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Jasim Mohammed Rashied
Ministry of Higher Education for
Science Education, University of
Baghdad, College of Education
and Sports Sciences, Iraq

The effect of an educational program using the hierarchical repetition method on the accuracy of performing some technical volleyball skills for young players

Jasim Mohammed Rashied

Abstract

The purpose of this paper is to preparing an educational program using the hierarchical iteration method on the accuracy of performing some technical skills in volleyball for young players, and identifying the effect of the educational program using the hierarchical iteration method on the accuracy of performing some technical skills in volleyball for young players. The researcher used the experimental method to suit the research sample. The research population consisted of the cubs age group (12-14) years within the National Center for Caring for Sports Talent in Volleyball, who numbered (48) players. As for the research sample, they numbered (28), which represents a percentage (58.33) of the research population, who are practicing players. For volleyball, the sample was chosen intentionally and players who were younger or older than (12-14) years were excluded. One of the most important results reached by the researcher is that: Players have the ability to develop accuracy in skills (spiking, serving). One of the most important recommendations recommended by the researchers is that: Taking into account the use of hierarchical iterations when developing educational curricula in educational units at the National Center for Sports Talent Care.

Keywords: Hierarchical repetitions, serving and receiving skills, volleyball

Introduction

The field of kinetic learning has witnessed great development, especially with regard to creating educational situations in a way that stimulates the player's motivation and reaches the goal of learning. The educational process "as the learning process is based on an important means of transferring knowledge and information from the coach to the player, and this means is the learning method that, whenever it is appropriate, the learning process is completed better, faster, and with less effort."(Ghani, 1987) ^[1].

The game of volleyball, like other games, depends on basic and technical skills as an important basis upon which this game is built to advance the level of performance, as it prepares the ladder for moving towards mastery and excellence, so attention must be directed to developing it and knowing the correct things in learning it, by giving the player multiple and varied methods. In teaching it, it requires a lot of effort and practice in order to master it, so using the hierarchical repetition method can play a major role in developing and mastering some of these technical skills.

Hence the importance of research lies in the fact that the educational process is through the delivery of the correct knowledge and information to the player, which helps motivate him and increase his desire to research to reach complete knowledge by involving the player with repetitions in a hierarchical form in knowing the correct steps and how to employ and apply them well, enabling him to Benefiting from developing the performance of technical skills in volleyball.

Research problem

In recent years, the game of volleyball has become one of the most important sports games whose followers around the world have increased significantly as a result of the interest of

Corresponding Author:

Jasim Mohammed Rashied

Ministry of Higher Education for
Science Education, University of
Baghdad, College of Education
and Sports Sciences, Iraq

specialists in it, the increase in the factor of suspense and excitement, the speed of play, the change in the rules of play, and the development of the skill and cognitive aspects related to the game, which helps the player in mastering important technical skills. Therefore, it has become necessary using the best educational methods in specific ways to develop the performance of volleyball players.

Since the researcher was one of the volleyball players for all age groups, they noticed that many of the coaches who supervise this group work with non-diverse methods based on the infusion of information in a preventive manner by the coach and with unregulated repetitions (Either time or fixed repetition) and which lack stimuli that arouse interest. Players and their lack of use of new methods may help develop and accelerate the process of developing skill performance with repetitions in a hierarchical manner that suits the player.

Therefore, it was found necessary to use this method and its relationship to the performance of some technical skills in learning the game of volleyball for juniors.

Research objective

- Preparing an educational program using the hierarchical iteration method on the accuracy of performing some technical skills in volleyball for young players.
- Identifying the effect of the educational program using the hierarchical iteration method on the accuracy of performing some technical skills in volleyball for young players.

Research hypotheses

There is a significant relationship between the educational program using the hierarchical repetition method and the accuracy of performing some technical skills in volleyball for the research sample.

Research fields

- **Human field:** Be a player of the National Center for Welfare Volleyball, aged (12-14 years).
- **Time field:** (12/6/2023) to (24/7/2023)
- **Spatial field:** The indoor hall of the National Center for Volleyball Sports Talent.

Research Methodology

The researcher used the experimental method to suit the research sample.

Sample research

The research population consisted of the cubs age group (12-14) years within the National Center for Caring for Sports Talent in Volleyball, who numbered (48) players. As for the research sample, they numbered (28), which represents a percentage (58.33) of the research population, who are practicing players. For volleyball, the sample was chosen intentionally and players who were younger or older than (12-14) years were excluded.

Devices and tools used in the research:

- Chinese-made electronic computer (Dell).
- A Japanese-made Casio stopwatch to measure time.
- Japanese-made Nikon camera.
- Laser discs (CD) type (Imation).
- Manual electronic calculator (Sony).
- A legal volleyball court with its accessories.
- (12) Chinese-made MIKASA volleyballs.

- Colored ribbons (5) cm wide.
- Colored ropes.
- Whiteboard pens.
- Whistle number (1).
- Signs.
- Adhesive tape.

Field research procedures

Skill tests (Shalash and Mahmoud, 2000) [2]

After reviewing scientific sources and previous studies, skill tests were determined.

- **First:** Name of the test: Accuracy of the skill of receiving serve with the arms from below from different places.
- **Second:** Name of the test: Accuracy of transmission skill.

Method of hierarchical repetitions in volleyball Exploratory experience: for volleyball skill tests

The researcher conducted the exploratory experiment on 6/12/2023 on the sample of the exploratory experiment, and the researcher chose the skill tests under study, the aim of conducting the exploratory experiment was:

- Knowing the suitability of the tests to the sample level and the clarity of their application.
- Knowing the suitability of the place to carry out the tests.

The results of the exploratory experiment were that it helped the researcher reach the following:

- The suitability of the tests to the level of the sample and the clarity of their application through the players' ability to perform them.
- Suitability of the place to carry out the test.

Main experiment procedures

Pre-tests

The researcher conducted tests on the skills under study on Wednesday, June 19, 2023, for the educational program using the hierarchical iteration method on the research sample in the closed hall of the National Center for Talent Care in Volleyball.

Educational curriculum

After conducting the pre-tests, the researcher began implementing the curriculum on Tuesday, June 21, 2023, on the experimental group using hierarchical repetitions to accurately perform some technical skills (Transmission, reception of transmission), as the duration of the curriculum took (4) weeks, with four educational units per week, and the days were (Friday, Saturday, Monday, and Wednesday), as the number of units reached (16) units, as the educational unit time of (60) minutes for the experimental group was taken from the total time of (105) minutes (According to the curriculum prepared by the researcher), and then the implementing the curriculum in the hall of the National Center for Nurturing Sports Talent in Volleyball by the volleyball coach. As for the control group, the curriculum of the National Center for Nurturing Sports Talent in Volleyball was applied, and accordingly the researcher divided the unit (See appendix 3) into:

Main section

Its duration is (60) minutes, during which exercises are given that contribute to the accuracy of performing some technical skills in volleyball (Serving, receiving the serve) in a hierarchical repetition style. At the beginning of the

educational units for some skills, the researcher divided the main section into two parts:

A. educational aspect: Its duration is (10) minutes, general information about the skill, mentioning its importance, and explaining the artistic performance (technique) of the skill, with an emphasis on correct performance during performance. A model presents the skill several times in front of beginners.

B. applied aspect: Its duration is (50) minutes, during which exercises were given that contribute to the accuracy of performing some technical skills (spiking, receiving the serve) in a hierarchical repetition style and according to the following repetitions (5-10-15-20) and after progressing through the educational units. The researcher divided the main section into an applied section only.

Post-tests

The researcher conducted the post-tests on the research sample on Monday, July 24, 2023, after the end of the period of applying the educational program vocabulary using the hierarchical iterations method. The researcher was keen to commit to creating the same conditions that were conducted in the pre-tests in Assistant work team staff names (see appendix 2), place, time, devices, and all tools used in implementing Test vocabulary.

Statistical methods: Used Statistical Package for the Social Sciences (SPSS).

Results and Discussion

Presenting and analyzing the results of the pre- and post-tests on the accuracy of some of the experimental group’s technical skills

Table 1: Shows the results of the pre- and post-tests for the experimental group in accuracy tests for some technical skills.

No.	Skills	Maximum degree	Tests	Arithmetic mean	Standard deviation
1	Spiking	25	Pre	5.94	2.48
			Post	13.89	3.31
2	Receiving the serve	27	Pre	10.72	5.02
			Post	15.00	3.63

The results of Table (1) indicate that there is a difference in the values of the arithmetic means and standard deviations between the pre- and post-tests for the accuracy variable for the skills (Spiking, receiving the serve) and for the experimental group, as these differences tended to the level of

improvement in the post-tests. To find out the true differences between the pre- and post-tests for the experimental group, the researcher extracted the calculated (t) values, as shown in Table (2).

Table 2: Shows the values of the mean differences, their deviations, the standard error, the calculated T value, and the error percentage in the pre- and post-tests for the experimental group in accuracy tests for some technical skills.

No.	Skills	Tests	Arithmetic mean of difference	Standard deviation of differences	Standard error of the mean difference	T value Calculated	Percentage of error
1	Spiking	Pre-post	7.94	3.75	.88	8.99	.000
2	Receiving the serve	Pre-post	4.28	5.86	1.38	3.10	.007

Degree of freedom = 17, significance level 0.05
 The results of Table (2) indicate that the accuracy tests for the skills (spiking, receiving the serve) confirmed the presence of significant differences between the pre- and post-tests of the experimental group and in favor of the post-test. The error percentage for all the above skills reached (.000) and (.007), respectively. Since it is less than the level of significance (0.05), in addition, the calculated value of (t) reached (8.99) and (3.10) under the degree of freedom (17)

Discussing the results of the pre- and post-tests on the accuracy of some of the experimental group’s technical skills

Table (2) shows the results of the accuracy tests for the skills (Spiking, receiving the serve) indicating that there are significant differences between the pre- and post-tests of the experimental group and in favor of the post-test. This fulfills the research hypothesis regarding the accuracy of performance for the experimental group. The researcher attributes the reason to the fact that the educational program using the hierarchical repetitions method had a positive impact on the accuracy of the skills mentioned above, in addition to the effectiveness of the curriculum and its suitability to the level of the sample and its comprehension. “When the curriculum is implemented effectively, the

player’s overall performance improves greatly.”(Al-Hila, 1999) [3]. It was implemented in a sound and organized manner for the experimental group, as “achieving and acquiring the maximum degree of proficiency in educational situations is due to the educational curriculum, as it is a way of organizing the academic material on the basis of gradual steps, so that the learner can acquire it easily.” (Lotfy, 1972) [4]. Because the use of this method, which is considered one of the modern methods in learning technical skills in volleyball, improves the learning process and increases the learner’s motivation and self-confidence, “as using these methods leads to advancing the learning process and shortening time, as kinetic performance (Technique) is clearly affected and the specifications become The movement is more precise and precise.”(Ghani, 1987) [1]. The researcher also attributes the reason for these differences to the hierarchical repetitions codified in the educational program through the method of hierarchical repetitions, which is considered one of the modern methods as it has codified and varied repetitions that can be used in implementing the curriculum exercises on a regular basis. The type of exercises that characterized the educational program for the experimental group are exercises. It is staffed, diverse, and suitable for the sample, as well as commitment to the program in terms of the time and number of educational units. (Mosston) emphasizes, “The basic rule

and basic requirement in learning kinetic skills, which shows clear progress in learning, is attention to increasing the number and variety of attempts.”(Mosston-Musca. 1981) [6]. All of them are factors that helped the accuracy of the skill performance among the research sample, because accuracy is “an important requirement upon which victory depends, as it is the desired goal in performance to score points. If the final

outcome of strong, fast performance is measured, we find that it is of no use if it lacks accuracy.”(Hassanein, and Moneim, 1997) [7].

Presenting and analyzing the results of the pre- and post-tests for the accuracy of some technical skills of the control group

Table 3: Shows the results of the pre- and post-tests for the control group in accuracy tests for some technical skills.

No.	Skills	Maximum degree	Tests	Arithmetic mean	Standard deviation
1	Spiking	25	Pre	6.61	3.16
			Post	8.50	2.50
2	Receiving the serve	27	Pre	9.67	4.59
			Post	11.72	4.75

The results of Table (3) indicate that there is a difference in the values of the arithmetic means and standard deviations between the pre- and post-tests for the accuracy variable for the skills (spiking, receiving the serve) and for the control group, as these differences tended to the level of improvement

in the post-tests. To find out the true differences between the pre- and post-tests for the control group, the researcher extracted the calculated (t) values, as shown in Table (4):

Table 4: Shows the values of the mean differences, their deviations, the standard error, the calculated T value, and the percentage of error in the pre- and post-tests for the control group in accuracy tests for some technical skills.

No.	Skills	Tests	Arithmetic mean of difference	Standard deviation of differences	Standard error of the mean difference	T value Calculated	Percentage of error
1.	Spiking	Pre-post	1.89	3.72	.88	2.15	.046
2.	Receiving the serve	Pre-post	2.06	5.80	1.37	1.50	.151

Degree of freedom = 17.

The results of Table (4) indicate that the accuracy test for the skill (spiking multiplication) confirmed the presence of significant differences between the pre- and post-tests for the control group and in favor of the post-test, as the error percentage for the test at the top was (.046) and since it is less than the significance level (0.05), in addition to This is because the calculated (t) value is (2.15) under a degree of freedom (17). As for the accuracy tests for the skill (Receiving serve), it indicates that there are no significant differences between the pre- and post-tests for the control group, as the error rate for the two tests was above.151)) and since it is It is greater than the significance level (0.05). In addition, the calculated value of (t) reached (1.50) under the degree of freedom (17).

Discussing the results of the pre- and post-tests on the accuracy of some technical skills of the control group

Table (4) shows the results of the accuracy tests for the skills (spiking - receiving the serve), which confirmed the presence of significant differences between the pre- and post-tests for the control group and in favor of the post-test. The researcher attributes the reason to the fact that the control group applied the educational program that included the curriculum

prescribed for the players. The skill was explained and presented. By the coach, the skill also took sufficient time to learn, which led to the players gaining a perception of the skill, and when the skill is applied by the player, actual learning will begin, “as the learning stages begin with understanding the task to be learned from the learner, and this is done by explaining and displaying the movements, and at this stage The learner gets the initial perception of the flow of movement, which is still in its raw form. (Meinel, 1987) [8]. The researcher attributes the improvement achieved as a result of the repetitions obtained by the skill (Slamming - receiving the serve) during the educational units and the excitement, suspense and high acceptability of this skill for the students, which contributed to improving the level of the skill. Therefore, it achieved better results in the post-test, in addition to “that there are ways to Teaching methods are of great importance in the educational process, and these methods and methods affect the speed of learning.” (Al-Talib, 1976) [9].

Presenting and analyzing the results of post-tests on the accuracy of some technical skills for the experimental and control groups

Table 5: Shows the values of the arithmetic means and standard deviations in the post-test for the experimental and control groups in accuracy tests for some technical skills.

No.	Skills	Maximum degree	Tests	Arithmetic mean	Standard deviation
1	Spiking	25	Pre	13.89	3.31
			Post	8.50	2.50
2	Receiving the serve	27	Pre	15.00	3.63
			Post	11.72	4.75

The results of Table (5) indicate that there is a difference in the values of the arithmetic means and standard deviations between the post-test of the experimental and control groups for the accuracy variable for the skills (Spiking multiplication,

receiving the serve). To find out the truth about the differences between the post-test of the experimental and control groups, the researcher extracted the calculated (t) values. As shown in Table (6)

Table 6: Shows the values of the mean differences, their deviations, the calculated T value, and the error percentage in the post-test for the experimental and control groups in accuracy tests for some technical skills.

No.	Skills	Arithmetic mean of difference	Standard deviation of differences	T value	Degree of freedom	Percentage of error
1.	Spiking	5.39	.98	5.51	34	.000
2.	Receiving the serve	3.28	1.41	2.33	34	.026

The results of Table (6) indicate that the accuracy tests for the skills (Spiking, receiving the serve) confirmed the presence of significant differences between the post-test for the experimental and control groups and in favor of the experimental group, as the error percentage for the above skills reached (.000) and (.026), respectively, and It is less than the level of significance (0.05). Moreover, the calculated (t) value reached (5.51) and (2.33), respectively, under a degree of freedom (34).

Discussing the results of post-tests on the accuracy of some technical skills for the experimental and control groups

Table (6) shows the results of the accuracy tests for the skills (spiking, receiving the serve), which confirmed the presence of significant differences between the post-test for the experimental and control groups, in favor of the experimental group, and this fulfills the second hypothesis of the research. The researcher attributes this to the effectiveness of the educational curriculum and the commitment of the experimental group to performing this curriculum, as the focus of the curriculum and the exercises it contains was on the accuracy of the performance of the research sample, as the curriculum was characterized by the diversity of exercises and the diversity of methods of performing them, as well as the use of hierarchical repetitions, and the preparation of the curriculum through the employment of these repetitions. The hierarchy was gradually from easy to difficult when performing in order to ensure accuracy in learning among the learners. "Learning new movements and skills often contains complex stages, and the degree of difficulty varies from one case to another. It requires multiple and varied exercises, specific to each skill, in order for its effect to be clear, practical, and contributing." in skill development (Nasser, 2000) [10].

In the skill (Spiking), the learner needs to prepare the ball for him in a correct manner, with a fixed height and a single distance known by the player. This makes the player focus only on his performance and technical steps, as using hierarchical repetitions in an elaborate manner with these features in the learning process leads to building a perception of the player's movement. Through correct and sufficient repetitions, which increases the sense of movement and then develops accuracy, as "the increase in movement led to an improvement in accuracy in performing the movement, and this is due to the effect of the relationship between the clarity of the sense of movement and the accuracy of performing the movement." (Al-Wis, 1984) [11].

Which makes it more accurate and proficient in executing the skill. As for the skill of receiving the serve, the use of various educational units through hierarchical repetitions had an important role in raising the level of accuracy among the

experimental group, as the researcher used this method through sufficient and proficient repetitions among the players, as well as a gradual progression of ease. There is difficulty in how to use these repetitions in the exercises used and according to the progression of learning for the experimental group, and this in turn prepares the learner with a clear perception of taking the appropriate place to serve and receive the ball and deliver it to the agreed upon place. The use of hierarchical repetitions also has the main role in arousing the factor of suspense and desire, which leads to Pushing players to put in more effort during the educational unit helps them learn and master skills as quickly as possible.

Conclusions and Recommendations

Conclusions

Players have the ability to develop accuracy in skills (Spiking, serving).

Recommendations

Taking into account the use of hierarchical iterations when developing educational curricula in educational units at the National Center for Sports Talent Care.

References

1. Ghani OMA. Kinetic learning and sports training. Baghdad: Dar Al-Hekma Press; c1987. p. 11.
2. Shalash NM, Mahmoud AMS. Kinetic Learning. 2nd ed. Mosul: Dar Al-Kutub and Publishing, Mosul University Press; c2000. p. 90-93.
3. Al-Hila MM. Instructional design - theory and practice. 1st ed. Amman: Dar Al Masirah for Publishing, Distribution and Printing; c1999. p. 65.
4. Lotfy AF. Methods of teaching physical education and kinetic learning. Alexandria: University Books House; c1972. p. 466.
5. Ali MRA. Previously mentioned source. 1998. p. 10.
6. Mosston-Musca. Teaching physical education. Ohio: Emerrill publishing co; c1981.
7. Hassanein MS, Moneim HA. Scientific foundations of volleyball and methods of measurement and evaluation. 1st ed. Cairo: Al-Kitab Publishing Center; c1997. p. 21.
8. Meinel K. Kinetic Learning. 2nd ed. Translated by Nassif AA. Mosul: Dar Al-Kutub for Printing and Publishing, University of Mosul; c1987. p. 152.
9. Al-Talib N. Principles of Mathematical Psychology. Baghdad: Al-Shaab Press; c1976. p. 60.
10. Nasser KJ. The effect of some suggested exercises to develop maximum strength and skill performance. J Phys Educ. 2000;9(4):34.
11. Al-Wis KT. Sports Psychology in Physical Education. Baghdad: Baghdad University Press; c1984. p. 89.

Appendix (1)

Names of experts and specialists with whom personal interviews were conducted regarding the research variables

No.	Name and scientific title	Specialization	Affiliations
1	Prof. Dr. Tariq Nizar Al-Taleb	Learn/gymnastics	University of Baghdad\College of Physical Education and Sports Sciences
2	Prof. Dr. Hussein Sobhan Sakhi	Training/volleyball	University of Baghdad\College of Physical Education and Sports Sciences
3	Assist. Prof. Dr. Louay Hussein Al-Bakri	Motor learning/racquet games	University of Baghdad\College of Physical Education and Sports Sciences
4	Assist. Prof. Dr. Mujahid Hamid Rashid	Learn movement/volleyball	University of Diyala\College of Physical Education and Sports Sciences
5	Assist. Prof. Dr. Ahmed Saba Attia	Biomechanics\Volleyball	University of Baghdad\College of Physical Education and Sports Sciences
6	Assist. Prof. Dr. Alaa Mohsen	Biomechanics/volleyball	University of Baghdad\College of Physical Education and Sports Sciences
7	Assist. Prof. Dr. Khalil Sattar Muhammad	Testing and measuring volleyball	University of Baghdad\College of Physical Education and Sports Sciences

Appendix (2)

Assistant work team staff names

No.	Name	Affiliations
1	Ahmed Dhari Hani	University of Baghdad\College of Physical Education and Sports Sciences
2	Haider Rashid Ghanem	PhD student
3	Saif Al-Din Khaled	PhD student

Appendix (3)

Educational curriculum

A model for an educational unit for the skills of spiking and receiving a serve with a volleyball

The second week: the experimental group

Category: players

Objective: Learn the skills of spiking and receiving a serve with a volleyball. Unit time: 60 minutes

Section	Time + repetition	Exercises	Notes
Main section	60minute		
Educational aspect	10minute	1- Specifications of the skills of spiking and receiving the serve 2. Conditions required for correct performance 3. How to perform the two skills 4. Feedback	
Applied aspect	50 minute		
	5-10-15-20	1- The players stand in a column in position (6) and the coach is in the middle of the back area of the opposite court. The coach sends the serve towards the player to receive it and passes it between positions (2) and (3).	Emphasize receiving the ball from the bottom to the specified place
	5-10-15-20	2. The players are divided into two groups, the first standing in position (6) and the coach in the opposite half of the field to send the ball to the first player in the first group, who in turn receives the ball to the other assistant coach, standing in position (3) of the same field, to prepare the numbers of the ball that is received. correctly to the player standing in the second group in position (4) to perform the spiking and the two groups are switched	Emphasis on performing the technical stages in a sequential manner, and emphasis on cooperation and perseverance in the exercise
	5-10-15-20	3. The previous exercise is the same, but the reception is from center (5) and the preparation is from center (2)	
	5-10-15-20	4. The players stand in the form of a locomotive in position (5), and the coach stands in the opposite half of the field to send the ball so that the player receives the ball to position (3)	Emphasis that the ball reaches the specified position