important for children in this age group.

Among the various swimming strokes, freestyle is considered the most appropriate stroke for initial instruction. Maglischo (2003) argued that freestyle resembles fundamental human locomotor patterns such as walking and running, making it easier for children to learn than breaststroke or butterfly stroke, which require more complex simultaneous movements and higher levels of coordination. Freestyle swimming promotes body alignment, arm-leg coordination, breathing control, flexibility, and body awareness, all of which support motor development in children (Nikšić et al., 2020; Lusianti, 2024). However, previous studies have shown that novice swimmers frequently experience technical difficulties, including poor body positioning, inefficient arm movements, improper breathing techniques, and inadequate coordination between arm and leg actions (Nikšić et al., 2020). Similar findings emerged from a preliminary observation conducted at the Ash-Shiddiqiyyah Islamic Elementary School Swimming Club, where children aged 8–10 years

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demonstrated non-streamlined body positions, excessive splash-producing kicks, inefficient arm strokes, ineffective breathing patterns, and poor movement coordination. In addition, many children reported boredom resulting from repetitive practice activities and expressed difficulty understanding verbal corrections provided by coaches, indicating limitations in the instructional approaches currently employed.

These findings suggest the need for more innovative and integrated teaching strategies to address both technical deficiencies and motivational challenges in swimming instruction. Previous studies have demonstrated the effectiveness of individual training methods such as blocked practice (Arifin et al., 2023), part practice (Arifin et al., 2024), part and whole practice (Putri & Hartoto, 2020), and repetitive drills combined with peer feedback (Tyas & Mashud, 2025) in improving swimming performance. Nevertheless, two important research gaps remain. First, most existing studies have examined single instructional approaches rather than integrated training programs. Second, limited attention has been given to the improvement of freestyle swimming skills among children aged 8–10 years. Recent evidence indicates that the integration of multiple pedagogical and digital approaches is more effective than the application of a single method in enhancing swimming learning outcomes (Ahmad, 2025). Furthermore, Shea and Morgan (1979) emphasized that integrated practice conditions facilitate long-term motor learning, while Magill and Anderson (2016) highlighted the importance of varied practice in reducing boredom associated with repetitive activities. Therefore, investigating the integration of block practice, random practice, and video feedback offers a promising approach to improving freestyle swimming skills among children aged 8–10 years while simultaneously increasing engagement and learning effectiveness).

METHOD

This study employed an Action Research design based on the Kemmis and McTaggart model, consisting of four iterative stages: planning, action, observation, and reflection. The study was conducted at the Ash-Shiddiqiyyah Islamic Elementary School Swimming Club, Ciputat, South Tangerang, Indonesia, from March to May 2026. The participants were 20 children aged 8-10 years who regularly attended swimming training sessions and met the predetermined inclusion criteria.

A preliminary phase was conducted through observations, interviews, and program document reviews to identify technical and instructional problems in freestyle

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swimming learning. Based on these findings, an integrated training method combining block practice, random practice, and video feedback was designed and implemented. The intervention was carried out in one action cycle, with the success criterion defined as an improvement in freestyle swimming skills among at least 80% of participants. Each training session consisted of warm-up activities (10 minutes), dryland exercises (15 minutes), random practice (10 minutes), block practice (20 minutes), advanced random practice (10 minutes), video feedback sessions (20 minutes), and cool-down activities (5 minutes).

Data were collected using a quantitative approach through pre-cycle and post-cycle freestyle swimming skill tests. Participants' performances were assessed by experienced swimming coaches based on five technical dimensions: body position, leg movement, arm movement, breathing technique, and movement coordination. In addition, structured observations were conducted weekly to monitor the implementation of the training program and participants' responses to the intervention. Supporting data were obtained from observation sheets, field notes, and video recordings of training sessions.

The collected data were analyzed using descriptive and comparative techniques by comparing participants' performance before and after the intervention. The effectiveness of the integrated training method was determined by improvements in freestyle swimming skill scores and the achievement of the predetermined success indicator, namely that at least 80% of participants demonstrated enhanced freestyle swimming performance following the intervention.

Table 1. Freestyle Swimming Skill Assessment Instrument

No	*Dimension*	*Indicator*	*Indicator Description*
1	Leg Movement Technique	Upper Leg Position	• The movement axis is located at the hip joint. • The angle between the right and left legs ranges from 30–35 degrees. • The legs move up and down alternately. • Proper downward kicking rhythm is maintained.
		Lower Leg Position	• The lower leg moves downward until the knee is fully extended. • The ankle remains relaxed and the top of the foot is pointed. • The lower leg and foot move through the water downward and upward in opposite directions. • The transition between downward and upward movements occurs instantly without pause.
2	Arm Movement Technique	Upper Arm Position	• The lower leg moves downward until the knee is fully extended. • The ankle remains relaxed and the top of the foot is

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			pointed. • The lower leg and foot move through the water downward and upward in opposite directions. • The transition between downward and upward movements occurs instantly without pause.
		Forearm Position	• The hand catches the water with a relaxed wrist and slightly separated fingers. • The hand and wrist appear relaxed during recovery above the water, and upon water entry the fingers angle slightly downward. • The hand follows an “S-shaped” pathway (sweeping slightly outward, moving inward beneath the chin, then pushing backward). • During recovery, the hand reaches far forward with the fingertips entering the water first.
3	Body Position Technique	Body Position	• The body glides horizontally and straight forward along the water surface. • The body remains in a streamline position: head, trunk, and legs aligned in a straight line approximately 15 cm below the water surface. • Body roll occurs alternately to the left and right, with one shoulder lifting out of the water to facilitate arm recovery. • Body rotation appears relaxed and flows naturally with the rhythm of the arm stroke.
4	Breathing Technique	Head Position	• The head rotates only to the right or left side following the spinal axis and shoulder rotation, without lifting or looking forward. • The head remains low and aligned with the water surface, with at least one ear remaining in the water during breathing. • The face turns to breathe during the latter half of the pull phase and immediately returns into the water before the recovery phase. • Exhalation occurs while the face is directed toward the pool bottom, and inhalation is taken quickly through the mouth when the face reaches the water surface.
5	Movement Coordination	Coordination of Legs, Arms, Body, and Breathing	• Flutter kick is performed continuously and in coordination with one complete arm stroke cycle, without interruption. • The head rotates sideways for breathing simultaneously with shoulder rotation at the end of the arm pull phase (push phase), while the opposite arm remains extended forward. • The face immediately returns toward the pool bottom simultaneously with the recovering arm above the water surface. • Breathing, arm movements, and leg movements are performed smoothly following body roll without lifting or looking upward, maintaining a streamline body position.

Scoring Criteria

- Score 4 (Very Good): Performs all 4 movement components correctly according to the description of each sub-indicator.
- Score 3 (Good): Performs 3 movement components correctly according to the description of each sub-indicator.

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- Score 2 (Fair): Performs 2 movement components correctly according to the description of each sub-indicator.
- Score 1 (Poor): Performs 1 movement component correctly according to the description of each sub-indicator.

Table 2. Freestyle Swimming Skill Assessment Criteria

Final Score	*Category*
1-3	Poor
4-6	Fair
7-8	Good
9-10	Very Good

(Brus et al., 2026)

The freestyle swimming skill assessment instrument was developed based on theoretical indicators of freestyle swimming technique and underwent a content validity evaluation through an expert judgment procedure prior to implementation. The validation process involved experts in sports measurement and evaluation as well as swimming instruction to assess language appropriateness, rubric clarity, and the relevance of the assessment dimensions, including leg movement, arm movement, body position, breathing technique, and movement coordination. The results of the validation confirmed that all indicators were relevant, representative, and appropriate for measuring the freestyle swimming skills of children aged 8-10 years.

Instrument reliability was examined through inter-rater reliability testing involving three raters who assessed 20 participants. Data were analyzed using the Intraclass Correlation Coefficient (ICC) with a two-way mixed effects model. The analysis produced a Cronbach's Alpha coefficient of 0.893, indicating excellent internal consistency. The ICC values for single measures and average measures were 0.735 and 0.893, respectively, with both coefficients reaching statistical significance ($p < 0.001$). Furthermore, the ANOVA results showed no significant differences among raters ($F = 0.499$; $p = 0.611$), indicating a high level of scoring agreement. Therefore, the instrument was considered reliable, objective, and suitable for use in assessing freestyle swimming skills. Data analysis employed a mixed-methods approach, integrating quantitative and qualitative procedures. Quantitative analysis included the Shapiro-Wilk normality test, followed by either a paired-samples t-test or the Wilcoxon Signed-Rank Test depending on data distribution, as well as effect size calculations to determine the practical impact of the

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intervention. Qualitative analysis was conducted descriptively using structured observations, field notes, and video feedback documentation to support the evaluation and reflection process throughout the action research cycles.

RESULT

The pre-test results revealed that all participants (100%) were categorized as fair, while none achieved the good category. These findings indicated inadequate mastery of fundamental freestyle swimming skills, particularly in body position (streamline), kicking technique, arm stroke coordination, and breathing mechanics.

Table 3. initial test data

Amount	Category	
	Fair	Good
20	20	0

During Cycle I, the intervention was implemented through six training sessions focusing on body position, kicking technique, body rotation, arm stroke mechanics, movement coordination, breathing technique, and the integration of all freestyle swimming components. The post-test results demonstrated a substantial improvement in swimming performance. A total of 14 participants (70%) achieved the good category, whereas 6 participants (30%) remained in the fair category. Although the intervention produced a 70% improvement compared to the baseline condition, it did not yet reach the predetermined success criterion of 80%. Qualitative observations revealed several factors contributing to this outcome, including student absenteeism due to illness, limited concentration during training sessions, and the relatively general implementation of block practice, which had not yet addressed individual technical deficiencies.

Table 4. Comparison Data of Initial Test and Cycle I

Amount	Initial Test		Cycle 1	
	Fair	Good	Fair	Good
20	20	0	6	14

Based on the reflection findings from Cycle I, several modifications were introduced in Cycle II. These included improving student discipline, implementing more individualized block practice according to specific technical weaknesses, increasing task

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variability during random practice, and utilizing video feedback to evaluate whole-body movement coordination rather than isolated technical components. Following three intervention sessions and one evaluation session, the results showed further improvement. A total of 19 participants (95%) achieved the good category, while only 1 participant (5%) remained in the fair category.

Table 4. Comparison Data of Initial Test and Cycle I

Amount	Cycle 1		Cycle 2	
	Fair	Good	Fair	Good
20	6	14	1	19

Comparative analysis across the three assessment phases demonstrated a consistent upward trend in swimming skill mastery. The percentage of participants achieving the good category increased from 0% in the pre-test, to 70% in Cycle I, and finally to 95% in Cycle II. Therefore, the research successfully exceeded the predetermined success criterion of 80%. Qualitative findings from field observations further supported the quantitative results. Participants demonstrated notable improvements in discipline, concentration, motivation, and engagement throughout the training process. The use of video feedback enabled participants to identify and correct movement errors through visual self-assessment, while individualized block practice effectively addressed specific technical weaknesses. In addition, the increased variability incorporated into random practice enhanced motor adaptation and reduced training monotony.

Overall, the findings indicate that the integrated training method combining block practice, random practice, and video feedback was highly effective in improving freestyle swimming skills among children aged 8–10 years. The proportion of participants achieving the desired performance category increased from 0% at baseline to 95% at the end of Cycle II, confirming the effectiveness of the intervention and fulfilling the study's success criteria.

DISCUSSION

The findings of this study demonstrate that the integrated training method, combining block practice, random practice, and video feedback, effectively improved freestyle swimming skills among children aged 8–10 years. Prior to the intervention, all

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participants were classified in the fair category, indicating limitations in fundamental swimming techniques such as body position, kicking mechanics, arm coordination, and breathing control. These initial difficulties align with the findings of Nikšić et al. (2020), who highlighted that novice young swimmers frequently struggle with body positioning and inter-limb coordination due to developing motor abilities. Following Cycle I, the proportion of participants achieving the good category increased to 70%, suggesting that the integration of repetitive skill practice, variable training tasks, and visual feedback facilitated meaningful improvements in motor learning and technical performance. This notable improvement supports the argument by Ahmad et al. (2025), who asserted that integrating pedagogical approaches with visual evaluation tools provides a more powerful framework for skill acquisition than relying on a single, isolated instructional method.

Although substantial progress was observed during Cycle I, the predetermined success criterion of 80% had not yet been achieved. Field observations indicated that absenteeism, inconsistent concentration, and the relatively general implementation of block practice limited the overall effectiveness of the intervention. To address these issues, Cycle II emphasized greater training discipline, individualized block practice based on specific technical weaknesses, and a more comprehensive use of video feedback that focused on whole-body movement coordination rather than isolated technical components. These modifications enabled participants to better understand and correct their movement patterns, resulting in 95% of participants achieving the good category by the end of Cycle II. The marked improvement between cycles highlights the importance of personalized instruction and targeted feedback in the acquisition of swimming skills. This outcome reinforces earlier studies by Arifin et al. (2023) and Tyas & Mashud (2025), which demonstrated that structured repetition combined with targeted feedback allows learners to refine movement mechanics rapidly. Video feedback provided immediate visual reinforcement, enabling young swimmers to construct correct mental models of proper body alignment and propulsion.

Overall, the progression from 0% at baseline to 70% in Cycle I and 95% in Cycle II confirms the effectiveness of the integrated training method for enhancing freestyle swimming performance in young swimmers. The combination of structured repetition through block practice, increased contextual interference through random practice, and visual self-evaluation through video feedback provided a comprehensive learning

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environment that supported both technical improvement and learner engagement. Furthermore, the increased variability of training activities helped reduce boredom and maintain motivation throughout the intervention. These findings suggest that integrated training approaches can be considered an effective strategy for improving motor skill acquisition, movement coordination, and training participation among children learning freestyle swimming.

CONCLUSION

This study demonstrated that the integrated training method combining block practice, random practice, and video feedback effectively improved freestyle swimming skills among children aged 8–10 years at the Ash-Shiddiqiyyah Islamic Elementary School Swimming Club. The intervention increased the proportion of participants achieving the Good category from 0% in the pre-cycle stage to 95% in Cycle II, exceeding the predetermined success criterion of 80%. The combination of structured practice, varied training tasks, and visual feedback helped participants improve technique, coordination, learning engagement, and error correction. Therefore, this integrated training method can be recommended as an effective instructional approach for developing freestyle swimming skills in beginner swimmers. Future research is recommended to examine the long-term retention of swimming skills, compare the effectiveness of individual and integrated training methods, and involve larger and more diverse participant groups to enhance the generalizability of the findings.

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