

((The Effect of an Educational Program Using a Model (Hierarchical Learning Method) in Learning the Crushing Hit Skills in Volleyball))

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Abstract

With advances in various mathematical sciences, including teaching methods, researchers advancing education have sought to answer research questions about students' disproportionately weak skills in learning technical subjects.

The purpose of this study was also to determine the impact of an educational program with a multi-level learning approach on learning volleyball strategy. Researchers use experimental methods because they meet their research needs. The research team included second-year students from the Faculty of Physical Education, Exercise and Exercise Science at Hamdaniya University. The number of students is (66). The study sample was limited to her 40 students, Divided into two groups (control group and experimental

group). by simple random method, with 20 students in each group, so the sampling rate was (60.606%). . Subsequently, homogeneity, equivalence, and preliminary checks were performed before applying the method to an experimental sample of multiple educational units, which was only applicable to the main body of educational units – a hierarchical learning approach. The total number of lessons is (6) hours and the duration is (3) Two hours a week for several weeks. Control group continued with their own program. After receiving the data and performing statistical processing, the following main conclusions and recommendations are drawn. last but not least:

- 1- An educational program with a multi-level approach to learning will have a positive impact on learning interesting volleyball technical skills.

suggestion:-

- 2- Learning the remaining volleyball skills requires an educational program that takes a multi-level approach to learning to determine how they affect the learning of these skills.

Keywords: educational program, hierarchical learning method, crushing hit skill in volleyball

- 1- An Introduction to the Research:

- 1-1 Research Introduction and Importance:

Pedagogy is one of the important sciences upon which the educational process in any field, including physical education, is based. Learners acquire .motor skills through changes in motor behavior that we observe

Volleyball is one of the great team sports because of the opportunities it offers for competition and team training. The accuracy and flexibility of technique execution allows team members to execute the game's fundamental techniques with very little error

It has also been greatly developed in recent years, because of its specific physical properties and kinetic (movement) capabilities, it has aroused great interest in some countries, and it has been developed by finding the best ways, means and advanced methods. This method has a certain passability. Positively influence skill learning and mastery to increase your team's performance levels and achieve optimal results. Furthermore, the layered approach of the learning model assumes a range of different learning styles across multiple educational levels from teaching to learning to problem solving

Since volleyball is an open technical sport that requires highly concentrated learning, and the ability to press the ball is one of the important offensive skills of volleyball, researchers need to find the latest methods and approaches. Therefore, the importance of courses in terms of quality, quantity and delivery must be considered in order to provide the learners with the correct technical demonstration. Against this background, it is clear how important it is to examine the effectiveness of an educational program that employs a multi-layered learning approach in learning to play volleyball.

1-2 Research Problem

Ball squeeze technique is one of the most important offensive techniques in volleyball, so when learning squeeze ball technique, we should pay attention to the important role of correct action on technical performance.

Based on the researchers' experience, knowledge, and field observations, she identified a problem with poor performance due to the relative difficulty of hitting the ball, This prompted researchers to look for a solution to the problem. Exciting volleyball cues for students based on quality-based training and multi-level learning.

1-3 Research Objective: -

1- Determining the impact of an educational program using a layered learning approach on the learning of volleyball spiking techniques by second-year students in the Department of Physical Education and Exercise Science, Hamdaniya University.

1-4 Research Hypothesis: -

1- Hamdaniya University second-year students demonstrate positive differences in learning volleyball spiking wisdom in an educational program that employs a multi-level learning approach.

1-5 Literature Review: No previous studies have been conducted.

1-6 Research Areas: -

1-5-1 Human Resources: - Hamdaniya University Department of Physical Education and Exercise Science, second year students for this academic year (2021-2022).

1-5-2 Time: Period from (04/05/2022) to (04/28/2022).

1-5-3 Space (Location): Team Sports Hall, Department of Physical Education and Scientific Sports, Hamdaniya University.

1-7 Define the Terms:

1-6-1 layered learning

This is the simplest type of learning that occurs in related hierarchies. It ranges from the easiest type of learning (depending on response to stimuli) to the most difficult type of learning (depending on problem solving).)"⁽¹⁾

Procedural (operational) definition: A layered series of procedural steps to address the cognitive and practical aspects of educational content in competency fragmentation.

2- Research Methodology and its Field Procedures:

2-1 Research Approach

Using an experimental method, the researchers designed two comparable groups and performed a before-and-after test, "a system for testing or comparing two or more groups." (⁽¹⁾) and meet the research requirements. Table (1) Displays the test setup used.

⁻¹Firas Kassoub Rashid, Mental processes between stimulus and response. Najaf: Dar Al-Diaa Press, 2020 pg. 77

(2) Wajih Mahjoub: Scientific Research and Its Methods: Baghdad, Dar Al-Kutub Printing and Publishing Company, 2002, p. 315.

Table (1) shows the experimental setup used

Group	Pre-test	experimental treatment	Post-test
Experimental	Crushing hit ability	Educational programs employ a layered approach to learning	Crushing hit ability
Control	Crushing hit ability	normal way	Crushing hit ability

2-2 Research Community and Sample:

The research team is made up of second semester 2021-2022 students from the School of Physical Education and Exercise Science, Hamdaniya University. The number of students is (66). Students in the control group (20) and students in the experimental group (20). research department population in the research sample (60.606%), that is, the proportion that truly and honestly represents society.

2-2-1 The Sample homogeneity:

Before starting the procedure, researchers corrected for morphological Variables that affect the accuracy of the results (weight, height, and age) using skewness coefficients at noon on Wednesday (June 4, 2022). 1 p.m., as shown in Table (2).

Table (2) shows the variables (weight, height, age) and coefficients of skewness

Statistical Milestones / Variables	Measuring Unit	\bar{x}	$Q \pm$	Mode	Coefficient of Skewness
Length	Kg	75,86	2.85	74	0,63
Weight	cm	176	1,25	175	0,77
lifetime	year	21,43	0,74	21	0,73

Note: \bar{x} refers to arithmetic mean

$Q \pm$ refers to standard deviation

Table (2) shows that the value of the skewness coefficient is restricted to (1), indicating the homogeneity of the study sample in the variables (weight, height and age) and showing the fairness of their natural distribution.

2-2-2 Comparability of the two study groups: -

In order to To test for equivalence between the two study groups, the researchers relied on the default -test of two independent means and the rule of two equal samples (t) to test the technical performance of volleyball smash ability, as shown in Table (3) . as the picture shows.

Table (3)

Preliminary test of volleyball wit technical performance shows equivalence of two subject groups

#	Group Tests	Measuring Unit	Control Group		Experimental Group		Calculated value of -t-	Type of Significance Statistics
			\bar{x}	Q ±	\bar{x}	Q ±		
1.	Technical performance	Degree	4,66	0,308	4,56	0,268	1.24	Insignificant

Table t-score = (2.03), significance level (0.05), and degrees of freedom (38)

Table (3) shows that the calculated value of $-t$ is less than the value in the table, $H(2.03)$, the difference between the two research groups in the The technical performance test for volleyball lethality is changing dramatically.). Significance level (0.05) and degrees of freedom (38), indicating the equality .of the two study groups in this test

2-4 Research methods and equipment and tools used:

2-4-1 Research Methods: -

- 1- The researchers used the following method.
- 2- Arabic references and sources.
- 3- Test and measure.

2-4-2 Equipment and tools used: -

The researchers used the following equipment and tools:

- 1- computer
- 2- whistle

- 3- Medical scales for measuring body weight.
- 4- Sony video camera Volleyball.
- 5- Tape measure for measuring length.
- 6- Standard volleyball court.
- 7- cones
- 8- 2-5 Determining the Tests: –

2-5-1 Volleyball wit technical ability test:⁽¹⁾

Test purpose: to assess the technical performance of the three parts the .crushing technology (preparation part, main part and end part)

Tools used: standard volleyball courts (3), volleyball, and ready-made .evaluation forms

Method of Execution: The test participant practices the devastating batting confrontation technique within the specified range of performance, namely: H. Beginning in the center (4), the trainer or trainer properly prepares the ball for the test player and tries it 3 times prior to the test Players execute .deadly shots and try to throw the ball into the opponent's area. court

Registration: Three judges use the example images to evaluate each test student's three attempts and give each judge (out of 3) a final score of (10) for each attempt, divided into three skill sections, consisting of (3) A Level preparation section (5.) Notes in the main text and two notes in (2) Conclusion. Then select the best score for each part, and determine The

(1) Wissam Riyad Hussein. The effect of the self and cooperative methods in developing the performance of the motor program and the most important aspects of attention to the skill of crushing hit in volleyball, an unpublished master's thesis, College of Physical Education and Sports Sciences / Babylon University, 2008, p. 74.

final score for each test taker is calculated based on the arithmetic mean of the three test takers best scores

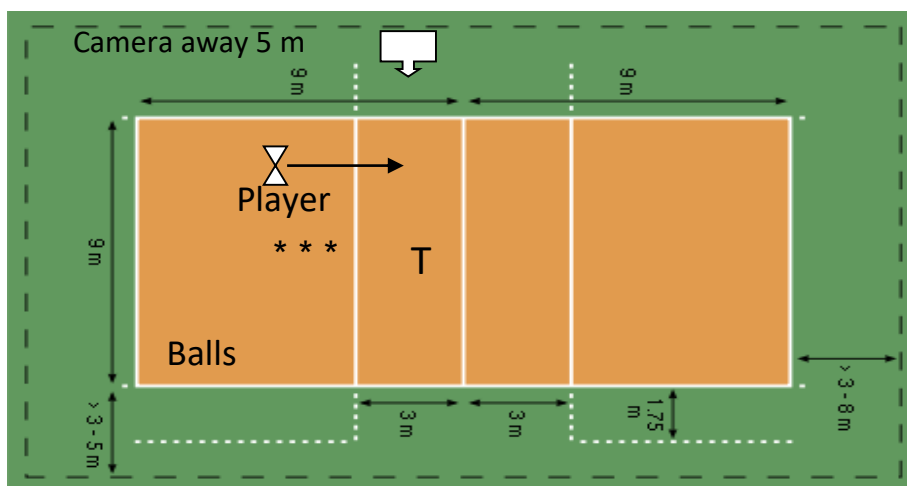


Figure (1)

Demonstrates the evaluation of "smash" technical ability in volleyball

6-2 exploratory experiment: –

This exploratory experiment was conducted on Tuesday, April 5, 2022 (10:00 am) with a random sample of (10) students outside the research sample. The purpose of this experiment was to understand the effectiveness of the support team and the difficulties researchers may experience in conducting key experimental tests, as well as the timing of the tests and the duration of each test. To determine the validity of the test, reliability coefficients were determined by repeating the test after (7) days using the correlation coefficient (Pearson). In addition, the validity coefficient and the objectivity coefficient are determined as shown in the following table (4).

Table (4)

Reflect scientific coefficient, reliability coefficient, validity coefficient, objectivity coefficient

#	Scientific Coefficients Testes	Measuring Unit	Reliability coefficient	Self- reliability Coefficient	Objectivity Coefficient
1	Technical Performance	Degree	0,87	0,93	0.91

7-2 The main research procedures: –

7-2-1 Pre-tests

On Monday, November 4, 2022 (10:00 a.m.), the control group and the experimental group will conduct a preliminary technical level test on batting .skills

2-7-2: Tiered Learning Educational Plan

The implementation of the program begins at 10:00 am on Tuesday, April 12, 2022 and lasts for (3) weeks until April 28, 2022, consisting of (6) educational units, namely H. An average of two units per week. The educational program uses a multi-tiered approach to learning only in the main part of the educational unit, which has a duration of (60 minutes).

2-7-3 Post-tests:

The posttest will take place on Thursday, April 28, 2022 at 12:00 noon, after the experimental and control groups have completed the program run.

2-8 Statistical Methods: ⁽¹⁾

- 1- Pearson correlation coefficient.
- 2- Arithmetic mean.
- 3- standard deviation
- 4- (t) Equal samples test for arithmetic mean of two independent samples.
- 5- (t) tests the arithmetic mean of two correlations (symmetric sampling). s).
- 6- Percentage.
- 7- Skewness Coefficientt.

: 4- Presentation, analysis and discussion of results

Presentation, analysis and discussion of the results before and after the volleyball crushing reaction technical ability test of the control group: -

In order to determine the significance of the difference before and after the technical performance test of volleyball spiking technique in the control group, a t test was carried out on the symmetrical samples, as shown in Figure . (5).

Table (5)

Mean, standard deviation and -t-calculated values of technical performance of volleyball pressing technique for control group and statistical significance of before and after tests are shown

#	Tests	Measuring unit	Pre-test		Post-test		Calculated value of -t-	Statistical significance
			\bar{x}	Q ±	\bar{x}	Q ±		
1	Technical performance	Degree	4,66	0,308	7,30	0,48	7,9	Significant

(1) -Mohammad Jassim Yasiri and Marwan Abdul Majid. Statistical Methods in Educational Research, 1st .Edition, Amman: Al-Warraq Publishing and Distribution Company, 2001, pp. 137, 185, 172, 171

Wadih Yassin Tikriti and Hassan Mohammad Abdul Obaidi. Statistical Applications and Computer Use in - .Sports Research, Mosul: Dar al-Kutub, 1999, p. 14. 102, 272, 178

Wajih Mahjoub: Sources Already Mentioned, p. 234.

= (0.05) t- Table values for degrees of freedom (19) and significance level-
 .(2.09)

Table (5) shows the calculated and tabulated values of the arithmetic mean, Standard deviations and t-scores before and after calculations were performed for a control group consisting of (20) volleyball technique "squeeze" performance techniques. College Students. The arithmetic mean value of the technical performance before the test is (4.66), the standard deviation is (0.308), the arithmetic mean value after the test is (7.30), the standard deviation is (0.48), and the calculated t - (7 ,9) is free. The order (19) and significance level (0.05) are greater than the table value (2.09). This indicated a significant difference in favor of the posttest, a result the researchers attribute to the methods used by the subject teachers.

3-2 Presentation and analysis of the test results before and after the experimental group's volleyball spiking technical ability and the follow-up discussion of these results: -

In order to determine the significance of the difference before and after the "push ball" test of volleyball technical performance, the table (6).

Table (6)

Means, standard deviations, and -t-calculated values of the experimental group's volleyball "crushing hit" technical performance and the statistical significance of the before and after tests are shown

#	Tests	Measu ring unit	Pre-test		Post-test		Calculated value of -t-	Statistical significance
			\bar{x}	$Q \pm$	\bar{x}	$Q \pm$		
1	Technical performance	Degree	4,56	0,268	8.5	0,512	7,24	Significant

= (0.05) t-table values for degrees of freedom (19) and significance level-
 .(2.09)

If we look at Table (6), we can see that the arithmetic mean and standard deviation values of the two tests (before and after the test) are different because we reached the arithmetic mean of the experimental sample (4.56). up to 20). College Students. The standard deviation of the technical performance variable before the test is (0.268), the arithmetic mean of the samples after the

test is (8.5), the standard deviation is (0.512), and the calculated -t value is (7.24).), with (19) degrees of freedom, and a significance level (0.05) greater than the table value (2.09). This indicates a significant difference between the two tests and a retest is required. The researchers concluded that this trend is consistent with educational programs that take a layered approach to learning because "educational programs contain one or more elements that have similar or similar effects on the direction and intensity of training." I think this is the influence.” (1)

3-3 The presentation of the post-test results of the volleyball pressing technical ability of the experimental group and the control group, as well as the subsequent analysis and discussion of these results: –

In order to determine the significance of the difference between the experimental group and the control group in the post-test of volleyball serving ability, the researchers conducted a (t) test between two equal (independent) .(7) samples, as shown in the table below

Table (7)

–display the mean, standard deviation, and computed value of -t
Statistical Significance of Volleyball Skills Performance Posttest
For the control group and the experimental group

#	Statistical milestones Tests	Measuring unit	Experimental Group		Control Group		Calculated value of -t-	Statistical significance
			\bar{x}	Q ±	\bar{x}	Q ±		
1.	Technical performance	Degree	8,5	0,512	7,30	0,48	5,54	Significant

(0.05) Table value for -t- = (2.03), degrees of freedom (38), significance level

(1) Qassem Hassan Hussein. Foundations of Sports Training, 1st Edition: Amman, Dar Al-Fikr Al-Arabi for Publishing and Distribution, 1998, p. 280.

Table (7) shows the arithmetic mean, standard deviation, calculated t-value and tabulated value (where (40)) of the volleyball technique "push" performance of the experimental group and the control group after the test. College Students. The results show that the arithmetic mean of the panel's technical results after testing is (8.5) and the standard deviation is (0.512). The arithmetic mean of the control group is (7.30), the standard deviation is (0.48), and the calculated -t value is (5.54), which is greater than the table value (2.03). The degrees of freedom are (38), and the significance level is (0.05). This indicates a significant difference between the two tests and facilitates validation by the experimental group. The researchers attribute the results achieved by the experimental group to an educational program that used a multi-level approach to learning that increased students' motivation and interest and made them more likely to practice their skills. encourage to work. And because educational programs "at some point must integrate all thought () ".and intellectual processes for the work to be done

Therefore, through the presented results, analysis and discussion, the research objectives and hypotheses are reached, and the educational program using the hierarchical learning approach achieves the goal of developing students' volleyball intelligenc..

4- Conclusions and Recommendations: –

4-1- Conclusions

1- From the results obtained, the following conclusions are drawn:

2- An educational program using a multi-level learning approach had a positive impact on the technical performance of students learning volleyball jokes.

3- An educational program that uses multiple layers of learning methods and units of study learns the overwhelming wisdom of volleyball better than the methods used by subject teachers. Annexes

A Model of an Educational Unit for The Experimental Group in a Hierarchical Learning Method

Group: Experimental

Number of students: 20 students

Educational objective: To develop the technical performance of the crushing hit skill in volleyball.

Equipment: volleyball court, whistle, volleyballs, cones.

Departments of the Educational Unit	Time	Details
Main Section	60 minutes	
Educational aspect	15 minutes	- Explain how to perform the skill, including a demonstration of the skill.
Applied aspect	45 minutes	
	8 minutes.	Zigzag between cones, then unleash a smashing blow.
	10 minutes.	Fold your feet over skittles, jump sideways, and perform smashing strike skills while providing feedback to your trainer.
	9 minutes.	Draw different colored circles for each time the learner attempts to perform the Smash Strike skill and guide the ball into these circles.
	8 minutes	Take rough steps and perform the standing phase.
	10 minutes.	Jump left and right over obstacles or platforms, then unleash a smashing strike.

4-2 Recommendations: -

- 1- The main recommendations of the researchers are:-
- 2- Learning the remaining volleyball skills requires an educational program that uses a multi-level learning approach to determine the extent of its impact on learning these skills.
- 3- Conduct further research and similar research to develop a modern curriculum to determine the level of academic achievement in the field of volleyball.

Sources

- Abdullah Hussein Al-Lami (2006): Fundamentals of Motor Learning, First Edition: Al-Diwaniyah, Moayyed Printing and Distribution Technical Press.
- Al-Wataifi, Firas Kassoub Rashid (2020): Mental processes between stimulus and response, Dar Al-Dhiaa Press, Iraq
- Qasim Hassan Hussein (1998): Fundamentals of Sports Training First Edition: Amman, published and distributed by Dar Al-Fikr Al-Arabi.
- Muhammad Jassim Al-Yasiri and Marwan Abdul Majeed (2001): Statistical Methods in Educational Research, First Edition, Amman: Al-Warraaq Publishing and Distribution Foundation.
- Muhammad Mersal Hamad Arbab and Osama Abdul Rahman Ali (2004): The Effect of a Program Using Dual Curriculum on Some Specific Motor Skills in Fencers Under 14 Years of Age, Journal of Theory and Application, Boys Physical Education Institute, Bab Gir , Alexander, No. 53.
- Wajih Mahjoub (2002): Scientific Research and Its Methods: Baghdad, Printed and published by Dar Al-Kutub.
- Wadih Yassin Al-Tikriti and Hassan Muhammad Abd Al-Obaidi (1999): Statistical Applications and Computer Utilization in Sports Research, Dar Al-Kutub, Mosul.
- Wissam Riyadh Hussein (2008): The impact of two styles of ego and collaboration on the development of performance in sports programs and key aspects of the focus on overwhelming defense in volleyball, unpublished master's thesis, Faculty of Sport and Exercise Science, University of Babylon.