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Research Paper

The Effect of Keller's Strategy with Aids in Developing Students' Volleyball Spike Skill

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ABSTRACT

The significance of this study stems from the fact that Keller's strategy is part of the modern educational methods that effectively help with activating the student's role in learning some basic volleyball skills, The scientific approach seeks to improve educational quality and accomplish the objectives of the educational process is to organize the learning process and use scientific methods to invest in this strategy in a way that serves these skills and accelerates their learning. The investigation's purpose is to determine the influence of Keller's method in learning the skill of shooting volleyball, while the hypothesis was that there were statistically significant differences between the experimental group and the control group in the post-test in learning the skill of shooting volleyball. the sample contains (40) students who were distributed equally between the experimental group and the control group, with (20) in each group. After conducting the research study and implementing the strategy, a post-test was conducted, data was collected and statistically processed to draw the main conclusions:

1. There is progress in the variables that are being studied for the control and experimental groups.
2. The experimental group had a superior advantage over the control group in terms of the research variables following the method of Keller's strategy.

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1. INTRODUCTION

Learning often depends on the readiness, ability and time needed by the learner, and since the student is the primary subject of the educational procedure, and the primary objective is to develop his abilities and potential. This calls for careful consideration of the availability of a variety of educational situations that support the learning process as well as the opportunity to perform a variety of sports skills at their best, which reflects the learner's comprehension of the skill or movement and its constituent parts. Numerous instructional approaches have been and are still employed to teach sports skills, but because skill performance success rates have varied, experts and researchers have looked for approaches that work for all sporting events and games a manner that is compatible with the abilities and potential of learners. As a result of the development in skill performance in volleyball, experts and trainers have sought to find educational and training methods and means to develop its basic skills that require high accuracy and timing when

performing them, and therefore it needs a lot of continuous training until the student reaches a good level in performance in terms of control and mastery.[1] Volleyball is a popular sport with many and varied skills. It requires a lot of modern information that contributes to developing the skill level of students and increasing their experience and speed of learning. On this basis, learning has become required in our time because it achieves many goals within a specific time and effort, as well as obtaining modern information related to various sports events and games, including volleyball. The importance of this research comes from the fact that Keller's strategy is part of the modern educational strategies that help effectively to activate the student's role in learning some basic volleyball skills.[2] The scientific approach that aims to improve educational quality and accomplish the objectives of the educational process is to organize the learning process and use scientific methods to invest in this strategy in a way that serves these skills and accelerates their learning.

Research Problem

By following up on modern educational concepts In the School of Physical Education and Exercise Science, the researcher noticed the lack of interest in using modern scientific strategies, emphasizing the importance of using these educational strategies and planning for them in a way that serves the educational process, especially since most fourth-stage students cannot perform the spike skill in a technically correct manner. Therefore, the researchers decided to apply Keller's strategy within the framework of a university-approved course to conduct a scientific study of this issue. a way that is consistent with the type of skill on the one hand and its motor path and apparent structure through which the level of skill performance can be raised and developed and students can reach a better level.

RESEARCH OBJECTIVES

1. Determine the impact of Keller's learning style on learning volleyball spiking techniques.
2. Identify the statistical differences between the experimental and control groups in the skill of spike in volleyball in the post-test.

Research Hypotheses

1. A significant difference exists between the pre and posttests of the Keller style, and the adopted method is beneficial for the post-testing of the learning of how to spike a volleyball.
2. The experimental group and the control group have a significant difference in the post-test regarding the acquisition of the knowledge necessary to spike a volleyball.

Research field

Human field: Fourth-year students in the College of Physical Education and Sports Sciences - University of Wasit for the academic year 2023-2024.

Temporal field: The period from 11/29/2023 to 1/8/2024.

Spatial field: Volleyball's court at the College of Physical Education and Sports Sciences, Wasit University.

2. RESEARCH METHODOLOGY

The researcher took the experimental approach to address the nature of the issue, which is "the design of randomly selected equivalent groups with pre-and post-tests, as it is the only method that can truly test the hypotheses of cause-and-effect relationships"[3].

2.1 Research community and sample

The population studied included the fourth-year students of the School of Physical Education and Sports Sciences at Wasit University in the academic year 2023-2024, which totaled (148) students. The investigation's sample was chosen using a conventional random method and included (40) students who were equally divided between the experimental group and the control group, with (20) students in each group.

2.2 Means, tools and devices used in the research

- Form for selecting the skills under study.
- Form for choosing the technical method of evaluation of the studied skill.
- Tests and measurement.
- Volleyball court.
- Legal volleyballs (10).
- Medical device for measuring height and weight.
- Metal measuring tape (cm).
- Indicators (5).

2.3 Field research procedures:

2.3.1 Sample's consistency and similarity between the two investigations

1. Sample homogeneity

In order to achieve the homogeneity goal for the research sample individuals, the researcher took several procedures to control the variables, although the sample that was selected is from a close age group, in addition to preventing influences that may affect the results of the experiment in terms of individual differences among the research sample individuals. Therefore, the researcher used statistical methods represented by the mean, standard deviation, mode, and skewness coefficient for morphological measurements to determine the reality of homogeneity or not, as in Table (1).

Table 1: Indicates the uniformity of the research population individuals in morphological measurements (age, height, weight)

Variables	Mean	Std	Mode	Skewness
Age	22.50	0.86	22	-0.79
Length	175.44	0.65	175	0.67
Weight	62.64	0.79	61	-0.46

Table (1) shows the skewness coefficient values of morphological measurements (age, height, and weight) were

less than (1), which indicates the homogeneity of the research sample individuals in these measurements.

2. Equivalence of the two research groups

To ensure that the experimental and control groups started from a unified baseline, the researchers extracted sample equivalence for all dependent variables studied based on the results of the two groups' pretests, as shown in Table (2).

Table 2: Shows the equivalence in spike multiplication between the experimental and control groups

Variable	Control group		Experimental group		Confidence level	Type of indication
	Mean	Std	Mean	Std		
Spike	**16.4**	**1.82**	**17.3**	**2.09**	**0.74**	Non sig.

The results of Table (2) in the pre-study tests between the two groups came with significance level values greater than the significance level (0.05), indicating the equivalence of the two groups in all pre-tests.

2.4 Field research procedures

1. Smash skill test [4]

Purpose of Test: To measure the accuracy of volleyball spiking technique.

Aids Used: Permitted volleyball court and (5) permitted volleyballs, colored tape to mark court

Performance Specifications: The player being tested performs a spike from position (4), so the coach prepares the ball for him from position (3), and the player performs the skill.

Performance Conditions: Each player has (5) attempts in area (A) and (5) attempts in area (B).

Rating:

- (4) One point is awarded for each attempt where the ball lands in the (A)(B) area.
- (3) One point is awarded for each attempt where the ball lands in a colored area
- (2) Two points are awarded for each attempt where the ball lands in the (A) or (B) area.
- (Zero) One point is awarded for each attempt where the ball lands outside the playing court.

- **Maximum score**: For each area is (20) so the total maximum score is (40) points.

2.5 Pre-tests

The pre-tests for the volleyball smash test were conducted for the research sample on 11/29/2024,

2.6 Main experiment

- The curriculum vocabulary for the experimental group took (6) weeks.
- Total number of units (12) units for the experimental group
- The length of the educational period was 90 minutes.
- The experimental group adopted the Keller strategy, as the researcher stood on the implementation of the strategy as well as the pretests and posttests.
- While the control group operated in the method followed by the teacher

2.7 Post-tests

The following tests were conducted on the research sample after the initial setup variables were under study on 1/14/2024, after completing the implementation of the prescribed units. The methods used in the pre-tests were followed under the same conditions as far as possible and in the same space and time.

2.8 Statistical methods

The researcher employed the statistical program (SPSS) and associated statistical methods.

3. RESULTS AND DISCUSSIONS

Presentation and analysis of the results of the smash skill test for the control group

Table 3: Shows the pre-and post-tests of the research variables for the control group

Variable	Pretest		Posttest		(t) value	Confidence level	Type of indication
	Mean	Std	Mean	Std			
Spike	16.4	1.82	25.20	1.54	20.95	0.001	Sig.

Table (3) illustrates the average, standard deviation and significance value of the spike skill test group and the control group before and after the test.

Display and analysis of the results of the spike skill test for the experimental group

Table 4: Shows the pre-and post-tests of the research variables for the experimental group

Variable	Pretest		Posttest		(t) value	Confidence level	Type of indication
	Mean	Std	Mean	Std			
Spike	**17.3**	**2.09**	**34.4**	**1.64**	**33.47**	0.001	Sig.

Table (4) provides the average, standard deviation and significance of the pre and posttests of the spike ability test and the experimental group.

Display and analysis of the results of the post-test of the spike skill for the control and experimental groups.

Table 5: Shows the post-tests of the research variables for the control and experimental groups

Variable	Control group		Experimental group		(t) value	Confidence level	Type of indication
	Mean	Std	Mean	Std			
Spike	25.20	1.54	34.4	1.64	12.27	0.000	*Sig.*

Table (5) indicates the average post-test value and standard deviation of the control and experimental groups. Through the results of Tables (3, 4, 5) that were presented, it becomes clear to us the statistically significant differences in the pre- and post-tests of the two research groups in most of the tests for the variables under study and in favor of the post-test. The researcher attributes the reason for these differences to the use of Keller's strategy for the experimental group. By reviewing Table (5), it becomes clear that the experimental group is superior in the post-tests at the expense of the control group in all research variables due to its use of Keller's strategy, which led to learning the skill better, as the strategy increases mental and skill information and helps in building the correct motor programs for learning skills among learners, in addition to developing the ability to search for the correct information about the performance of skills, "This helps to consolidate the information that has been acquired for the longest possible period. What students obtain is through their effort and the effort of their colleagues, and this helps learning quickly and masterfully, in addition to the fact that they will not forget what they have acquired easily."[5] The effective contribution in raising questions and information by the teacher was by teaching and assigning intellectual duties to learners to develop the process of searching for information on their own, which leads to creating a suitable educational environment for them.

Keller's strategy facilitates all of the brain functions, including understanding, analyzing, contemplating, and attempting to resolve the issues that learners have. The magnitude of the dimension of thinking learning is reflective of the three basic theories of educational interaction and focused learning, these include: the learning associated with brain functions and cooperative learning of problems that contribute to general game knowledge, and most importantly, how to integrate the information obtained into behavior. Implementation. Since Keller's strategy is one of the latest learning methods, it plays an important role in developing mental and physical skills, because it is based on the cognitive theory of learning dimensions in cognitive theory, but there is no single cognitive theory in learning, there are cognitive scientists, who try to focus on several aspects related to education,[6] Instead of establishing universal laws of learning that apply to all people, in all situations and conditions, they focus their research on how a person learns. And how does he approaches problems? And how he masters language as a tool for thinking. Keller's strategy also helps learners to learn skills correctly, by increasing their motivation to work harder, both physically and mentally, and not get bored, because they add fun and variety to their training through research and scientific thinking to acquire correct and useful information about the required skills. "And devastating blows, in particular, require a certain level of thinking and tactical intelligence from the player."[7] Furthermore, the main reason for the superiority of the experimental group was the active collaborative approach between educators and students, by presenting theoretical material related to the skills and information of playing the strategy, which resulted in the material being used correctly, naturally, fluently, and without problems, combining theoretical material with the actual performance process. Mere practice and mastery have no role in the learning process, students should be given information and knowledge about volleyball training techniques. This is supported by the "importance of cognitive aspects in integrating the physiological, psychological, organic and social growth needs of an individual" [8]. In addition, the presence of visual means allows to present information in a consistent, organized, and appropriate way according to the level of the learners, which helps to improve and develop their learning, which greatly helps to organize scientific materials in memory and movement so that they can be analyzed mentally, which helps in the process of retrieving and remembering cognitive or motor information when necessary. This is confirmed by the fact that "visual means help to improve the understanding of learners, develop and improve their mental abilities, help learners in cognitive acquisition and motor performance"[9]. This also helps to link inferences of mental processes to performance through self-exploration, questioning, and gathering enough information to get a complete description or idea of the competence presented by the educator presenting this material. This strategy also

demonstrates clear learning and collaboration between educators and learners, and this feature encourages and supports progress and development of performance.

4. CONCLUSIONS

1. There is progress in the variables under study for the control and experimental research groups.
2. The experimental group had a superior advantage over the control group in terms of the research variables following Keller's strategy.
3. Keller's strategy increases learners' mental and skill information and thus leads to better skill-based learning.
4. According to Keller's strategy, the method led to the development of searching for information and collecting it in the service of learning skills.

5. Recommendations

1. Urging those in charge of education to diversify their modern training and educational methods, and employ everything modern, including Keller's strategy.
2. The necessity of using Keller's strategy in learning most skills and most sports games, especially volleyball.
3. Conducting similar research for the rest of the game's skills or other age groups.

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