

**Improving Footwork Learning Outcomes in Badminton Through Shuttle Run Training Model Among Eighth Grade Students of State Junior High School 13 Palopo****Dery Nugroho Zulkarnain^{1✉}, Irsan Kahar², Nur Saqinah Galugu³**Physical Education, Faculty of Teacher Training and Education, Muhammadiyah University of Palopo, Indonesia¹²³**Article History**

Received July 2024

Accepted October 2024

Published Vol.13 No.(3) 2024

Keywords:

Badminton; Learning Outcomes; Footwork; Shuttle Run Training

Abstract

The purpose of this study is to determine whether shuttle run training can improve footwork learning outcomes in badminton among eighth grade students of State Junior High School 13 Palopo. This study was conducted at State Junior High School 13 Palopo over a period of 1 month. The research employed Classroom Action Research (CAR) methods, encompassing two cycles, each consisting of two meetings. The research population comprised eighth grade students of State Junior High School 13 Palopo, with a total of 13 students, including 7 boys and 6 girls. The instruments or measurement tools used in this study included rackets, shuttlecocks, and cones. The assessment points utilized affective, cognitive, and psychomotor evaluation sheets. The results obtained through two cycles showed that in the first cycle, 7 students met the Minimum Mastery Criteria (MMC) while 6 students did not. However, in the second cycle, 12 students met the MMC and 1 student did not. The MMC was determined based on the lesson plan prepared by the school teacher, where a score of ≥ 77 meets the MMC and a score of ≤ 77 does not meet the MMC. Based on this criterion, from the second cycle, 12 students met the MMC and 1 student did not meet the MMC out of a total of 13 students based on the three domains tested, namely cognitive, affective, and psychomotor, the average score was 82.5.

How to Cite

Zulkarnain, D., N., Kahar, I., & Galugu, N., S. (2024). Improving Footwork Learning Outcomes in Badminton Through Shuttle Run Training Model Among Eighth Grade Students of State Junior High School 13 Palopo. *Journal of Physical Education, Sport, Health and Recreation*, 13 (3), 462-469.

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INTRODUCTION

Education is an organized effort aimed at creating a learning environment and educational processes so that students can proactively optimize their potential to gain spiritual religious strength, self-control, character, intellectual capacity, moral goodness, and skills needed by themselves and society. Education is not only considered an effort to provide information and develop skills but has also evolved to include efforts to meet the goals, needs, and abilities of individuals to achieve meaningful personal and societal existence.

Education is a sincere effort to help others achieve independence and mental maturity so they can endure the challenges of life. Education results from the instruction and guidance of adults to others, impacting their growth, independence, and mental development. Furthermore, education involves activities to assist individuals in discovering their full potential, facilitating a process of human growth that enables them to compete in their life domain (Syamsul, 2017)

Physical education is a discipline that focuses on teaching and learning physical activities and sports in an educational context. The goal of physical education classes is not only to improve students' health, physical fitness, and motor skills but also to foster values such as cooperation, fair play, and discipline. Physical education classes typically consist of two main parts: theory classes and practical classes. Theoretical learning includes knowledge of anatomy, physiology, and sports theory, while practical learning focuses on physical exercises and sports performed by students. Physical education is very important in the education system because it helps improve students' health and well-being and promotes a healthy lifestyle. Additionally, physical education can help students improve concentration and academic performance, as physical activity increases blood flow to the brain and enhances cognitive skills (Abdul et al., 2023).

Physical education is teaching provided through physical activities outdoors. Physical education is crucial because students need to channel their energy into various forms of movement during play (Kartika & Wahyu, 2024). Additionally, students can channel their negative energy into physical activities and transform it into more positive energy.

Badminton is a complex sport that involves a combination of stepping, jumping, hitting, quick movements, running, backward movement, and turning left and right, as well as elements of

strength, speed, endurance, reaction, teamwork, and flexibility. Played with a racket, badminton is played by two or four players in various positions on the court, separated by a net. Badminton is an individual sport that can be played alone or with one partner (doubles), including mixed doubles, using a racket to hit the shuttlecock (Ari & Novitaria, 2020)

Badminton encompasses several important aspects, including basic techniques, stroke techniques, and the elements that form a competent badminton player. To achieve a high level of performance in this sport, it is essential to have a strong understanding and mastery of the basic components, particularly the basic techniques of badminton. This also involves the use of dynamic muscle strength and explosive speed contraction, as well as the ability to generate maximum power in a short period of time (Rachmat et al., 2022). In badminton, the feet play a crucial role as the foundation for quickly moving the body in various directions, enabling the player to reach an ideal position to execute highly efficient shots. The technique of foot movements in badminton is often referred to as footwork (Heri et al., 2023).

Footwork refers to the movement of the feet that is linked with gross motor skills and is crucial for chasing and hitting the shuttlecock to the correct spot on the court with ease. Badminton requires exceptional agility, technical ability, perception, prediction, and extremely fast reactions at the highest levels. Excellent physical skills such as endurance, aerobic capacity, agility, strength, explosiveness, and speed are required from each player (Ghazali & Sugiyanto, 2016). Good footwork is essential for a player's success in badminton because foot movement is performed most frequently. With proper footwork and instruction, students can easily and freely reach all areas of the court. The summary of footwork is the most critical foundation of the quality of a student's play on every stroke made and the overall success of the game plan (Frendy et al., 2019).

Footwork is a method for modifying footsteps to be more successful when playing badminton on the court, as well as the ability to change direction effectively and quickly while running within the court (Wayan & Imam, 2023). Footwork is the technique of coordinating foot movements that players must master in badminton. Proper foot positioning is crucial because if a player is not in position to hit, they won't be able to control the opponent or effectively attack the shuttlecock. It's easier to move around the badminton court with less stamina and energy ex-

penditure (Gusti, 2019)

Based on the observation results in January 2024 by a researcher on the students of State Junior High School 13 Palopo, the initial findings from the data collected before any intervention showed that nearly all students did not achieve satisfactory results. Only 2 students or 15.4% out of the total 13 students demonstrated adequate footwork skills. Out of the 13 students, consisting of 7 male and 6 female students, only 2 male students achieved satisfactory results. According to this initial data, every aspect indicates that the students still lack proficiency in executing footwork. The students often struggle to maintain balance when trying to reach the shuttlecock in the rear or front zones of the court, especially when they are in the middle of the court. Additionally, their shots often lack accuracy due to poor coordination between their vision and the movements of their hands and feet when hitting the shuttlecock. The lack of footwork skills among the students is a frequent factor causing delays in hitting the shuttlecock. This is because, in badminton, it is crucial to have the ability to move quickly and change direction swiftly to chase the shuttlecock across various angles of the court. The deficiency in footwork knowledge is due to the focus of the teaching provided by the teacher during observation, which was dominated by techniques such as shuttlecock service, forehand, and backhand shots, leading to the students' limited understanding of footwork variations. Although footwork variations are the fundamental foundation for success in badminton, the existing Physical Education and Health (PEH) lesson plans at the research school include basic competencies regarding footwork but do not focus on them extensively, as evidenced by the lesson plans discussing it only once. Therefore, the researcher plans to hone the students' abilities and knowledge about footwork in badminton. The researcher intends to use a shuttle run training model that specifically trains agility, speed, and accuracy of footwork in students. The faster the students develop their footwork or leg movements, the better their ability to anticipate the arrival of the shuttlecock.

Learning outcomes are fundamentally the changes in a person's behavior, encompassing cognitive, emotional, and psychomotor abilities, after undergoing a specific teaching and learning process. Teaching and learning are considered successful if the changes observed in the students are the result of the teaching and learning process they have experienced. It is a process that students go through via programs and activities designed and implemented by teachers in the

educational process. Based on the students' learning outcomes, their skills and development, as well as the level of educational success, can be determined (Andri et al., 2023)

The shuttle run is one type of exercise designed to improve mobility. The shuttle run exercise is intended to enhance agility by running quickly back and forth from one point to another over a predetermined distance. The purpose of shuttle running training is to increase mobility during badminton play (Rachmat et al., 2021)

Previous research has outlined various methods that can be employed by badminton players to enhance their footwork skills effectively. The shuttle run exercise is influential on the foot movements of badminton players. This is corroborated by the study conducted by (Gani & Hendra, 2020). The study titled "Comparison of the Results of Shuttle Run Training With Shadow Training on Footwork Agility in Badminton" indicates that shuttle run training can have a significant impact on improving footwork agility in badminton among first and second-year students participating in extracurricular activities at SLTP Negeri 2 Ciawi Tasikmalaya. The research titled "The Effect of Shuttle Run and Shadow Training on Students' Agility in Badminton Games Extracurricular" (Kasran et al., 2023). The research findings from the two aforementioned studies have demonstrated that the shuttle run training method significantly influences the agility of students' footwork. Therefore, the researcher has chosen shuttle run training as the primary focus, specifically designed to help improve the footwork or leg movement abilities of the students .

Based on the background of the problem that has been presented, the issue to be examined in this research is: Does shuttle run training improve the learning outcomes of badminton footwork among Grade VIII students at State Junior High School 13 Palopo?

Every activity always has a purpose, and the same applies to conducting research. The purpose of research is to provide an empirical overview of the various aspects that this study aims to achieve. The objective of this research is: To determine whether shuttle run training can improve the learning outcomes of badminton footwork among Grade VIII students at State Junior High School 13 Palopo.

METHODS

The Classroom Action Research (CAR) method is employed in this study, consisting of two cycles, each including two meetings. This

strategy was selected because improving agility requires sufficient time to achieve ideal results and can be extended to subsequent cycles if necessary.

This classroom action research emerged in the 1940s as one of the approaches conducted in the workplace, where researchers are involved in their daily activities (Irsan et al., 2022)

This study is conducted at State Junior High School 13 Palopo. The research is carried out over a period of one month, starting from April to May 2024.

The participants include 13 students, 7 male and 6 female, from the eighth grade at State Junior High School 13 Palopo.

In this research, a physical education teacher at the school assists as the planner, implementer, observer, discussion facilitator, summarizer, and determines the steps for reflection for the next meeting or for the continuation of the cycle if necessary.

The classroom action research procedure consists of four stages: planning, implementation, observation, and reflection.

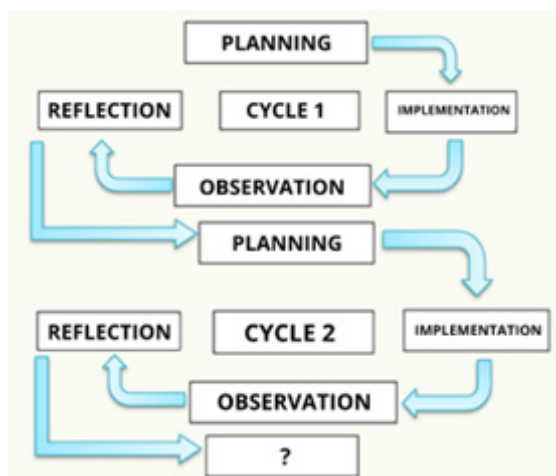


Figure 1. Classroom Action Research Cycle (Irsan et al., 2022)

The instruments or measurement tools used in this study include rackets, shuttlecocks, and cones. The assessment points utilize affective, cognitive, and psychomotor evaluation sheets. The cognitive evaluation sheet is used as a measure of students' intellectual intelligence, containing the main material on footwork and presented in a multiple-choice format with a score of 1 for a "Correct" answer and a score of 0 for a "Wrong" answer. Meanwhile, the affective assessment aims to evaluate students' behavior during the learning process. Furthermore, the psychomotor evaluation sheet is designed to depict students mastery of movement and coordination.

Several methods will be applied in the data collection for this research, namely through tests, observations, and demonstrations. Tests are implemented to measure students' understanding of badminton material, particularly footwork. Observations are conducted to monitor students' attitudes during the learning process. Meanwhile, demonstrations are used to assess how well students have mastered the techniques taught by the teacher, especially in terms of badminton footwork.

Final Score of Badminton Footwork Skills of Eighth Grade Students at State Junior High School 13 Palopo.

$$\text{Final Score} = \text{Affective Score} + \text{Cognitive Score} + \text{Psychomotor Score}$$

After data is collected in the classroom, the next step is to analyze it using descriptive analysis methods. This analysis is conducted collaboratively between the researcher and the observer, reflecting on the observation results with the learning process by the teacher (researcher) and the students. Quantitative data from classroom notes is converted into comprehensible phrases and analyzed qualitatively. The data analysis process involves a series of procedures, starting from data collection, such as summaries, notes, and descriptions, to data processing to find more focused patterns. The collected information is analyzed to clarify, refine, and organize the data so that valid conclusions can be drawn.

The standard of success in the learning process aims to evaluate the extent to which each domain has succeeded in improving the research object. The standard of learning success can be seen in **Table 1** below.

Table 1. Indicators of Success

Achievement of Learning Objectives	Qualification	Level of Learning Success
$X > 98$	Excellent	Successful
$77 < X \leq 97$	Good	Successful
$54 < X \leq 76$	Fair	Unsuccessful
$X < 53$	Poor	Unsuccessful

Source: Average and standard deviation formula.

Below are the minimum mastery criteria (MMC) based on the norm reference:

Table 2. Minimum Mastery Criteria (MMC)

Mastery Criteria	Qualification
≥ 77	Mastered
≤ 76	Not Mastered

Source: P.E Teacher's Lesson Plan, State Junior High School 13 Palopo.

RESULTS AND DISCUSSION

Pre-Cycle Results

Before conducting the research, the researcher conducted an observation at the school to be studied. The purpose of this observation was to identify the conditions and problems in physical education learning. The researcher then collected initial data on students in the physical education subject. After identifying the problems in the physical education subject, the researcher sought solutions to improve student learning outcomes by using the shuttle run training model in badminton. The condition of the learning outcomes for footwork skills using the shuttle run training model in badminton for eighth-grade students at State Junior High School 13 Palopo in the 2023/2024 academic year before the intervention is presented in the following table:

Table 3. Pre-Cycle Results

Achievement of Learning Objectives	Qualification	Frequency	Percentage	Level of Learning Success
$X > 97$	Excellent	0	0%	Successful
$77 < X \leq 97$	Good	2	15,4%	Successful
$54 < X \leq 76$	Fair	9	69,2%	Unsuccessful
$X < 53$	Poor	2	15,4%	Unsuccessful
Total		13	100%	

Based on the **Table 3** above, the diagram can be seen as follows:

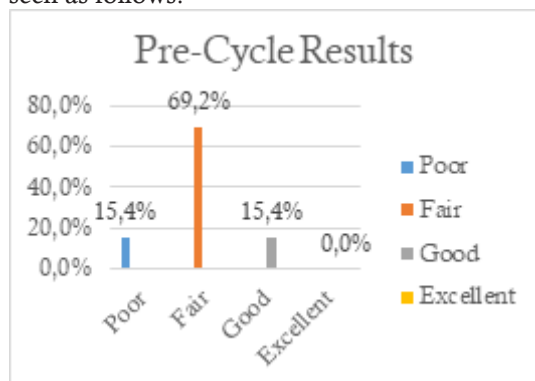


Figure 2. Pre-Cycle Results

Based on **Table 3**, the initial observation results before the intervention can be explained as follows: 0 students are in the excellent category, 2 students are in the good category, 9 students are in the fair category, and 2 students are in the poor

category. According to the minimum mastery criteria set by State Junior High School 13 Palopo, which is ≥ 77 .

Therefore, an intervention was devised to improve the footwork skills in badminton for eighth-grade students at State Junior High School 13 Palopo through the shuttle run training model over 2 cycles, with each cycle consisting of 4 stages: (1) Planning, (2) Implementation, (3) Observation, (4) Reflection.

Cycle 1 Research Results

The researcher designed a scheme or activity flow for the implementation of the first cycle and formulated a learning plan. As part of the lesson plan preparation, the researcher gathered various equipment and materials needed, such as the court, shuttlecocks, rackets, cones, as well as observation sheets and test papers.

The first activity started on April 24 and May 8, 2024, including preparing students in lines, praying, taking attendance, providing information about the basic competencies, objectives to be achieved, indicators of success, learning materials, and learning methods. This was followed by warm-up and stretching exercises. Implementation and observation were conducted individually to perform footwork in badminton. Then, training was carried out using the shuttle run training model by calling out students' names according to the class attendance list. Students were then gathered and lined up, and informed of the test results from the assessments conducted. This was done so that they would know their badminton footwork skills. Students were then asked to answer questions about badminton footwork techniques.

Observation was conducted throughout the badminton learning process using the shuttle run training model to apply the correct footwork techniques to the predetermined targets. Every development in the students was recorded systematically.

In this process, the researcher and the observer held a discussion to identify shortcomings that emerged during the first cycle. They also analyzed the evaluation results to determine the extent of the improvement achieved by the students. After identifying the weaknesses, strengths, and results, they then sought solutions to be implemented in the second cycle.

The following is a summary of the learning outcomes and understanding levels of eighth-grade students at State Junior High School 13 Palopo in cycle I of performing footwork in badminton using the shuttle run training model:

Table 4. Learning Mastery in Cycle 1

Achievement of Learning Objectives	Qualification	Frequency	Percentage	Level of Learning Success
X > 97	Excellent	0	0%	Successful
77 < X ≤ 97	Good	7	53,8%	Successful
54 < X ≤ 76	Fair	0	0%	Unsuccessful
X < 53	Poor	6	46,2%	Unsuccessful
Total		13	100%	

Student Mastery Percentage:

Students who have mastered
 $7/13 \times 100\% = 53,8\%$

Students who have not mastered
 $6/13 \times 100\% = 46.2\%$

Based on the **Table 4** above, 7 students (53.8%) achieved the minimum mastery criteria (MMC), while 6 students (46.2%) did not achieve the MMC. From the test results above, some students still lack footwork skills in badminton through the shuttle run training model.

The footwork skills in badminton through the shuttle run training model in cycle I can be seen in the following bar chart of percentage scores:

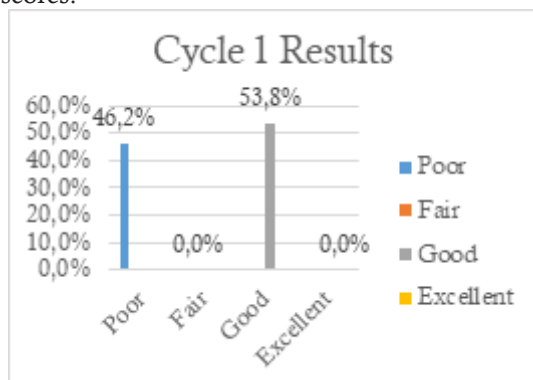


Figure 3. Cycle 1 Results

Based on the **Figure 3** bar chart of percentage scores in cycle I, it appears that out of 13 research subjects, 15.3% of students are in the excellent category, 38.5% of students are in the fair category, 0% of students are in the poor category, and 46.2% of students are in the poor category.

Based on the footwork skills in badminton in the first cycle, the percentage of student learning mastery can be seen in the **Table 5**.

Table 5. Achievement based on Minimum Competency Criteria

Mastery Criteria	Qualification	Percentage	Frequency
≥77	Mastered	53,8%	7
≤76	Not Mastered	46,2%	6

Based on **Table 5**, out of 13 research subjects, 7 students (53.8%) were categorized as mastered and 6 students (46.2%) were categorized as not mastered in Cycle I. The reasons for students not achieving mastery in Cycle I were: 1. Some students still played without following the teacher's instructions and did not pay attention to the material taught. 2. As students, they were still hesitant in performing footwork movements in badminton.

Cycle 2 Research Results

The researcher designed a scheme or activity flow for the implementation of the first cycle and formulated a learning plan. As part of the lesson plan preparation, the researcher gathered various equipment and materials needed, such as the court, shuttlecocks, rackets, cones, as well as observation sheets and test papers.

Activities after Cycle 1 on May 15 and 22, 2024, included preparing students in line, praying, taking attendance, providing information about basic competencies, desired objectives, success indicators, learning materials, and a teaching method. This was followed by warm-up and stretching. Cycle II was conducted to understand the subsequent conditions of the subjects after Cycle I ended, specifically eighth-grade students at State Junior High School 13 Palopo, in relation to badminton. Observations and implementations were carried out individually to perform footwork movements in badminton. Training was then conducted using the shuttle run training model. Students were called based on their class attendance. They were then gathered and lined up, and the results of the tests already conducted were communicated to them. The aim was for them to be aware of their badminton footwork abilities. Students were then asked to answer various questions about badminton footwork techniques.

Observation was conducted throughout the badminton learning process using the shuttle run training model to apply the correct footwork techniques to the predetermined targets. Every development in the students was recorded systematically.

From this stage, the researcher and observer conducted a discussion to identify the shortcomings that emerged during the second cycle. They analyzed the evaluation results to determine the extent of improvement achieved by the students. After identifying the weaknesses, strengths, and results, they then sought solutions to be applied in the next cycle if necessary.

The following is a summary of the learning outcomes and understanding levels of eighth-grade students at State Junior High School 13 Palopo in cycle 2 of performing footwork in badminton using the shuttle run training model.

Table 6. Learning Mastery in Cycle 2

Achievement of Learning Objectives	Qualification	Frequency	Percentage	Level of Learning Success
$X > 97$	Excellent	0	0%	Successful
$77 < X \leq 97$	Good	12	92,3%	Successful
$54 < X \leq 76$	Fair	0	0%	Unsuccessful
$X < 53$	Poor	1	7,7%	Unsuccessful
Total		13	100%	

Student Mastery Percentage:

Students who have mastered
 $12/13 \times 100\% = 92,3\%$

Students who have not mastered
 $1/13 \times 100\% = 7.7\%$

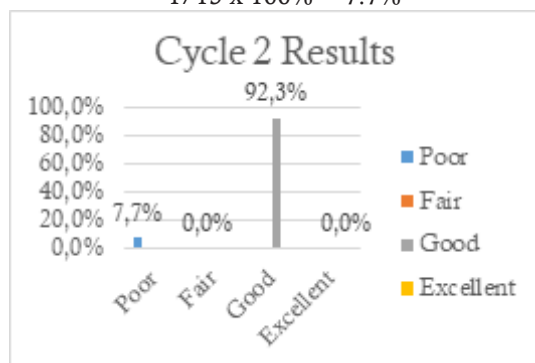


Figure 4. Cycle 2 Results

Based on the **Table 6** above, 12 students (92.3%) achieved the minimum mastery criteria (MMC), while 1 student (7.7%) did not achieve the MMC. The test results show that the development of footwork skills in badminton through the shuttle run training model has improved in the second cycle.

The footwork skills in badminton through the shuttle run training model in cycle II can be seen in the following bar chart of percentage scores.

Based on the **Figure 4** bar chart of percentage scores in cycle II, it appears that out of 13 research subjects, 76.9% of students are in the excellent category, 15.4% of students are in the good category, 0% of students are in the fair category, and 7.7% of students are in the poor category.

Based on the footwork skills in badminton in the second cycle, the percentage of student learning mastery can be seen in the table below:

Table 7. Achievement based on Minimum Competency Criteria

Mastery Criteria	Qualification	Percentage	Frequency
≥ 77	Mastered	92,3%	12
≤ 76	Not Mastered	7,7%	1

Based on **Table 7**, out of 13 research subjects, 12 students (92.3%) are in the mastered category, and 1 student (7.7%) is in the not mastered category in cycle II.

Based on the quantitative analysis results, it is evident that the implementation of learning through the shuttle run training model has a balanced and even effect on the footwork abilities of eighth-grade students at State Junior High School 13 Palopo, with improvements observed from Cycle I to Cycle II.

Table 3 shows that in the pre-cycle data for eighth-grade students at State Junior High School 13 Palopo, 2 students were in the mastered category with a percentage of 15.4%, and 11 students, with a percentage of 84.6%, were in the not mastered category before the study. In Cycle I, the number of students in the mastered category was 7, with a percentage of 53.8%, and 6 students were in the not mastered category, with a percentage of 46.2%. In Cycle II, 12 students were in the mastered category with a percentage of 92.3%, and 1 student was in the not mastered category with a percentage of 7.7%.

The shuttle run training model is one alternative that can be used in Physical Education, Sports, and Health learning, especially for footwork skills in badminton. The application of the shuttle run training model can encourage students to improve their footwork abilities in terms of speed, balance, and precision without the fear of serious injury.

The average improvement in student learning outcomes from the pre-cycle to Cycle I was 38.4%, while the improvement from Cycle I to Cycle II increased to 38.5%. Shuttle run training has an impact on the foot movements of badminton players. This is supported by research conducted

by (Gani & Hendra, 2020) titled “Comparison of Shuttle Run Training Results with Shadow Training on Footwork Agility in Badminton Sports.” This study indicates that shuttle run training significantly impacts the improvement of footwork agility in badminton for students in grades 1 and 2 participating in extracurricular activities at SLTP Negeri 2 Ciawi Tasikmalaya. Another study titled “The Effect of Shuttle Run and Shadow Training on Students’ Agility in Badminton Games Extracurricular” (Kasran et al., 2023) also demonstrates that the shuttle run training method has a significant effect on students footwork agility. Therefore, the researcher chose the shuttle run training as the primary focus specifically designed to help improve footwork abilities or leg movement in students.

CONCLUSION

Classroom action research on eighth-grade students at State Junior High School 13 Palopo was conducted over two cycles. Each cycle consisted of four stages: planning, implementation, observation, and reflection. Based on the research conducted, it can be concluded that the data analysis of footwork skills in badminton shows that the number of students who mastered in Cycle I was 7 with a percentage of 53.8%, and the number of students who mastered in Cycle II was 12 with a percentage of 92.3%. Qualitative analysis results indicate a significant improvement in footwork skills in badminton. The research concludes that Physical Education, Sports, and Health learning through the shuttle run training model can enhance footwork skills in badminton among eighth-grade students at State Junior High School 13 Palopo.

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