# **Modern Sport**

Volume 24 | Issue 2

Article 10

6-30-2025

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# **Recommended Citation**

Elias, Mahdi Mohsen (2025) "The Effect of Exercises Using a Broad External Focus of Attention on Learning the Dribbling Skill in Handball for Children Aged 10–11 Years," *Modern Sport*: Vol. 24: Iss. 2, Article 10.

DOI: https://doi.org/10.54702/2708-3454.2066

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#### **ORIGINAL STUDY**

# The Effect of Exercises Using a Broad External Focus of Attention on Learning the Dribbling Skill in Handball for Children Aged 10–11 Years

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#### Abstract

The current study aimed to investigate the effect of exercises employing a broad external focus of attention on learning the dribbling skill in handball among fifth-grade primary school students at Al-Mukhtar Primary School for Boys, affiliated with the Directorate of Education in Eastern Baghdad. The research problem lies in the fact that students, while performing basic skills, often fail to attend to external stimuli accompanying the technical execution of the game. As a team sport, handball involves multiple distractors such as opponents, court dimensions, lines, and technical rules, which may negatively impact performance levels, lead to wasted effort and time, and undermine the educational goals of the curriculum. Therefore, it is essential to develop students 'attentional processes through targeted exercises integrated into instructional units related to the skills under investigation. To achieve the research objectives, the researcher employed an experimental method using two groups (experimental and control). The experimental group consisted of 10 students who received training using the external focus of attention method, while the control group (10 students) learned through the traditional instructional approach. The Statistical Package for the Social Sciences (SPSS) was used to analyze the data. The results revealed that the experimental group significantly outperformed the control group in learning the dribbling skill. Based on these findings, the researcher recommends adopting alternative attentional strategies to enhance the learning of basic handball skills. and this achieves one of the sustainable development goals of the United Nations in Iraq which is (Quality Education)

Keywords: Dribbling, Exercises, Focus of attention, Handball

#### 1. Introduction

Scientific advancement has become a hallmark of the modern era, shaping new ideas and directions that influence the development of innovative methods for interacting with the world around us. This progress has opened new horizons for exploring concepts and applying them across all fields of life. Physical education, in particular, continues to evolve alongside these modern developments, reflecting the broader societal shift toward evidence-based practices. In Iraq, we currently witness a widespread renaissance in various sectors grounded in scientific research. Among the emerging trends in education is the increased emphasis on utilizing students cognitive, mental, and knowledge-based capabilities in

motor learning by selecting effective teaching strategies tailored to specific instructional contexts.

Handball, one of the most engaging and enjoyable team sports for school-aged children, is particularly appealing to elementary students. This is evident from their strong enthusiasm and eagerness to learn its fundamental skills and participate in the tournaments and festivals organized by the Department of School and Sports Activities. Achieving success in sports competitions requires comprehensive preparation across physical, technical, tactical, and psychological dimensions, which directly benefits motor skill development in handball.

One of the most crucial cognitive processes among school-aged children is attention. It allows individ-

Received 22 April 2025; revised 25 May 2025; accepted 6 June 2025. Available online 30 June 2025

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uals to respond to sensory stimuli before perception, making it the primary gateway for processing and interpreting environmental inputs (Al-Atoom, 2004). In sports, attention plays a pivotal role in the learning process. It can be strategically utilized to develop athletes' motor and skill foundations. One specific type of attention—broad external focus—is particularly relevant for team sports like handball. Players must remain aware of their movements while monitoring opponents' actions and coordinating with teammates.

The educational curriculum for this age group (fifth grade) includes the dribbling skill, a foundational component for mastering other handball techniques. Learning this skill helps physical education teachers form school teams that can represent their schools in competitions and extracurricular activities hosted by the Directorate of Baghdad Education– Second Rusafa.

The significance of attention in learning basic handball skills has been well-documented in previous studies. For instance, Al-Khazaly and Hamza (2020) found that using selective attention questions positively influenced the development of handball dribbling skills among second-year college students in the College of Physical Education and Sports Sciences at Al-Mustansiriya University. Similarly, Khairi et al. (2015) found that specially designed agility exercises significantly enhanced attentional focus and shooting accuracy from angled positions in handball among youth players at Al-Qasim Sports Club.

Moreover, combining motor and mental practice exercises has proven highly effective in enhancing learning outcomes. As Al-Talib and Al-Louise (2000) noted, this integration fosters progress by leveraging the strengths of each type of training, thereby improving learners' performance and perceptual awareness. Zamil (2019) further highlighted the motivational impact of using novel tools and equipment, such as balls, ropes, and numbered circles, on learners' engagement and attention, as these unfamiliar stimuli foster increased effort and enthusiasm.

Despite the extensive research on attention types, few studies have examined specific attention strategies, particularly the broad external focus of attention. This gap highlights the importance of the current research, which seeks to experimentally assess custom-designed exercises for learning the dribbling skill in handball based on this specific attentional approach.

Thus, the researcher proposed that one of the core cognitive abilities—attention—could solve the identified problem. Attention is central to a person's interaction with their surroundings, enabling the accurate selection, analysis, and response to sensory stimuli. It also underpins acquiring various skills and forming behavioural habits that foster personal

adaptation to internal and external environments. Drawing on his professional experience as a physical education teacher, the researcher developed a set of proposed exercises aimed at enhancing the quality of learning and improving the acquisition of the dribbling skill in handball.

Accordingly, the main objectives of the present study are:

- 1. To design exercises based on the broad external focus of attention.
- 2. To examine the effect of these exercises on learning the dribbling skill in handball among the experimental group.

#### 1.1. Research hypotheses

- There are statistically significant differences between the pre-test and post-test results in the handball dribbling skill test, with the post-test being more favourable for both the experimental and control groups.
- The post-test results of the experimental and control groups in the handball dribbling skill test were significantly different in favour of the experimental group.

#### 1.2. Research domains

- Human Domain: The study sample consisted of fifth-grade primary school students from Al-Mukhtar Primary School, affiliated with the Directorate of Education in East Baghdad, on the city's outskirts.
- **Temporal Domain**: The research was conducted from November 3, 2024, to December 30, 2024.
- **Spatial Domain:** The research occurred in the playground of Al-Mukhtar Primary School.

#### 2. Methodology and procedures

One essential requirement in scientific research is selecting an appropriate research method that suits the nature of the problem and achieves the research objectives. The technique is a way of thinking and working that the researcher adopts to organize, analyze, and present ideas to reach acceptable conclusions and facts regarding the phenomenon under study (Olayan & Ghoneim, 2000). Accordingly, the researcher employed the experimental method with two groups (experimental and control) to address the research problem.

The research population consisted of 78 fifth-grade students, divided into Class A (40 students) and Class B (38 students). A sample was selected using

a random draw and divided into two groups: experimental and control. Ten students from each class constituted 25.64% of the original study population. An exploratory sample of four students was also selected from the same population outside the main study sample.

#### 3. Research tools and data collection methods

The study utilized the following tools and methods for data collection:

Arabic and foreign references and sources, Data recording forms, Online resources, Handball dribbling skill tests and measurements, ten official-size handballs, Regulation handball court, Various colours and shapes, Measuring tape, Markers, 10-meter-long linen rope, Stopwatch.

#### 3.1. Field procedures

After reviewing relevant literature, curricula, and identifying the skill under investigation, the researcher developed a series of exercises (see Appendics 1) based on the concept of external attentional focus to improve the handball dribbling skill among students in the experimental group. These exercises were designed to help students perceive the technical aspects of performance, avoid common errors, and develop spatial kinesthetic awareness. The researcher ensured the following considerations in designing the exercises:

- 1. The exercises aligned with the concept of broad external attentional focus.
- 2. The exercise design uses colours, lines, elevations, time, and distance.
- 3. The difficulty level was age-appropriate and progressed in complexity.
- 4. The number of exercises implemented matched the duration of the instructional unit.

#### 3.2. Test selection

After reviewing several Arabic sources concerned with handball testing, the researcher selected a suitable test based on experts' opinions in motor learning and handball. The selected tests are standardized, applied within the Iraqi environment, and meet the scientific conditions of validity, reliability, and objectivity.

#### 3.3. Handball dribbling skill test

Zigzag Dribbling Test for a Distance of 30 Meters (Al-Badri & Al-Sudani, 2011)

**Purpose of the Test:** To measure dribbling speed and agility.

# 3.3.1. Equipment required

- Five (5) cones or markers
- One (1) handball
- Stopwatch

#### 3.3.2. *Performance specifications*

Five markers are placed in a straight line on the ground, with a distance of 3 meters between each marker. A starting line is drawn 3 meters before the first marker. The student stands behind the starting line. Upon hearing the start signal, the student begins to dribble the ball in a zigzag pattern between the markers, moving back and forth as illustrated in the diagram, until crossing the starting line again.

#### 3.3.3. Scoring

The time the student takes to complete the round-trip distance is recorded using a stopwatch.

#### 3.4. Pilot study

The researcher conducted a pilot study on November 11, 2024, to assess the feasibility of implementing the dribbling exercises and the validity of the selected dribbling test. The aim was to ensure the exercises were appropriate regarding difficulty, ease of implementation, and execution time. This was done using a sample of four (4) students selected from the research population but outside the main study sample.

#### 3.4.1. Pre-test

Following the pilot study and confirmation of the exercises' suitability, the pre-test was administered on November 13, 2024, at the playground of Al-Mukhtar Primary School. All test materials, tools, and supporting staff were prepared in advance under the researcher's direct supervision. The test procedure, number of trials, and test flow were explained in detail. Additionally, the researcher ensured the participants' full understanding of the test instructions and conditions.

#### 3.5. Equivalence of research groups

To meet the requirements of the experimental design, it was necessary to establish equivalence between the research groups in the studied variables. The researcher employed the independent samples t-test as the appropriate statistical method. The results showed that the significance level (Sig) values for all tests were greater than 0.05, indicating that the two groups (experimental and control) were statistically

*Table 1. Equivalence of the research sample.* 

	Experimental Group		Control Group				
Variables	M	SD	M	SD	Calculated T-value	Sig	Significance of differences
Dribbling	17.16	1.33	17.333	1.55	0.277	0.511	Random

Table 2. Means, standard deviations, and T-test results for the experimental and control groups on the Pre- and Post-tests of the handball dribbling skill.

		Pre-test		Post-test					
Variables	Groups	M	SD	M	SD	Pre-Post Difference	Calculated T-value	Sig	Significance of differences
Dribbling Skill	Experimental Control			11.33 13.416			-10.142 -5.270		Significant Significant

At a degree of freedom (df) = 9 and a significance level ( $\alpha$ ) = 0.05.

equivalent prior to the intervention, as presented in Table 1.

After preparing the proposed exercises, conducting the pre-test, and providing the necessary resources, the main experiment was initiated with the research sample (experimental and control groups). The duration of the intervention was four weeks, starting on Monday, November 18, 2024, and ending on Monday, December 16, 2024. The training program consisted of two instructional sessions per week, held on Mondays and Wednesdays, totaling eight (8) instructional units.

The proposed exercises were implemented during the practical part of the main section of each instructional unit, which lasted 30 minutes, as outlined in Appendics 2. The experimental group followed the researcher's proposed exercises, whereas the control group performed the traditional exercises included in the standard handball curriculum.

Upon completion of the scheduled instructional units, the post-test was administered on December 18, 2024. This test assessed the handball dribbling skill performance for both the experimental and control groups. The researcher ensured that the testing conditions during the post-test matched those of the pre-test in terms of location, timing, and equipment, to maintain the reliability of the results.

#### 3.6. Data analysis

The data obtained by the researcher were processed using the Statistical Package for the Social Sciences (SPSS). This analysis aimed to verify the research hy-

pothesis by comparing the results of the pre-test and post-test for both groups. The researcher performed statistical analyses on the test results and interpreted the data accordingly.

#### 4. Results and discussion

Based on the results presented in Table 2, it was found that there were observable improvements in the dribbling skill among participants in the control group, who were taught using traditional exercises commonly employed by physical education teachers. As Shehab and Faleh (2025) showed, Learning is inevitable when there is a competent teacher who conveys the information clearly, a structured curriculum, and well-applied strategies that aim to achieve the educational objectives.

Moreover, the data shown in Tables 2 and 3 indicate that there were statistically significant differences in the post-test results for the dribbling skill in favor of the experimental group. The researcher attributes these differences to the specially designed exercises that were grounded in the concept of broad external focus of attention. These exercises played a crucial role in enhancing the learning of the dribbling skill due to the accompanying instructional aids and application requirements, which demanded consistent attention and compliance from the students during performance.

As Youssef (1984) emphasized, all available resources that can be utilized significantly contribute to the acquisition, mastery, and consolidation of motor skills. In the view of the researcher, attention is

Table 3. Presentation of the means, standard deviations, and T-test results for the control and experimental groups on the Post-test for the research variables.

	Pre		Post					
Variables	M	SD	M	SD	Pre-Post Difference	Calculated (t)	Sig	Significance of differences
Dribbling Skill	11.333	1.07	13.416	1.37	0.000	-4.451	0.000	Significant

At a degree of freedom (df) = 19 and a significance level ( $\alpha$ ) = 0.

closely linked to the learning of fundamental skills in handball, as classroom situations frequently require students to maintain constant observation and sustained concentration to effectively deal with varying motor or skill performance contexts. Therefore, students must remain highly focused throughout. Sport activities not only develop motor skills but also strengthen the relationship between physical and cognitive aspects, including attention.

This finding is also in agreement with what Ali (1991) concluded: Attention is one of the most essential factors in achieving a high level of skill performance.

Furthermore, integrating both physical and mental forms of practice into the training sessions was seen as a positive aspect of the learning process. This integration allowed for progress and development by leveraging the strengths of each type of exercise. Wellorganized practice routines significantly enhanced learners' ability to perform motor skills effectively. The researcher also points out that the age and developmental stage of the sample played an important role in the success of the learning process. This aligns with Allawi (1992) assertion: There is a strong connection between learning and maturation. Learning largely depends on maturation, which determines the learner's behavioral capacity, activity potential, and the acquisition of skills and experiences.

Another factor contributing to the improved performance of the experimental group is the fact that the exercises were designed to simulate competitive scenarios, including the presence of an opponent. These exercises were also adapted to the students' cognitive abilities and understanding, making them more effective for learning. As Elias (2022), noted: Developing the cognitive and intellectual aspects increases the motor experience reservoir in favor of the movement itself.

Additionally, the researcher attributes the improvement in the experimental group's performance to the well-structured exercises based on the focus of attention principle. These exercises provided the participants with a heightened sense of purpose and significance during performance (Al-Sudani & Kazem, 2017). The structure of the exercises took into account several key aspects of dribbling technique, including the player's positioning relative to the opponent and the ball, avoiding over-focusing on the ball, transferring the ball from one hand to the other, ball push distance and height, coordination with movement speed, and the sequence from stationary to dynamic execution (Al-Badri & Al-Sudani, 2011). All of these factors significantly contributed to the experimental group's superior post-test performance.

Lastly, an important aspect that supported the experimental group's improvement was their

simultaneous engagement in multiple exercises during the instructional units. As Badawi and Nabeel (2020) emphasized, improvement in learning is a natural outcome as long as the teacher follows the correct instructional foundations.

#### 5. Conclusions

- The proposed exercises based on visual attention had a positive effect on learning the dribbling skill among the experimental group participants.
- The group that received the attention-based exercises designed by the researcher outperformed the group that followed the traditional method in learning the dribbling skill.
- 3. The consistent use of exercises during the instructional units, along with exposure to attention-distracting stimuli, significantly improved focus during the performance of the dribbling skill in the experimental group.
- 4. It is possible to improve and develop cognitive and mental processes, including different types of attention, at this age through exercises proposed by the physical education teacher that serve the intended learning objectives.
- 5. Learning the basic skills of handball using tools of varied shapes, colors, and spatial boundaries plays an effective role in enhancing both the speed and accuracy of learning and attention among younger age groups.

#### 6. Recommendations

- 1. Develop skill-based exercises that incorporate other types of attention strategies for learning additional basic handball skills.
- Encourage physical education teachers to adopt the proposed exercises from this study for teaching the dribbling skill in handball.
- 3. Design scales and tests to measure attention capacity based on the broad external focus of attention for youth age groups.

#### **Conflicts of interest**

The author declares no conflict of interest.

#### **Ethics statement**

Not Applicable.

# Author's contributions

All contributions to this study were made by the primary researcher, Dr. Mahdi Mohsen Elias, who

conceptualized the main idea, wrote, and completed the research. He was supported by the following experts:

- Prof. Dr. Abdulkhaliq Abdul Jabbar Ali Ghalib Al-Naqeeb Specialist in Statistics, College of Health and Medical Technologies Baghdad, who conducted the statistical analyses.
- Prof. Dr. Naseer Safaa Mohammed Ali, who reviewed the research.
- Wasan Shaalan, B.A. in Translation, who assisted with translation.

#### **Funding**

This study was supported by the administration of Al-Mukhtar Primary School.

### Data availability

No datasets were generated or analyzed during the current study.

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# Appendix (1) Exercises designed according to the broad external focus of attention

1 Exercise: Dribbling on a marked spot Objective: Directing attention. Performance method: The player stands in front of a clearly marked spot and performs initial dribbling while focusing attention on the correct dribbling level and form.



2 Exercise: Dribbling across markers Objective: Attention distribution to visual cues. Performance method: The coach draws 10 small circles (markers) in a straight line. The player must dribble across these markers while focusing on stepping over them with precision.



3 Exercise: Dribbling through an obstacle and sprinting back.

Objective: Attention distribution during dribbling.

Performance method: The player dribbles the ball through cones or a small gate placed at a 10-meter distance, then quickly sprints back (without the ball) for 60-70 meters.



4 Exercise: Passing and catching the ball while dribbling

Objective: Distributing attention between receiving and dribbling.

Performance method: Two players stand opposite each other. One starts dribbling while passing and receiving a ball from the teammate. The focus is on eye-hand coordination and maintaining dribbling control.



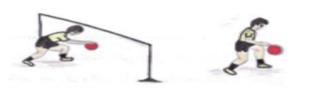
5 Exercise: Dribbling while changing direction Objective: Shifting attention during movement. Performance method: The player starts dribbling, changes direction on the coachs signal, and performs feints during motion. Focus is on quick reactions and visual attention to direction changes.



6 Exercise: Dribbling Between Cones
Objective: Size and focus of attention.
Performance method: The student holds the ball
with one hand and dribbles between five
previously placed cones, either inward or
outward, while other students stand in front of
the cones facing each other.



7 Exercise: Dribbling from Behind the Barrier Objective: Size and focus of attention. Performance method: The student starts behind the barrier, which is 5 meters away from the starting point, with cones placed 3 meters apart from each other. The student dribbles the ball from behind the barrier while others wait for their turn in their designated places.



8 Exercise: Dribbling Over Obstacles
Objective: Size and focus of attention.
Performance method: Same as the previous
exercise, but the obstacles are 20 cm high. The
student must dribble over the obstacles.



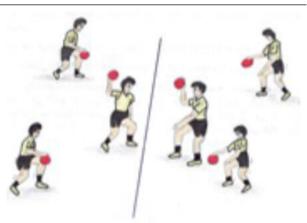
9 Exercise: Dribbling in a Figure Eight Path Objective: Coordination and size of attention. Performance method: The student moves in a figure eight path (∞) around two cones while dribbling the ball. First at a moderate speed, then at maximum speed based on the student's physical ability.



10 Exercise 10: Dribbling Within the Square and Moving Out

Objective of the exercise: Size and focus of attention.

Performance method: Students stand on two lines forming a square (A – B), with two students dribbling inside the square. Upon hearing a whistle, they move toward a pre-determined line and stop, while others enter the square. This process is repeated several times.



11 Exercise: Ball exchange from the center line.
Objective: Distribution of attention.
Performance method: Same as the previous
exercise, but the ball is exchanged on the center
line, with each pair of students taking turns
and returning alternately.



(Continued)

12 Exercise: Ball handling on the circle perimeter. Objective: Size of attention.

Performance method: A circle with a diameter of 5 meters. Half of the team is inside the circle, the other half is outside and facing them. The students pass the ball to each other across the circle. When signaled, they switch roles between inside and outside, in an alternating and continuous way.



13 Same as the previous exercise but with the ball inside the circle.



14 Exercise: Ball handling and passing on two markers.

Objective: Converting attention.

Performance method: Two markers are placed 30 cm apart on the floor at a height of 1.5 meters. Each student stands in front of a marker. The students exchange the ball back and forth between the markers, focusing on switching between them and following the coach's signals.



# Appendix (2) Educational unit model

Time: 45 minutes

Number of Students: 10

Day and Date:

Instructional Objective:

1- Teaching the dribbling skill.

Educational Objective:

Tools and Equipment: Handballs – Chalk – Rope (10 meters long)

No.	Sections of the Educational Unit	Time	Behavioral Objective	Motor Skills	Organization Evaluation
2	Main Section Educational Activities Applied Activities	30 min 10 min 20 min		Dribbling skill Performs the following drills (1, 2, 3, 4)	
3	Final Section	5 min		<i> </i>	