

THE EFFECTIVENESS OF AN EDUCATIONAL PROGRAM USING THE EISENKRAFT MODEL IN THE ACCURACY OF SERVING AND SPIKING IN VOLLEYBALL FOR STUDENTS

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Abstract

The sport of volleyball is one of the basic subjects that are taught in the faculties of physical education and sports sciences for both genders, as it requires a special technique that combines the motor path and high fluidity with physical effort to reach good skilful performance. And through the presence of researchers in the field of teaching and their interest in the sport of volleyball and their viewing of most of the practical lessons for students of the second stage, they noticed the difficulty of performance, poor fluidity, and the inability to link the stages of skill in a correct way, which affected their technical level. All these observations called for the researchers to find solutions to these problems, which lie in preparing an educational program built according to seven steps of the Eisenkraft model, aiming at mastering the motor path and increasing the flow and correct timing between the tool (the ball) and the student in order to reach good performance and perfect accuracy for the skills of serving and spiking in volleyball. The most important objectives of the research were to prepare an educational program using the Eisenkraft model in the accuracy of serving and spiking in volleyball for students, and knowing the effectiveness of the educational program prepared according to the Eisenkraft model in the accuracy of serving and spiking in volleyball for students, and knowing which is better in the post-tests between the educational program according to the Eisenkraft model and the program that the teacher follows in the accuracy of serving and spiking in volleyball for students. The research community consisted of students of the second stage for the academic year 2022-2023 AD. The research sample represented the classes (A and B), 20 students were selected randomly, and then they were divided into two groups, 10 student's experimental group and 10 students control group. The most important conclusions were that the educational program according to the Eisenkraft model had an effective and essential role in the development of the experimental group members in the accuracy of serving and diagonal spiking for students, and the members of the experimental group outperformed the control group in the accuracy of serving and diagonal spiking in volleyball. The most important recommendations are the adoption of the educational program in teaching basic skills in volleyball and interest in using educational models, including the Eisenkraft model in teaching basic skills in volleyball.

Keywords: Effectiveness. Eisenkraft Model. Volleyball.

Introduction

Kinesiology is the basic foundation from which many sciences related to human movements branched out, so it is the basic rule on which the educational process is based in the field of physical education and sports sciences. A science called motor learning emerged from the science of Kinesiology, which is responsible for finding ways

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and means for students to acquire motor skills, the ability to control and motor performance. Purposeful learning process is the cornerstone of the civilized development of man, and it is nothing but a relatively constant change in the behavior of the individual, which also means the psychological process that is built on the accumulation of correct information that becomes the guide for behavior.

It is the main duty of the teacher to find appropriate educational models for the level of the sample and the nature of the activity to be learned and to master its motor path, provided that this model keeps pace with development and allows the student to be positive in the educational process through interaction and participation and allowing him to express opinions and give explanations for the effectiveness sports.

It is also necessary for the teacher to familiarize himself with and identify the modern teaching skills and to see their content in order to form appropriate experiences and capabilities to persuade students to participate in the educational process, and that one of the important considerations in encouraging learners to participate in learning is to identify their preferred methods and methods and their learning styles. Because most of the students are similar physiologically, but they differ in their patterns and ways of receiving and processing information.

One of the basic things that many people did not notice is that students have different styles that they prefer in learning and thinking about things, and the educational style is the individual method or curve that the learner prefers to perform the educational task. The difference in all sporting events requires learning and training, and choosing the educational method that is appropriate to these skills and is more economical in time and effort for the purpose of reaching quickly and mastering the process of learning the skill.

The sport of volleyball is one of the basic subjects that are taught in the faculties of physical education and sports sciences for both genders, as it requires a special technique that combines the motor path and high fluidity with physical effort to reach good skilful performance.

Hence the importance of the research lies in the researcher's attempt to prepare an educational program according to the steps of the Eisenkraft model, mixing the stages of performing the serve and the diagonal spiking, and reaching the best possible technique where the student can perform it.

Research Problem

Through the presence of researchers in the field of teaching and their interest in the sport of volleyball and their viewing of most of the practical lectures for students of the second stage, they noticed the difficulty of performance, poor fluidity, and the inability to link the stages of skill in a correct way, which affected their technical level. All these observations called for researchers to find solutions to these problems. In the preparation of an educational program based on seven steps of the Eisenkraft model, it aims to master the motor path and increase the smoothness and correct timing between the tool (the ball) and the student in order to reach good performance and perfect accuracy for the skill of serving and diagonal spiking in volleyball.

Research Objectives

- Preparing an educational program using the Eisenkraft model in the accuracy of serving and diagonal spiking in volleyball for students.
- Knowing the effectiveness of the educational program prepared according to the Eisenkraft model in the accuracy of serving and diagonal spiking in volleyball for students.
- Knowing which is better in the post-tests between the educational program according to the Eisenkraft model and the program that the teacher follows in terms of the accuracy of serving and diagonal spiking in volleyball for students.

Research Hypotheses

- There is a positive effect of the educational program according to the Eisenkraft model on the performance and accuracy of the serving and diagonal spiking in volleyball for students between the pre and post-tests.
- The superiority of the group that learned in the educational program according to the Eisenkraft model over the program used by the teacher in the performance and accuracy of the skill of diagonal spiking in volleyball for students in the post-tests.

Definition of the Terms

Eisenkraft model 1: It is one of the educational models that relied on the principle of constructivist theory, which confirms that knowledge is a prior

requirement through which the learner builds his experiences and interactions with the elements and variables of the world. This form includes the following steps.

1. Provoking and preparing the learner
2. Mental immersion
3. Recognize the variables (explorations)
4. Clarification and delivery of information
5. Preference
6. Work calendar
7. Expanding perceptions and knowledge

Research Methodology and Field Procedures

Research Methodology

The researcher applied the experimental approach by designing the two equal groups to suit the nature of the problem to be solved and to achieve the objectives of the research.

The research community and its sample: The research community consisted of students of the second stage for the academic year 2022-2023 AD. The research sample represented the classes (A and B), 20 students were selected randomly, and then they were divided into two groups, 10 student's experimental group and 10 students control group.

Equivalence of the two research groups: In order to achieve equivalence between the two research groups in the dependent variables, the researcher applied the t-test, and the results showed that there were no significant differences between the two groups, as shown in table (Table 1).

Determine the tests: The researcher identified a set of standardized tests for the skill of serving and crushing volleyball, and the tests are as follows:

1. **Testing the accuracy of serving skill in volleyball (1)**

Benefit of the test: Measuring the accuracy of the volleyball serve skill.

The tools used: A legal volleyball court, (5) legal volleyballs, and colored tape to divide the court into areas (Figure 1).

Test conditions: The player should be standing in the middle of the end line of the court, holding the ball and ready to perform the serve, so that the ball crosses into the divided half, as in Figure 1 below:

Scoring: The player is given (5) attempts and in each attempt he takes the degree of the area in which the ball falls. Accordingly, the maximum score for the test is (25) degrees, taking into account when the ball falls on the line separating two areas, the player is given the higher area's degree.

2. **Accuracy test for diagonal spiking skill (1).**

The aim of the test is to measure the accuracy of the diagonal spiking skill in specific areas.

The tools used: legal volleyball court divided as it is in figure (2), (5) volleyballs, and colored tape to divide the court opposite the tested player into two equal

Table 1: Shows the equivalence of the two research groups.

Variables	Unit of measurement	t value	Sig. level	Sig. type
serving accuracy	degree	0,394	0,89	Not sig.
diagonal spiking accuracy	degree	0,416	0,35	Not sig.

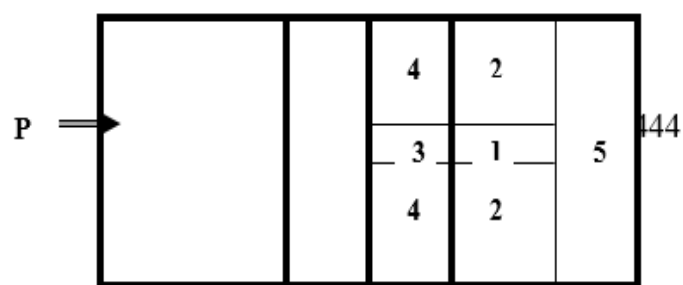


Figure 1: Illustrate accuracy measurement test for serving skill.

triangles, then the inner triangle is divided into three regions, measuring each region (3) meters.

Performance requirements: After the performance, the tester performs a diagonal spiking towards the inner triangle on the side of the net.

Performance conditions: Each tester has five attempts.

Numbers must be good in each attempt.

Scores are calculated according to where the ball landed:

- A- The first region (3) degrees.
- B- The second region (1) degree.
- C - The third region (5) degrees.
- D - Outside these areas, the tested player gets a score of (0).

Scoring: The tester records the grades obtained in the five attempts, meaning that the final score for this test is (25) degrees (Figure 2).

Pilot study: The pilot study was conducted on 11/15/2022 on a sample of 8 students from the second stage from within the research community, and they were randomly selected:

1. Determine the appropriate time for the test, and what the total time for the tests is.
2. Knowing the possibility of the assistant work team and the method of recording the test data.
3. Knowing the suitability of the test for the tested students.
4. Determine the problems that may occur and hinder the testing process.
5. Knowing the appropriateness of the exercises used during the educational units for the research sample.
6. Knowing the suitability of the used tools and their efficiency

Pre-test: Pre-tests were conducted on 11/17/2022 at ten o'clock in the morning, in the gymnasium of the Directorate of Sports and Youth in Kirkuk Governorate, and the tests for the studied skills were applied.

The educational program according to the Eisenkraft model

After conducting the pre-tests for the research sample (the experimental and the control group), the researchers prepared an educational program that includes educational units based on theory and within the steps of the Eisenkraft survey model, noting that the units that were designed will address the theoretical and practical aspects of the studied skills as an attempt by the researchers to increase scientific knowledge, both theoretical and practical. The program included the following:

1. The program started on 12/20/2022 AD until 1/25/2023 AD
2. The number of educational units (8) educational units, at the rate of two units per week.
3. The time of the educational unit is 90 minutes, which includes the parts of the unit (preparatory, main, and final).
4. Theoretical lectures were conducted using Data Show and presented the skill aspects and the method of ideal performance of the learned skills.
5. The steps of the model were employed with the stages of learning, so that at the beginning of the units, the first steps of the model were relied upon, and then other steps were added as the sample progressed in the program in order to gain information and draw the correct program for skills.

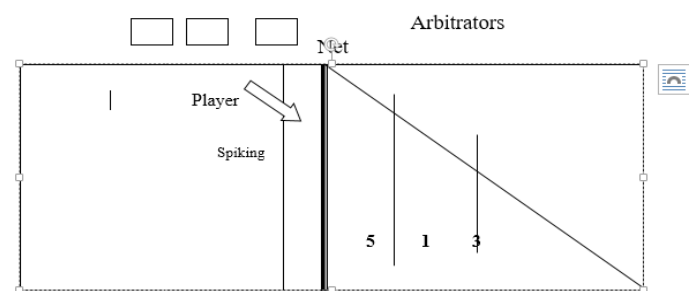


Figure 2: Pilot study.

Table 2: The arithmetic mean, standard deviation, and t-test value for the experimental group.

Variables	Pre-test		Post-test		t value	Sig. level	Sig. type
	arithmetic mean	Std.	arithmetic mean	Std.			
serving accuracy	10,80	1,93	19,20	1,75	14	0,00	significant
diagonal spiking accuracy	10,40	1,17	17,70	1,15	12,62	0,00	significant

Table 3: It shows the arithmetic mean, standard deviation, and t-test value for the control group.

Variables	Pre-test		Post-test		t value	Sig. level	Sig. type
	arithmetic mean	Std.	arithmetic mean	Std.			
serving accuracy	11,30	1,63	18	1,41	9,57	0,00	significant
diagonal spiking accuracy	9,90	1,37	16,30	1,39	2,11	0,00	significant

Table 4: It shows the arithmetic mean, standard deviation, and the value of (t) calculated in the post-test for the experimental and control groups.

Variables	Pre-test		Post-test		t value	Sig. level	Sig. type
	arithmetic mean	Std.	arithmetic mean	Std.			
serving accuracy	19,20	1,75	18	1,41	4,81	0,00	significant
diagonal spiking accuracy	17,70	1,15	16,30	1,39	2,60	0,01	significant

- Continuous feedback was adopted by the researchers in directing the sample towards correct performance, diagnosing the errors that occurred, and finding the correct ways to perform well.
- The exercises used were in line with the nature of the two skills and their difficulty ranged from easy to difficult.

Post-tests: The researchers conducted the post-tests after completing the implementation of the educational program on 1/26/2023 AD in the same conditions and place where they conducted the pre-tests (Table 2).

Presenting and discussing the results of the pre and post-test for the skills of serving and diagonal spiking in volleyball for students (Table 3).

After completing the post-test procedures, the researchers processed the obtained data as shown in tables 2 and 3, which showed the superiority of the two groups in the post-tests to test the accuracy of the serving skill and diagonal spiking. The researchers attribute the main reason behind the superiority of the experimental group members in the post-tests to the nature of the program. The educational program, which was prepared in a scientific and elaborate manner and within the seven steps of the Eisenkraft survey model, which included educational units, and the exercises applied during the educational units and the use of auxiliary means in addition to continuous feedback and error correction and the nature of the exercises that are commensurate with the type of skill learned, and the exercises were similar for the state of play and that the educational units, their organization and the way they are classified in terms of the time allotted to them and through the continuity of their performance and the type of various tasks and duties associated with the performance and that the model of learning in this way was appropriate with the gradual increase of continuous attempts and practices, in addition to the diversity of performing exercises that ranged from easy to difficult and was With or without the ball and who Fixed and variable sites, as the use of exercises similar to play situations is an encouraging approach for learners to find solutions to tasks and a coherent link between learning skills and the correct way of performing them, and the approach to teaching and developing skills is the learner's movement within gradual steps that teach him how to play, and the purpose of using this method is Develop the performance of beginners in playing and interacting to consolidate tactical awareness and skill execution.

Presenting and discussing the results of the differences in the test between the experimental and control groups in the tests of the accuracy of the serving skill and diagonal spiking (Table 4).

Through what was presented in Table 4, the researchers noticed the superiority of the experimental group over the control group in the post-tests between the two groups and in favor of the experimental group. The researchers attribute the reason for the experimental group's superiority to the following:

- The nature of the preparation of the program, which was designed according to seven steps of the Eisenkraft model, as this model helped to develop knowledge significantly in addition to expanding students' perceptions by linking the theoretical aspects to the process, and this all contributed perfectly to increasing the accuracy of the research sample.
- The great convergence in the motor path and the technical performance techniques of the two skills in terms of components, as "whenever there are common factors between one subject and another, the effect of exercise or training in one on the speed of learning the other" (1) as

well as stimulus and response, and this provides an important condition for transmission learning effect. With regard to the similarity to the stimulus, it can be clarified through the similarity theory, where "experiments have shown that when a person learns to perform a specific response in relation to the situation of its stimulus, he tends to do the same response with respect to a similar stimulus (2).

- The nature of the studied skills was within the environment of open and changing skills, which makes the learner in a continuous state of searching for the ideal performance of each of the playing positions, and thus these positions contributed to building various motor programs for one skill.
- Repetition and continuous practice of skills helped the experimental group members to link the parts of one skill and thus increase their fluidity.

Conclusions

- The educational program, according to the Eisenkraft model, had an effective and essential role in the development of the experimental group members in the accuracy of the students' serve and spiking skills.
- The members of the experimental group were superior to the control group in the accuracy of the two skills of serving and diagonal spiking in volleyball.
- The development of the indicator of fluidity and the correct behavior of the group members in the accuracy of the two skills of serving and diagonal spiking in volleyball for students.

Recommendations

- Adoption of the educational program in teaching the basic skills of volleyball.
- Interest in using educational models, including the Eisenkraft model, in teaching basic skills in volleyball.
- The need to conduct similar research on other volleyball skills.

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Appendix 1: A first and second educational unit model for the skill of serving volleyball.

Unit sections	Time	Exercises and notes used in the unit
Preparatory section	20 m	<ul style="list-style-type: none"> - Students stand and take attendance and absence - Light jog with movement exercises - Swedish exercises for parts of the body.
main section	60 m	
Educational side	20 m	<p>Explaining the steps of the serving skill, clarifying each step, explaining it and applying it to the students, and presenting a set of questions as an attempt by the researchers to get the students immersed in the educational process.</p> <ul style="list-style-type: none"> -Presentation of the skill of serving volleyball through the data show and clarifying the parts of the skill and how to deal with the ball - Asking students a set of questions about the correct technique and how to deal with the ball
Practical side	40 m	
	20 reps	Performing the serving skill without the ball by drawing the correct motor path and then applying the serving in a slow manner with the ball
	12 reps	Standing in front of a flat wall 6 meters away, draw a square on the wall with a height of 2.44 m, and perform the serve skill from stability to the drawn square
	12 reps	Standing in front of the volleyball net, at a distance of 3 m, and performing the skill of serving, with emphasis on the position of the ball and the movement of the arm and body
	8 m	Standing on the service line and directing the student to hit the ball to the opposite court after placing small numbered circles and directing the students to deliver the ball to the circles
Concluding section	10 m	<ul style="list-style-type: none"> - cool down exercises to return the body to its normal position, while giving directions and advice about the educational unit, in addition to diagnosing the mistakes that occurred during the lecture in order to avoid them in the subsequent lecture. <p>Note: In this educational unit, more than one step has been integrated up to the evaluation stage, meaning that the student cannot evaluate the performance during this lecture, as the learner has been immersed and given preference for good performance.</p>