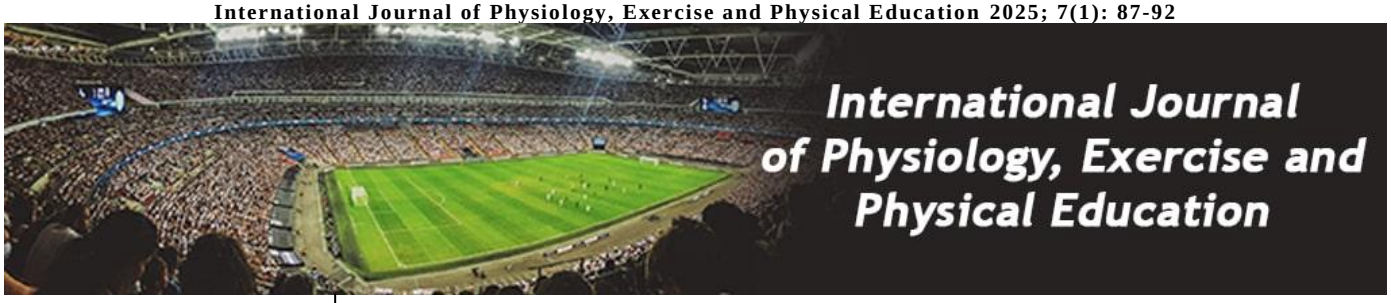

ISSN Print: 2664-7249
ISSN Online: 2664-7257
IJPEPE 2025; 7(1): 87-92
www.physicaleducationjournals.com
Received: 13-01-2025
Accepted: 14-02-2025

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The effect of the Edelson model on teaching students the skill of blocking in volleyball

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DOI: https://doi.org/10.33545/26647249.2025.v7.i1b.152

Abstract
The Edelson model is a teaching model based on understanding and learning new knowledge for the learner and linking it to old or previous knowledge. The aim of the research was to identify the impact of the Edelson model on the learning of the blocking skill for students at the Open College of Education. The researcher used the experimental method to suit the research sample and achieve the research objectives. He designed two equivalent groups: control and experimental, with pre- and post-tests. The study population included second-year students at the Open College of Education/Department of Physical Education and Sports Sciences for the academic year (2024-2025), numbering (32) students. The research sample was selected from the same research population, divided into two groups, using the intentional method. Group (A) was chosen as the experimental group, and Group (B) was chosen as the control group, with 12 students for each group. Six students were selected as members of the exploratory experiment. Appropriate tests were conducted for the research, and the results were statistically processed using the statistical package (SPSS). The research reached a set of conclusions, including that the Edelson model had a positive impact on the superiority of the experimental group in learning the blocking skill in volleyball. The researcher recommended the need to rely on models a teaching approach in which the learner is the primary focus to achieve the best results.

Keywords: Experimental, volleyball, learner

Introduction
There are many modern teaching models, and these models constitute a key and important part of the process of delivering academic material to learners. They help them guide their learning path and make the learner active, motivated, and self-discovering and searching for information. This requires the use of models that reflect the learners' level and the type of material presented, which is compatible with the educational environment. A successful teacher must not limit their knowledge to the academic material alone, but must also understand the learners' level and improve their relationship with them. They must also explore how to engage them through the application of the model, its presentation, and how to communicate it to them so that they accept and respond to learning with high motivation, benefit from it, and enjoy it, interacting rather than being passive. Thus, it can be said that working according to active models has become necessary for better learning. These educational models are of great importance as they are "a series of changes that occur during acquired experience to modify human behavior, which is a process of adapting responses to suit different situations that express one's experiences and suit the environment. It is also a process of acquiring, developing, and consolidating motor skills and the ability to use and retain them" (Abbas, 2018: 13) [1]. He points out "the mind does not learn passively by recording and memorizing information, but rather requires active efforts to make the information learned meaningful to the individual" (Nouri *et al*., 2019: 11) [3]. The researcher believes that the Edelson model is an effective educational model, according to the studies he has reviewed, as it is used to build and plan educational units that include experiences and experiments undertaken by teachers to create an active and effective educational climate in which both the learner and teacher participate to achieve the best practical educational goals. Volleyball is one of the sports that is subject to many variables (physical, motor, psychological, and mental) that qualify learners and enable them to achieve their goals and

outperform their competitors through the skillful and correct performance of the blocking skill. Those interested in and specialized in this game seek to rely on research and investigation into everything new in order to develop and advance this game. Thus, the importance of this research is evident in applying an educational model (such as the Edelson model) to teach the blocking skill in volleyball to students of the Open College of Education / Wasit Center.

Research problem

Volleyball is a fun, exciting, and popular game. This increases its popularity due to its superiority over other games. Therefore, we see increased interest in developing its capabilities to master its technical skills. This requires the use of new educational models for students that ensure mastery of the technical performance of the game. Using this model in learning increases learners' motivation and facilitates the learning process as quickly as possible and with minimal effort. Therefore, the researcher decided to use a modern educational model, such as the Edelson Model, to develop the intellectual, mental, and skill aspects of the student. This has a significant impact on motivating both students and teachers, and contributes significantly to student engagement in the lesson. This contribution leads to the learning and mastery of basic volleyball skills, especially the blocking skill, which is both a defensive and offensive skill against the opponent, making it easier to score points.

Research objective

1. To identify the impact of the Edelson Model on the learning of the blocking skill for students at the Open College of Education.
2. To determine the superiority of either group (experimental or control) in teaching students the blocking skill.

Research hypotheses

1. There is a positive effect of both research groups on students' blocking skill learning.
2. There is a superior effect of the Edelson model on students' blocking skill learning for the experimental group compared to the control group.

Definition of Terms

(Edelson Model, 2001): It is defined as "a learning model based on cognitive theory and the constructivist approach to teaching. Learning occurs through three main steps, in which the use of knowledge is the central focus of these steps" (Rashid and Farhan, 2013: 52).

Research fields

- **Human field:** Second-year students in the Department of Physical Education and Sports Sciences at the Open College of Education, Wasit Center, for the academic year (2024-2025).
- **Time field:** (2/10/2024) to (20/1/2025)
- **Spatial field:** The courtyard of the Open College of Education, Wasit Center

Research methodology and field procedures

Research Methodology

The researcher adopted the experimental approach, employing two equivalent groups: experimental and control (with a pre-test and post-test design). This approach is consistent with the research objectives, as it is the best and easiest method for achieving the objectives, as shown in the experimental design in Table (1).

Research Community and Samples

The research community was defined as (32) students in the Department of Physical Education and Sports Sciences at the Open College of Education, Wasit Center, second stage. The research sample was chosen from the same research community, divided into two classes, using a deliberate method. Class (A) was chosen as the experimental group, and Class (B) was chosen as the control group, with 12 students in each class. Six students were selected as members of the exploratory experiment.

Table 1: Shows the experimental design for the research sample, which includes two pre-tests and one post-test.

Groups	Pre-test	Educational Units	Post-test
Experimental	Blocking Skill	Edelson Model	Blocking Skill
Control	Blocking Skill	Strategy and Methodology	Blocking Skill

Methods, Tools, and Devices Used in the Research

Data Collection Methods

- Arabic and foreign sources and references.
- The Internet.
- Technical Performance Test Evaluation Form for the Blocking Skill.

Tools and Devices Used in the Research:

- (12) legal volleyballs.
- HP Protect Smart laptop calculator.
- Measuring tape.
- Whistle.
- Handheld calculator tripod camera holder, in addition to a camera.

Field Research Procedures

Tests Used in the Research

After reviewing numerousdissertations and theses, the researcher used a test similar to that used by researcher Ahmed Hassan Ghadib in 2024 for the current sample.

- **Technical Performance**: Test for the Blocking Skill (Al-Dulaimi, 2015: 108-109) [2]
- **Purpose of the test:** To evaluate the technical performance of the blocking skill according to the outward appearance of the skill and its three sections (preparatory, main, and final).
- **Equipment used:** A legal volleyball court, (3) legal volleyballs, a Sony video camera, (3) benches.
- **Performance specifications:** Three benches are placed in positions (2, 3, and 4) at a distance of (50 cm) from the net. An assistant stands on each bench, holding the ball with both hands above the net at a height of (30 cm). The lateral distance between the three benches is equal, (2.25 m). The student stands in position (3). Upon receiving the start signal, he moves toward

position (4) to perform the skill by touching the ball above the net with both hands, then returns to position (3) and then to position (2) to perform the same skill, in succession.

- **Performance conditions:** Each player is given (3) consecutive attempts.
- **Registration:** The player is photographed for the three attempts and shown to three experienced and specialized evaluators for the purpose of evaluation. Each evaluator awards three marks to each player according to the chosen division, by awarding (3) marks for the preparatory section, (4) marks for the main section, and (3) marks for the final section. Note that the total mark for each attempt is (10) marks. The best mark is then chosen for each evaluator, and by extracting the average of the best three marks, the final mark is calculated for each tester, as shown in Figure (1).

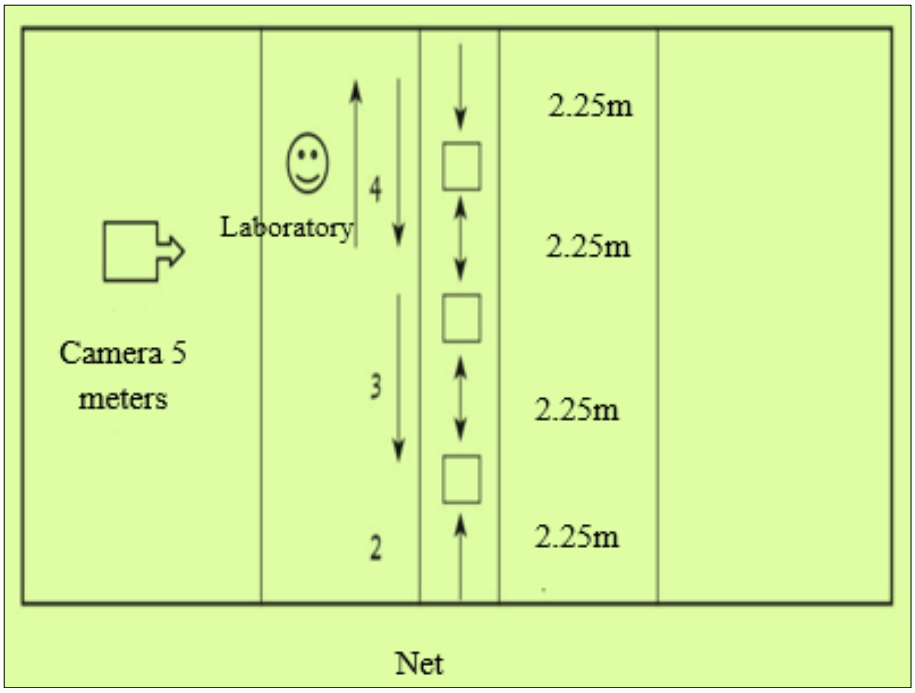

Fig 1: Show the technical performance evaluation test (technique) for the blocking skill in volleyball.

Exploratory Experiment

The researcher conducted the experimental experiment on Wednesday, October 2, 2024, on a sample of (6) players from both groups, including club players and practitioners of the game at the same level. The experimental experiment was specific to the skill test.

The experimental experiment aimed to

Identify the time required to complete the test, as well as the challenges the researcher might face during his work, provide appropriate solutions for each problem, and verify the competence of the support team.

Pre-tests

Pretests were conducted for the two groups (experimental and control) in the open courtyard of the College of Education on Friday, October 4, 2024, which is one of the college's official working days, from 9:00 AM to 12:00 PM. The test was administered to the research variable with the participation of the support team.

Equivalence of the two research groups

Before the researcher began implementing the research experiment, he sought to verify the equivalence of the two research groups (experimental and control) in the variables related to the technical performance of the blocking skill, as shown in Table (2):

Table 2: Shows the equivalence of the pre-test results between the experimental and control groups regarding the technical performance of the blocking skill.

Test	Unit of Measurement	Experimental group		Control group		T value calculated	Level Sig	Type Sig
		Arithmetic mean	Standard deviation	Arithmetic mean	Standard deviation			
Blocking Skill	Degree	3.283	0.871	3.475	0.779	0.568	0.576	non sig

Degree of freedom (n-2) (12-2=10) and significance level (0.05). Table (2) shows the calculated t-values for the pre-tests of the technical performance of the blocking skill at the degree of freedom (n-2) (12-2=10) and significance level (0.05). Thus, the differences between the two research groups are random, achieving equivalence between them in these tests.

Working according to the Edelson model

Working according to the Edelson model consists of three steps: The first step: From the Edelson model (motivation and stimulating motivation) through the use of enrichment or motivational activities, which are implemented as follows:

A. Motivation and stimulating the need for experience in learning the skill: During the explanation, by presenting the correct model of performance, by directly displaying the skill performance to the student.
B. Stimulating learners' curiosity and desire to learn: This is done by providing students with the opportunity to apply the skill.

Step Two: The student builds and acquires knowledge. This occurs in the theoretical part of the main course. The teacher then re-explains the skill, reinforced by the performance of the model in the technical performance of the fire skill, by repeating the previous skills.

Step Three: Edelson's Model (Knowledge Refinement): This part organizes and refines knowledge, links it to other knowledge, and reinforces it. This facilitates future retrieval and application. It also reorganizes declarative knowledge and transforms it into procedural knowledge to make it more meaningful through the processes of application and reflection. This step implements the principles of the model as follows:

- Divide students into six paired groups and name them (A, B, C, D, E, and F).
- Assign a task to each student in each group (applier and observer).
- The skill is applied by Group A, Group B monitors, Group C applies, Group D monitors, Group E applies, and Group F monitors.
- Allow students the opportunity to refine their knowledge by asking questions about the skill to the groups that will be applying the skill (between the applier and the observer).
- Exchange positions between the applier and the observer.

Main Experiment

The researcher conducted his main experiment on a research sample of (24) students from the two groups, all third-year students in the Department of Physical Education and Sports Sciences at the Open College of Education. The experiment began on Saturday, October 5, 2024, with the experimental group participating in two instructional units per week for four weeks, with each unit lasting (90) minutes, until November 1, 2024. The control group followed the curriculum taught by the professor for the same period specified in the main experiment, according to the college's weekly schedule.

The following is the time distribution of the proposed curriculum

- Number of weeks (4).
- Number of instructional units per week (2 instructional units).
- Length of instructional unit (90) minutes.
- Total time for instructional units (90 x 8 = 720) minutes.

Post-tests

The researcher conducted the post-test on Friday, November 4, 2024, which is one of the college's official working days, for the experimental and control groups, in the College of Education's open courtyard at 9:00 AM, with the assistance of the assistant team (Assistant Professor Hassanein Muhammad Jihad and Assistant Professor Firas Muhammad Karim).

Statistical Methods

The researcher used the statistical package (SPSS):

- Arithmetic mean.
- Standard deviation.
- t-test for independent and non-independent samples.

Results and Discussion

Presentation, Analysis, and Discussion of Results

Presentation and Analysis of the Results of the Pre- and Post-Tests for the Experimental Group in the Technical Performance of the Blocking Skill

After transcribing the data from the pre- and post-tests for the experimental group and processing them statistically, as shown in Table (3).

Table 3: Shows the results of the pre- and post-tests for the experimental and control groups in the technical performance of the blocking skill are shown.

Groups	Unit of Measurement	Pre-test		Post-test		T-value calculated	Level Sig	Type Sig
		Arithmetic mean	Standard deviation	Arithmetic mean	Standard deviation			
Experimental	Degree	3.283	0.871	7.325	0,794	16،072	0.000	Sig
Control	Degree	3.475	0.779	6.383	0,551	8,235	0.000	Sig

Degrees of freedom (n-1) (12-1=11), * significant if the significance level (Sig) ≥ (0.05).

By analyzing Table (3), which displays the results of the technical performance evaluation of the "block " skill for the experimental group, it is clear that the arithmetic mean for the pre-test was (3.283) with a standard deviation of (0.871), while the arithmetic mean for the post-test increased to (7.325) with a standard deviation of (0.794).

Using the t-test for correlated samples, the calculated T value was (16.072) at a significance level of (0.000), indicating a statistically significant difference at a confidence level of (0.05) and a degree of freedom of 11. Therefore, it can be concluded that the difference between the pre- and post-tests is statistically significant, in favor of the post-test. As for the control group, the mean for the pre-test was 3.475, with a standard deviation of 0.779, while the mean for the post-test was 6.383, with a standard deviation of 0.551.

Using a t-test for correlated samples, the T value was calculated, which amounted to 8.235 at a significance level of 0.000, indicating a statistically significant difference at a significance level of 0.05 and with a degree of freedom of 11.

From these results, it can be concluded that there was a significant improvement in the control group's performance in the "blocking " skill after the post-test, and that this difference is considered statistically significant in favor of the post-test.

Discussion of the results of the pre- and post-tests for the experimental and control groups

By reviewing the results in Table (3), we found significant differences between the pre- and post-tests in favor of the post-test for both research groups. Upon analysis, we find that both groups achieved positive results in the technical performance tests for the students' volleyball blocking skill. This confirms the first hypothesis of the research. The researcher believes that the differences that emerged in favor of the post-tests for both groups are due to the role of the instructor in presenting the scientific material in detail, as well as giving sufficient attention to the subject matter in the college for this skill and the positive application of skills, resulting from the instructor's use of effective methods that are appropriate to the students' abilities and capabilities. As (Al-Haik ,2018) [5] indicated, education is "an interactive process based on the presence of a teacher, a learner, and an educational material in a specific environment, in which the teacher performs his role" (Al-Haik, 2018: 16) [5]. Differences were evident between the results of the pre-tests, as the results of the control group were evident in both tests. Pre- and post-tests showed improvement in skill learning. This is what pointed out in his thesis: "The results of the learning rate for the educational curriculum followed at the college focus exclusively on skill performance, without subjecting students to any exercises, activities, or modern aids. Furthermore, the method followed by the subject teacher, in accordance with the ministerial curriculum designated for the educational subject, played a significant role in the positive results achieved by the control group." (Ahmed, 2024: 109) [9].

Presentation and Analysis of the Post-Test Results for the Experimental and Control Groups in the Blocking Skill:

After transcribing the data from the post-tests for the experimental and control groups and processing them statistically, as shown in Table (4).

Table 4: Shows the results of the post-test evaluation for the experimental and control groups in the blocking skill in volleyball.

Test	Unit of Measurement	Experimental group		Control group		T-value calculated	Level Sig	Type Sig
		Arithmetic mean	Standard deviation	Arithmetic mean	Standard deviation			
Blocking Skill	Degree	8.325	0,794	6.383	0,551	10,541	0.000	sig

Degrees of freedom (n-2) (24-2=22), significant if the significance level (Sig) ≥ (0.05).

By presenting Table (4) of the post-test results for the two research groups, we can see that the arithmetic mean for the evaluation of the technical performance of the (Blocking) skill for the experimental group reached (8.325), with a standard deviation of (0.794), while the arithmetic mean for the control group reached (6.383), with a standard deviation of (0.551).

When using the (T-Test) law for unrelated samples, the calculated (T) value reached (10.541), below the significance level of (0.000). This indicates its significance at a significance level of (0.05) and a degree of freedom of (22). Thus, the difference is statistically significant in favor of the experimental group. 3-4 Discussion of the results of the post-tests for the experimental and control groups:

By presenting and analyzing the results of the post-tests in Table (4) regarding the technical performance of the fire skill for the two groups, statistically significant differences were revealed using the (T) test between the experimental and control groups, in favor of the experimental group that practiced the Edelson model. This confirms the validity of the second hypothesis, as the researcher believes that the differences revealed by the experimental group are due to the effectiveness of the educational situations of the Edelson model. Sources indicate that "achieving and acquiring the highest levels of competence in the prepared educational and developmental situations is a way to organize the unit based on gradual steps, such that the learner can easily acquire them" (Lutfi, 1972: 466).

The researcher also attributes the apparent progress rates achieved by the experimental group to the effective and appropriate practice of the Edelson model from an organizational and production perspective for this group, as these active educational methods work to increase students' interest and keep them in a state of continuous attention, as they are preoccupied with the tasks assigned to them while applying the steps of the model and interacting with them, as indicated by (Zaid Al-Huwaidi, 2005) [7] that “active learning methods aim to teach the learner how to learn, how to think, and how to participate effectively?” Through its strategies, it makes learners more effective and develops new skills that help them adapt to new developments. Through these strategies, they shift from a passive state to an active, dynamic state, which helps them acquire educational experiences in an effective manner (Al-Huwaidi, 2005: 78) [7] (Falih, Ali Awda. 2022) [8].

Conclusions and Recommendations

Conclusions

According to the research results and scientific facts, the researcher reached the following conclusions:

- A clear positive effect of the Edelson model on the speed of learning the blocking skill.
- It was found that the experimental group to which the Edelson model was applied clearly outperformed the control group in learning the blocking skill in volleyball.
- The Edelson model plays a significant role in motivating students toward good performance and an effective level of skill mastery.

Recommendations

According to the conclusions reached by the researcher, the following recommendations are recommended:

- The necessity of relying on teaching models that place the learner at the center of learning in order to achieve good results.
- The necessity of using a model Edelson's model in learning other basic skills in volleyball.
- Emphasizing the use of Edelson's model in learning basic skills in other sports and at all educational levels.

- Benefiting from the study and generalizing its results for the purpose of conducting other similar studies at other educational levels.
- Conducting training courses and workshops for teachers specializing in physical education and sports science to identify the effectiveness of educational models.

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