



The Effect of External Focus of Attention Strategy on Learning the Volleyball Spike Skill Among Students of the College of Physical Education and Sports Sciences

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DOI:

[https://doi.org/10.37359/JOPE.V38\(3\)2026.2547](https://doi.org/10.37359/JOPE.V38(3)2026.2547)

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Article history: Received 1/ June/2026; Accepted 5/ July/2026; Available online 28/ September/2026

Abstract

The study aimed to develop an educational program based on the External Focus of Attention Strategy and to investigate its effect on learning the volleyball spike skill among second-year students at the College of Physical Education and Sports Sciences Al-Mustansiriyyah University. The researcher employed the experimental method using an equivalent groups design due to its suitability for the nature of the study. The research sample consisted of 28 students who were randomly assigned into two equal groups: an experimental group (n. 14) and a control group (n. 14). The study variable was the technical performance of the volleyball spike skill which was evaluated using a specially designed technical performance assessment form. The educational program was implemented for seven weeks at a rate of one instructional unit per week with the External Focus of Attention Strategy applied to the experimental group. The results revealed statistically significant differences between the pre- and post-tests for both groups in favor of the post-tests. Furthermore, the experimental group significantly outperformed the control group in the post-test of technical performance of the volleyball spike skill. The researcher concluded that the External Focus of Attention Strategy was effective in learning the volleyball spike skill and improving its technical performance among the participants. The study recommends incorporating the External Focus of Attention Strategy into instructional units designed for teaching volleyball skills and conducting similar studies on different samples and age groups.

Keywords: External Focus of Attention, Motor Learning, Volleyball Spike Skill, Technical Performance, Volleyball .

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Introduction

In recent decades , there have been rapid developments in sports and educational sciences that have directly impacted the methods of teaching and developing motor skills in various sports. Scientific advancements in the fields of motor learning and motor control have contributed to the emergence of modern educational strategies aimed at improving the learning process accelerating the acquisition of motor skills and enhancing the quality of technical performance. Motor learning is considered one of the fundamental sciences in the field of physical education and sports sciences due to its focus on studying the mechanisms associated with acquiring , developing and retaining motor skills as well as researching the factors influencing the improvement of motor performance and directing the learning process toward the best possible outcomes (Magill & Anderson, 2010; Hassan & Abdulkareem, 2025).

Among the recent trends that have garnered wide attention in motor learning research is the external focus of attention strategy which relies on directing the learner's attention toward the effect of movement or its outcomes in the surrounding environment rather than focusing on body parts during performance . Many studies have shown that external focus contributes to improving the efficiency of motor performance and enhancing the learning process by promoting the automatic organization of movement and reducing conscious interference in skill execution leading to smoother and more effective performance compared to internal focus (Schmidt & Lee, 2025; Abdel Salam, 2025) .

Volleyball is considered one of the team sports that has witnessed significant development in teaching and training methods due to the continuous changes in the game's rules and its technical and tactical requirements . This has necessitated the adoption of modern educational methods that help in learning the basic skills more effectively . The technical performance of the perfected spike skill is considered one of the essential requirements for achieving success in this game especially in light of the significant developments witnessed in modern sports competitions (FIVB, 2022; Tilp, 2017; Hassan & Abdulkareem, 2026) .

The skill of the spike is considered one of the most important offensive skills in volleyball and has the greatest impact on the game's results as it represents the main means of scoring points and achieving offensive superiority over the opposing team. This skill requires a high level of motor coordination, timing precision and body control during the phases of approach , ascent , ball striking and landing. The learner's success in acquiring this skill also depends on their ability to organize the various components of motor performance within an integrated motor model that achieves precision and effectiveness in performance (Coleman et al., 1993; Reeser et al., 2006; Al-Aboudi, 2025) .

Recent studies have confirmed that directing the learners attention toward the results of technical performance in the surrounding environment is one of the effective methods for improving the learning of complex sports skills as it contributes to increasing the efficiency of



motor performance and enhancing the acquisition and retention of skills for longer periods . In the field of volleyball studies have indicated that using instructions related to external focus of attention leads to improved quality of technical performance and increased speed of learning offensive skills compared to traditional teaching methods (Slovák et al., 2023; Majeed, 2026) .

Thru the researcher's observation of the practical lesson in volleyball and field observations of students from the College of Physical Education and Sports Sciences it became evident that there is a disparity in the level of learning the spiking skill and a relative weakness in the quality of technical performance among some learners. This may be due to the reliance on traditional teaching methods that do not adequately utilize modern principles of motor learning . Based on the importance of the spike skill in volleyball and the significance of the external focus of attention strategy as one of the modern trends in motor learning this study was conducted to identify the impact of the external focus of attention strategy on learning the spike skill among students of the College of Physical Education and Sports Sciences .

The research aims to develop an educational program based on the external focus of attention strategy in learning the smash skill among second year students in the College of Physical Education and Sports Sciences as well as to identify the impact of this strategy on the level of learning the technical performance of the smash compared to the traditional educational method .

The researcher hypothesizes the existence of statistically significant differences between the pretest and posttest results for the experimental group favoring the posttests in learning the smash skill. Additionally , he hypothesizes the existence of statistically significant differences between the experimental and control groups in the posttests favoring the experimental group.

The human domain is represented by second year students in the College of Physical Education and Sports Sciences at Al-Mustansiriya University while the temporal domain extended from 11/12/2022 to 2/2/2023 . The spatial domain is represented by the sports fields and halls affiliated with the College of Physical Education and Sports Sciences at Al-Mustansiriya University where the research procedures and tests were conducted .

Methods and Tools

Study Design

The researcher adopted the experimental method using the matched groups approach due to its suitability for the nature of the research problem and achieving its objectives as the experimental method is considered one of the most appropriate scientific methods for studying the impact of independent variables on dependent variables and revealing causal relationships between them under controlled conditions . This method was chosen as it is the most suitable for studying the effect of the external focus of attention strategy on learning the smashing skill among students

of the Faculty of Physical Education and Sports Sciences by comparing the performance level of the smashing skill between the experimental and control groups .

Participants

The research sample consisted of second year students in the College of Physical Education and Sports Sciences at Al-Mustansiriya University for the academic year (2022–2023) with the sample comprising (28) students randomly selected from the research population of (95) students . The sample was divided into two equivalent groups : an experimental group and a control group with (14) students in each group according to the matched groups method . Students who had failed or were deferred as well as those with prior experience or regular practice in volleyball were excluded from the sample to ensure the homogeneity of the sample members and the similarity of their educational and skill levels before starting the experiment .

Equivalence between the experimental and control groups was conducted in the study variable represented by the performance of the smashing skill in order to ensure the equivalence of the sample members and the proximity of their skill levels before starting the main experiment . To verify the equivalence of the two groups the researcher used the independent samples T-test to extract the significance of the differences between the two groups in the pretest. The results showed no statistically significant differences at the 0.05 significance level indicating the equivalence of the two groups in the level of technical performance of the smashing skill . This equivalence is an important indicator that allows attributing any differences that may appear in the posttest to the effect of the external focus of attention strategy used in the research , as shown in Table (1).

Table 1. *Equivalence Between the Experimental and Control Groups in Spike Skill Performance*

Variable	Experimental Group (Mean ± SD)	Control Group (Mean ± SD)	Calculated <i>t</i> - Value	<i>p</i> -Value
Spike Skill Performance (Score)	10.57 ± 1.43	10.36 ± 1.38	0.40	0.69

The tools used

- A legal volleyball courts .
- Legal volleyball net .
- Legal volleyballs number (8) .
- Whistle .
- Measuring tape .
- Colored adhesive tape to mark performance areas within the field .
- Video camera .
- Camera tripod .

- Laptop .
- Technical performance evaluation forms for the smashing skill .
- Result recording forms .
- A team of experts and specialists to evaluate technical performance .
- Rubber bands and auxiliary educational tools used during the implementation of educational units .

Study Variables

The study variable is represented by the technical performance of the spike skill in volleyball which included the evaluation of the stages of technical performance of the skill namely the approach , jump , hit and landing . This was aimed at identifying the impact of the external focus of attention strategy on learning the spike skill among the research sample individuals .

Evaluation of the technical performance of the spiking skill

The researcher relied on a performance evaluation form for the technical skill of the spike in volleyball . The performance of the sample members was recorded while executing the skill and the recordings were presented to a group of experts and specialists in volleyball and motor learning for the purpose of performance evaluation .

- **The purpose of the test :** Measuring the level of technical performance of the spiking skill .
- **Tools used :**
 - Official volleyball court .
 - Legal volleyball net .
 - Legal volleyballs .
 - Digital video camera .
 - Camera holder .
 - Performance evaluation forms .
 - A computer to display the recordings .
- **Performance method:** The student stands in position (4) and the teacher or assistant prepares the ball appropriately then the student performs the spike skill toward the opponent's court . The performance is filmed on video for all sample members under the same conditions for the purpose of evaluating the technical performance of the spike skill .
- **Registration method :** The technical performance is evaluated by three specialized experts according to an assessment form prepared for this purpose . It includes the stages of technical performance for the skill represented by the approach take-off , ball strike and landing, with 5 points awarded for each stage of performance . The points are then summed to obtain the total score for the technical performance . The average of the three experts' scores is considered the final grade for the student as shown in Table 2 .



Table 2. *Technical Performance Evaluation Form for the Volleyball Spike Skill*

Technical Phase	Evaluation Criteria	Score
Approach	Performs the approach steps with correct rhythm and appropriate movement sequence	2
	Maintains balance during the approach	1
	Reaches the appropriate take-off point	2
Subtotal		5
Take-off	Uses the arms correctly during take-off	2
	Performs an effective combined vertical–horizontal take-off	2
	Maintains balance during the flight phase	1
Subtotal		5
Ball Contact	Contacts the ball at the highest possible point	2
	Directs the ball accurately toward the opponent's court	2
	Demonstrates coordination between arm and trunk movements during the spike	1
Subtotal		5
Landing	Lands with proper balance on both feet	2
	Flexes the knees appropriately upon landing	2
	Returns to the ready position after landing	1
Subtotal		5
Total Score		20 points

The performance evaluation form was presented to a group of experts and specialists in motor learning and volleyball to verify its apparent validity and suitability for evaluating the technical performance of the spiking skill . It was approved after making the modifications suggested by the experts . The performance of the sample members was also recorded on video and presented to three specialized experts, and their average scores were adopted as the final grade for each student .

The Polit Study

The researcher conducted a preliminary exploratory experiment on Wednesday , December 21, 2022 on a sample consisting of (5) students randomly selected from the original research community and they were excluded from the main experiment. The aim of this experiment was to determine the suitability of the instructions related to the external focus of attention strategy for the research sample and to ensure their clarity and ease of application during the learning of the smashing skill . It also aimed to determine the time required to implement the educational units and the tests used identify the difficulties and obstacles that might be encountered during the main experiment and work on overcoming them as well as ensuring the validity of the tools and devices used and the efficiency of the filming procedures and technical performance evaluation by experts



. The results of the exploratory experiment contributed to making some necessary organizational adjustments to ensure the proper implementation of the main experiment and the achievement of the research objectives .

Procedures

Pretests

The researcher conducted the pretests for the research sample on 11/12/2022 where the technical performance of the spiking skill among the sample members was evaluated using the prepared performance evaluation form for this purpose . This was aimed at determining the level of the spiking skill of the students and ensuring the equivalence of the experimental and control groups before starting the main experiment .

The Main Experiment

After conducting the pretests the researcher began implementing the educational program based on the external focus of attention strategy on the members of the experimental group on 18/12/2022 while the control group continued learning according to the teaching method followed by the subject teacher . The program was implemented for a consecutive period of (7) weeks with one educational unit per week resulting in a total of (7) educational units. Sixty minutes of the main part of the educational unit were allocated to the implementation of the educational program totaling 420 minutes of application time and the experiment was completed on 29/1/2023.

The educational program for the experimental group relied on the external focus of attention strategy by directing learners' attention toward the technical performance of the skill and its impact on the surrounding environment instead of focusing on the positions of body parts during performance . To achieve this the researcher used standardized verbal instructions throughout all educational units focusing on directing the ball toward specific areas within the field and tracking its path and landing spot after hitting . Examples of these instructions include : "Aim the ball toward the target area" "Focus on where the ball lands on the court" "Make the ball cross over the net toward the designated target" and "Follow the ball's path after it leaves your hand" .

Each educational unit included a brief explanation of the smash skill and a practical demonstration of the correct performance followed by the implementation of educational activities that included the stages of approach , ascent , hitting the ball and landing while continuously providing external focus instructions for attention during practice. The members of the experimental group also received feedback related to performance outcomes which included the accuracy of ball direction , its landing spot and its trajectory without focusing on the mechanical details of the movement . As for the control group they received the standard educational curriculum followed at the college which included explaining the skill demonstrating a

performance model and applying the usual educational exercises without using external focus instructions for attention.

To ensure the integrity of the experimental design and the consistency of the application procedures the researcher was keen to standardize all variables related to the teaching process between the two groups including the duration of the educational unit the number of practice sessions the tools used the location of the application and the instructor. Thus , the only difference between the two groups was the use of the external focus of attention strategy with the experimental group only. The researcher also directly supervised the implementation of all educational units to ensure adherence to the specified instructions throughout the duration of the program .

Table 3. *Educational Activities Based on the External Focus of Attention Strategy Used for Learning the Volleyball Spike Skill*

No.	Educational Activity	Activity Objective	External Focus of Attention Instruction	Duration
1	Approach toward the net using progressive steps	Learn the correct movement rhythm of the approach	Focus on reaching the designated take-off marker on the floor	5 min
2	Take-off in front of the net without a ball	Improve take-off timing	Focus on reaching the highest point above the net	5 min
3	Spiking a stationary suspended ball	Learn the optimal ball contact point	Focus on directing the ball toward the designated target	5 min
4	Spiking from a set delivered by the instructor	Improve coordination between the approach and the spike	Focus on the ball's trajectory after it leaves the hand	5 min
5	Spiking toward designated target areas on the court	Improve control of performance outcomes	Focus on where the ball lands within the designated target area	5 min
6	Straight spike from Position 4	Learn the straight spike technique	Focus on hitting the designated target area on the court	5 min
7	Cross-court spike from Position 4	Learn the cross-court spike technique	Focus on directing the ball toward the designated corner	5 min
8	Integrating the approach, take-off, and spike	Develop smooth and coordinated skill execution	Focus on sending the ball to the designated target after the spike	10 min
9	Spiking after a moving set	Improve performance under game-like conditions	Focus on where the ball lands in the opponent's court	5 min
10	Full spike execution in simplified game situations	Reinforce learning and transfer it to game situations	Focus on achieving the final movement goal of the skill	10 min



Posttests

After completing the educational program based on the external focus of attention strategy the researcher conducted posttests for both the experimental and control groups to identify the extent of improvement in learning the smashing skill among the sample members . The students technical performance was evaluated using the approved technical performance evaluation form in the study under the same conditions in which the pretests were conducted in terms of the application location , the tools used , the assisting team and the execution mechanism to ensure the accuracy and objectivity of the results. The performance of the sample members was also recorded and presented to specialized experts to evaluate the technical performance according to the criteria specified in the evaluation form with the aim of revealing the changes that occurred in the level of learning the smashing skill as a result of applying the educational program based on the external focus of attention strategy .

Statistical Methods

The researcher used the Statistical (SPSS) to process the research data and extract the results. The arithmetic mean and standard deviation were relied upon to describe the data and the independent samples T-test was used to verify the equivalence of the two groups and compare the posttest results between them. Additionally , the paired samples T-test was used to identify the significance of the differences between the pretest and posttest results for each group with the aim of revealing the impact of the external focus of attention strategy on learning the smashing skill among the research sample members .

Results

Table 4. Means, Standard Deviations, *t*-Values, and Significance Levels for the Experimental and Control Groups in Volleyball Spike Skill Performance During the Pre- and Post-Tests

Group	Pre-test Mean	Pre-test SD	Post-test Mean	Post-test SD	Calculated <i>t</i> -Value	<i>p</i> -Value
Experimental	10.57	1.43	17.86	1.12	15.37	0.000
Control	10.36	1.38	14.71	1.27	8.42	0.000

Table 5. Means, Standard Deviations, *t*-Value, and Significance Level for the Experimental and Control Groups in the Post-Test of Volleyball Spike Skill Performance



Variable	Experimental Group Mean	SD	Control Group Mean	SD	Calculated <i>t</i> - Value	<i>p</i> - Value
Volleyball Spike Skill Performance (Score)	17.86	1.12	14.71	1.27	6.98	0.000

Discussion

The results of Tables (4) and (5) showed statistically significant differences between the pre-test and posttest for both the experimental and control groups in favor of the posttests. However, the extent of improvement in the technical performance of the smashing skill was greater in the experimental group compared to the control group. The researcher attributes this development to the effectiveness of the external focus of attention strategy used during the educational program as it contributed to directing learners attention toward the outcomes of the movement and its impact on the surrounding environment instead of focusing on the details of body parts movements during performance. This helped improve motor organization and enhance the quality of technical performance of the skill.

The researcher believes that the verbal instructions based on the external focus of attention strategy helped learners concentrate on the desired motor goal, the ball's trajectory and its landing spot on the field which led to improved motor fluidity and coordination between different performance stages. This result aligns with what Schmidt & Lee (2025) indicated that directing the learner's attention toward the impact of movement and its outcomes contributes to improving motor learning and performance efficiency better than focusing on the internal movements of body parts. It also aligns with the findings of Slovák et al. (2023) and Nema & Ismaeel (2022) which indicate that adopting teaching methods that focus on the requirements of technical performance contributes to the development of offensive skills and the improvement of technical performance quality in volleyball.

The posttest results also showed that the experimental group outperformed the control group in the technical performance of the smashing skill. The researcher attributes this to the fact that the external focus of attention strategy provided a more conducive learning environment for motor learning as it helped learners acquire the correct motor pattern of the skill by focusing on the outcomes of performance rather than the mechanical details of the movement. This positively reflected on improving the coordination between the stages of approach, take-off, hitting the ball and landing contributing to the overall technical performance of the skill.

This result aligns with what Tilp & Wagner (2021) mentioned that learning complex motor skills in volleyball requires the use of modern teaching methods that help improve motor control and enhance technical performance efficiency. It also aligns with the results of (Zetou et al., 2022; Shilkam et al., 2025) which confirmed that the use of modern educational strategies contributes to



improving the learning of offensive skills and enhancing the performance level of physical education and sports science students . It was also clarified by (Palao et al., 2009; Jabar, 2026) that appropriate feedback during the learning process helps improve technical performance and accelerate the acquisition of motor skills in volleyball .

Based on the current results, it can be said that the external focus of attention strategy has effectively contributed to learning the smash skill and improving its technical performance among students of the college of Physical Education and Sports Sciences . This was achieved by directing learners attention toward the outcomes of the movement and its impact on the surrounding environment which led to an improvement in the quality of technical performance and an increase in the effectiveness of the learning process compared to the traditional teaching method used with the control group .

Conclusions

The researcher concluded that the external focus of attention strategy effectively contributed to learning the smashing skill among second year students in the College of Physical Education and Sports Sciences as it led to an improvement in the technical performance level of the skill among the experimental group members . The results also showed that the experimental group outperformed the control group in the posttest of the technical performance of the smashing skill confirming the effectiveness of the external focus of attention strategy in improving the quality of technical performance and accelerating the learning process by directing learners attention toward the outcomes of the movement and its impact on the surrounding environment during performance .

Recommendations

The researcher recommends the necessity of adopting an external focus of attention strategy within the educational units for learning the skill of spiking in volleyball due to its positive impact on improving technical performance and accelerating the learning process . He also recommends directing learners attention toward the outcomes of movement and its impact on the surrounding environment instead of focusing on the details of body parts movements during performance as this plays a role in improving the quality of motor learning . The researcher also recommends conducting similar studies on different samples and age groups to verify the effectiveness of the external focus of attention strategy in learning other basic skills in volleyball and various sports as well as comparing this strategy with other modern motor learning strategies to identify the most effective ones in improving the technical performance of learners .



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Journal of Physical Education

Volume 38 – Issue (3) – 2026 Open Access

P-ISSN: 2073-6452 , E-ISSN: 2707-5729

<https://jcope.uobaghdad.edu.iq>



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