# THE EFFECTIVENESS OF THE ZIG-ZAG METHOD IN IMPROVING DRIBBLING SKILLS IN HIGH SCHOOL SOCCER LESSONS

Muhammad Rais Hamdan, Fahrial Amiq

Universitas Negeri Malang
Jl. Semarang No. 5 Malang, Jawa Timur, Indonesia
*Corresponding author, email: fahrial.amiq.fik@um.ac.id

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**Abstract**
This study aims to enhance football dribbling skills among class XI students at SMAN 2 Malang through the implementation of the zig-zag method. The research adopts a Classroom Action Research (CAR) design conducted in two cycles, each comprising four stages: planning, implementation, observation, and reflection. Data were collected through observation sheets, dribbling performance tests, and documentation to measure both skill improvement and learning engagement. The findings reveal a notable improvement in students' dribbling ability after the introduction of the zig-zag method. During the first cycle, students demonstrated progress in technique and coordination, although learning mastery had not yet achieved the targeted level. After revising the instructional approach in the second cycle, mastery levels surpassed 80 percent, indicating substantial advancement. The zig-zag method effectively improved students' ball control, agility, and directional change, while also enhancing their motivation and active participation during Physical Education classes. Furthermore, the learning process became more interactive, engaging, and performance-oriented. These outcomes confirm that the zig-zag method is not only beneficial for developing technical dribbling proficiency but also for fostering enthusiasm and collaborative learning in sports education. Therefore, it can serve as a practical and efficient instructional strategy for improving football dribbling skills in high school settings.

## Introduction

Education is a vital process in shaping intelligent, skilled, and character-driven generations (Rahmatiani, 2020). In Indonesia's national education system, the development of cognitive, affective, and psychomotor aspects represents an integrated approach to achieving holistic human development (Widodo, 2018). Among various school subjects, Physical Education, Sports, and Health (PJOK) plays a central role in fostering psychomotor growth. According to Mustafa (2020), PJOK not only aims to improve students' physical fitness but also serves as a medium for character building, instilling values such as discipline, teamwork, honesty, and sportsmanship. This aligns with the argument of Batiurat et al. (2024), who emphasize that through sports activities, teachers can cultivate essential character traits like cooperation, respect, and responsibility. Thus, PJOK provides an educational environment that balances physical ability and moral values, ensuring the holistic development of students.

Among the many physical education materials, football is one of the most widely taught and practiced sports in schools. As Yulianto (2018) notes, football's popularity in Indonesia extends beyond recreation to professional leagues and business domains. It provides students with opportunities to develop physical endurance, coordination, and teamwork, while fostering emotional resilience through competitive play. According to Freeman and Munandar (as cited in Ismail, 2009), playing games, including football, contributes to children's physical, intellectual,

social, moral, and emotional growth (Hasanuddin, 2021). Football demands mastery of several fundamental techniques—passing, shooting, trapping, and particularly dribbling. Dribbling is one of the most crucial techniques in the game because it allows players to maintain possession, evade opponents, and create opportunities for attacking plays (Taufik, 2018). Angriawan and Yahya (2021) further argue that dribbling is not merely about speed but also involves coordination, control, and rhythm that reflect a player's overall skill and understanding of the game.

However, based on initial observations conducted in class XI J at SMAN 2 Malang, which consists of 35 students, dribbling ability among learners remains relatively low. Only five students (14.2%) demonstrated adequate mastery of basic dribbling skills, while the majority (85.8%) exhibited limited control over the ball, stiff foot movements, and a lack of agility when maneuvering. These findings suggest that the teaching process has yet to optimize methods that effectively integrate practice, motivation, and skill-based learning. The limited dribbling performance among students indicates a need for innovative and engaging instructional strategies that can enhance their motor coordination and enthusiasm during learning.

One potential approach to addressing these challenges is through the zig-zag training method. Football requires a combination of agility, leg strength, and ball control, all of which can be developed through zig-zag movement drills. Dribbling involves controlling the ball while running, requiring high levels of coordination and precision (Effendi & Rhamadhansyah, 2017). Luxbacher (2012) emphasizes that effective dribbling enables players to penetrate defenses, particularly in tight spaces, by integrating quick directional changes and body balance. The zig-zag method specifically focuses on developing these components—requiring athletes to maneuver the ball around cones or markers arranged in alternating directions, simulating real-game conditions. This method helps enhance reaction speed, coordination, and rhythm, as players must constantly adjust to changes in direction while maintaining control of the ball. Moreover, the drill is engaging, allowing students to enjoy practice sessions while improving their skills.

Recent empirical studies provide strong evidence supporting the effectiveness of the zig-zag method in developing dribbling performance. Junaedi, Rukmana, and Sudrazat (2025) found that modified zig-zag run training significantly improved football players' dribbling control and movement accuracy. Their findings suggest that consistent implementation of zig-zag drills can optimize agility and reaction time, two critical components of successful dribbling. Similarly, Gunawan, Mentara, and Sarpan (2022) reported that zig-zag training positively affected the dribbling performance of extracurricular football students in Central Sulawesi, emphasizing improvements in speed, rhythm, and body coordination. Ramadhan, Muzaffar, and Yanto (2025) strengthened this argument by demonstrating that variations in dribbling drills—particularly zig-zag-based training—contributed to faster ball control and enhanced dribbling speed among futsal players at SMKN 1 Jambi.

Furthermore, Jud and Sariul (2022) investigated the effectiveness of zig-zag exercises in improving dribbling precision among young football players. Their study revealed significant progress in students' ability to maneuver the ball smoothly and efficiently, confirming that repetitive zig-zag drills foster both agility and spatial awareness. Complementing these findings, Riski, Lusianti, and Himawanto (2024) conducted a classroom-based intervention using zig-zag learning methods to improve dribbling skills among fifth-grade students at MI Hidayatul Mustafidin, Kediri. The results indicated that the zig-zag method not only enhanced technical dribbling ability but also increased student motivation and participation during practice sessions. Collectively, these studies affirm that zig-zag training provides measurable improvements in coordination, agility, and dribbling performance across different age groups and learning settings.

The pedagogical implications of these studies highlight the relevance of adopting the zig-zag method in physical education, particularly within school-based football instruction. Through repetitive, structured, and enjoyable exercises, students can develop their motor skills while simultaneously enhancing focus and self-confidence. When combined with reflective learning and teacher feedback, zig-zag training can transform a routine skill drill into an interactive and performance-driven learning experience. Moreover, as students experience tangible improvements in their dribbling performance, their intrinsic motivation and engagement in PJOK lessons are likely to increase.

Therefore, integrating the zig-zag method in football lessons not only supports the development of technical and physical competence but also aligns with the broader educational goals of fostering character, perseverance, and teamwork. This study is designed to evaluate and improve teaching practices through Classroom Action Research (CAR), focusing on the implementation of zig-zag training to enhance dribbling skills among students. The findings are expected to provide empirical insights into the effectiveness of this method and contribute to innovative strategies for improving learning outcomes in physical education.

## Method

This study employed a collaborative classroom action research approach, in which the researcher aimed to address identified deficiencies in the learning process through planned interventions. The stages of the research included planning, preparation of lesson plans (RPP), development of instructional media, assessment design, evaluation, observation, and reflection. The research design follows the classroom action research cycle as proposed by Kemmis and Taggart (1988) (in Budiwanto, 2017).

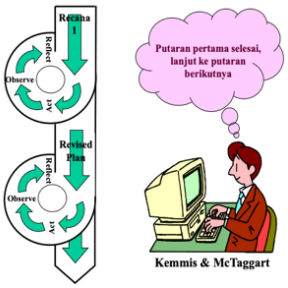


**Figure 1. Classroom Action Research Cycle**

The research was conducted at SMAN 2 Malang, specifically in class XI-J, with a total of 35 students as research subjects. The focus of this research was to improve students' dribbling skills in football through the implementation of the zig-zag method. The study commenced in April 2025.

Data collection was carried out using multiple techniques, including a learning outcome test, specifically a dribbling test adapted from Rahmat et al., (2025). The data analysis combined qualitative and quantitative methods. Qualitative analysis was used to process observational data gathered during the implementation of each action cycle, while quantitative analysis was applied to measure students' learning outcomes.

The quantitative data were analyzed using simple statistical methods. The formula used to calculate the average understanding of the material is:

$$\bar{X}=N\sum X$$

To calculate the percentage of students' understanding, the formula used is: P=Nf×100% Where:

$\bar{X}$ = average score
∑X = total score
N = number of students
f = number of students who met the criteria
P = percentage of students who met the criteria

**Table 1. Stages of Classroom Action Research Based on Kemmis & Taggart (1988)**

| Stage | Description |
|---|---|
| Planning | Designing the action plan, preparing lesson plans (RPP), materials, and tools. |
| Action | Implementing the lesson using the zig-zag method in football dribbling. |
| Observation | Observing student behavior, performance, and engagement during learning. |
| Reflection | Analyzing the results and feedback to determine the success of the action and plan the next cycle if needed. |

## Results and Discussion

*Pre-Action Observation*

Before the intervention was implemented, the researcher assessed students' dribbling skills in the football lesson for class XI at SMAN 2 Malang. The results are presented in Table 2.

**Table 2. Pretest Results of Dribbling Skills**

| No | Time (Seconds) | Score Category | Number of Students | Percentage | Mastery Status |
|---|---|---|---|---|---|
| 1 | < 19 | Very Good | 1 | 2.86 | Achieved |
| 2 | 19.1 – 21.0 | Good | 2 | 5.71 | Achieved |
| 3 | 21.1 – 23.0 | Fair | 2 | 5.71 | Achieved |
| 4 | 23.1 – 25.0 | Poor | 27 | 77.14 | Not Achieved |
| 5 | > 25.1 | Very Poor | 3 | 8.58 | Not Achieved |
| | | Total | 35 | 100 | |
| | | Mastery | 5 | 14.2 | Low |

Based on the pretest results, only 5 out of 35 students (14.2%) achieved mastery, falling into the "Very Good", "Good", or "Fair" categories. Meanwhile, the majority—27 students (77.14%)—were categorized as "Poor", and 3 students (8.58%) as "Very Poor", indicating a significant need for improvement. Overall, more than 85% of the students did not meet the expected standard for dribbling performance.

*Cycle I*

The first cycle of action research was implemented to improve students' football dribbling skills in class XI-J at SMAN 2 Malang. The research followed the four stages of the Kemmis and McTaggart model: planning, action, observation, and reflection.

(1) Planning

The researcher collaborated with the PJOK teacher to design a lesson plan focused on teaching basic dribbling techniques using the zig-zag method. Preparations included visual media for demonstration, footballs, cones for zig-zag drills, and the development of research instruments such as observation sheets and rubrics.

(2) Action

The session began with motivational activities, greetings, prayers, attendance, and a physical readiness check. Using visual aids, the researcher introduced the zig-zag dribbling technique. Students watched a demonstration, then practiced on the field. For those who struggled, the

teacher provided individual support, repeated instructions, and corrected techniques during practice.

(3) Observation

During the observation phase, the researcher monitored student activity, movement accuracy, and participation in the zig-zag path. Most students were enthusiastic and motivated, aided by the engaging use of direct practice and instructional media.

(4) Reflection

Reflection on Cycle I revealed that, although improvements were noted, the 80% mastery target had not yet been achieved. Many students still had difficulty controlling the ball while navigating the zig-zag course. Therefore, further refinement of the instructional strategy was required for Cycle II.

**Table 3. Cycle I Results of Dribbling Skills**

| No | Time (Seconds) | Score Category | Number of Students | Percentage | Mastery Status |
|---|---|---|---|---|---|
| 1 | < 19 | Very Good | 3 | 8.57 | Achieved |
| 2 | 19.1 – 21.0 | Good | 6 | 17.14 | Achieved |
| 3 | 21.1 – 23.0 | Fair | 6 | 17.14 | Achieved |
| 4 | 23.1 – 25.0 | Poor | 17 | 48.57 | Not Achieved |
| 5 | > 25.1 | Very Poor | 3 | 8.58 | Not Achieved |
| | | Total | 35 | 100 | |
| | | Mastery | 15 | 42.86 | Moderate |

Following the first cycle, student achievement improved noticeably. Fifteen students (42.86%) reached mastery, compared to only five in the pretest. Although 20 students (57.14%) were still below the expected standard, the increase in those reaching the "Very Good", "Good", and "Fair" categories indicates that the zig-zag method positively impacted their dribbling skills.

*Cycle II*

(1) Planning

In this stage, the researcher evaluated the shortcomings identified in Cycle I and developed an improved plan accordingly. The revised strategy included providing more detailed demonstrations, not only through instructional videos but also with clearer, live examples of proper dribbling techniques. Additionally, more focused attention was planned for students who were still struggling with their dribbling skills.

(2) Implementation

The implementation stage followed a similar structure to Cycle I. However, greater emphasis was placed on individual assistance and reinforcing student understanding through daily practical examples, allowing the concept to be more deeply internalized. The teacher provided more intensive guidance to students who had not yet achieved the learning outcomes, offering hands-on corrections and continuous feedback during practice.

(3) Observation

During this phase, the researcher observed both student and teacher activity throughout the lesson, noting specific events and responses during the teaching and learning process. Based on observations, the overall classroom dynamics improved. Students were more enthusiastic, actively engaged, and responded positively to the learning environment, particularly due to the

interactive use of media and direct demonstrations. Students also showed increased focus and attention to the material presented.

(4) Reflection

Despite improvements, some challenges remained in Cycle II, and the learning process was not yet completely optimal. However, the learning outcome indicator—80% student mastery—was successfully met. A total of 28 out of 35 students (80%) achieved the desired level of performance.

**Table 4. Dribbling Skill Results – Cycle II**

| No | Time (Seconds) | Score Category | Number of Students | Percentage | Mastery Status |
|---|---|---|---|---|---|
| 1 | < 19 | Very Good | 8 | 22.86 | Achieved |
| 2 | 19.1 – 21.0 | Good | 10 | 28.57 | Achieved |
| 3 | 21.1 – 23.0 | Fair | 10 | 28.57 | Achieved |
| 4 | 23.1 – 25.0 | Poor | 5 | 14.29 | Not Achieved |
| 5 | > 25.1 | Very Poor | 2 | 5.71 | Not Achieved |
| | | Total | 35 | 100 | |
| | | Mastery | 28 | 80.00 | High |

After improvements were made in Cycle II, student learning outcomes showed a significant increase. A total of 28 out of 35 students (80%) reached the mastery level. This progress confirms that the use of the zig-zag method in football dribbling practice was highly effective in enhancing students' skills in class XI at SMAN 2 Malang.

## Discussion

The findings from both Cycle I and Cycle II are discussed in this section. The implementation of the zig-zag drill method in physical education lessons led to a noticeable improvement in students' ball-dribbling skills. The increase in learning outcomes between the two cycles is summarized in Table 1 below.

**Table 5. Improvement of Students' Dribbling Skills between Cycles**

| Cycle | Number of Students (N) | Average Score | Category | Learning Mastery (%) |
|---|---|---|---|---|
| Pre-Cycle | 36 | 62.3 | Fair | 47.2 |
| Cycle I | 36 | 71.5 | Good | 66.7 |
| Cycle II | 36 | 82.1 | Very Good | 91.7 |

The table demonstrates a clear upward trend in student performance. From the pre-cycle to Cycle I, the average score increased by 9.2 points, and from Cycle I to Cycle II, it increased by another 10.6 points. The learning mastery also rose substantially from 47.2% in the pre-cycle to 91.7% in Cycle II, indicating the effectiveness of the zig-zag drill method.

This improvement can be attributed to several key instructional strategies implemented during the intervention. Firstly, the teacher gave intensive guidance to students with lower initial ability, ensuring they received individualized feedback and support. Secondly, instructions were delivered using simple, student-friendly language, which helped students better understand and execute the dribbling movements. The teacher also consistently modeled the correct techniques in a concrete and relatable way, which helped students connect the skills with real-game situations.

These results are in line with the findings of Nurkhoirini et al. (2024), who emphasized the positive outcomes of applying the *Teaching at the Right Level (TaRL)* approach. Grouping

students based on skill level and providing tailored assistance led to improved learning outcomes across diverse student profiles.

Moreover, Udam (2017) found that zig-zag drills were especially effective in improving the dribbling skills of 13–15-year-old students. His study reported that zig-zag patterns increased agility, coordination, and technical control more significantly than traditional training methods. This supports the current study's findings and strengthens the argument for implementing structured and progressive physical education drills to develop students' fundamental motor skills.

In conclusion, the use of the zig-zag drill method, combined with differentiated instruction and intensive scaffolding, proved to be highly effective in enhancing students' dribbling abilities. It not only improved technical competence but also increased students' confidence and engagement in learning physical education. These findings underscore the importance of using targeted, student-centered teaching strategies in sports instruction.

## Conclusion

The diversity of students' abilities in dribbling skills requires teachers to provide differentiated instruction that aligns with each student's learning characteristics. The implementation of the zig-zag method had a positive impact on improving students' dribbling performance, as the teacher applied exercises tailored to the students' readiness levels. As a result, students demonstrated notable improvements in basic dribbling techniques and met the predefined success indicators. Furthermore, the use of the zig-zag method made the learning process more active, enjoyable, and engaging, increasing students' motivation and enthusiasm in football learning activities.

Future research is recommended to examine the effectiveness of various training methods in enhancing other fundamental football skills such as passing, shooting, and ball control. Moreover, studies should explore more innovative and student-centered teaching strategies that can boost both learning outcomes and students' motivation in physical education classes. These efforts should pay close attention to learners' individual needs and developmental stages to optimize instructional impact.

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