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## Effect of direct and delayed feedback on learning the skills of serving and spiking in volleyball

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### Abstract

The research aimed to identify the impact of direct and delayed feedback on learning the skills of serving and spiking in volleyball. The researcher used the experimental method on a sample of (20) players representing the Basra team for juniors and the Specialized Center for the Development of Volleyball in north of Basra, whose ages range between ( 13-15) years, and the sample was divided into two experimental groups at random, and each group had (10) players. The research tools include: skill tests - a program to teach the skills of serving and spiking in volleyball - a legal volleyball court - Arab resources - an assistant working group - legal volleyballs - a tape measure - colored adhesive tapes - a data dump form - a whistle - a medical scale - and it was done Using the statistical bag spss ver.24 to extract data and analyze it. The following conclusions were reached 1) The using of direct feedback has a clear advantage over delayed feedback in learning the skills of serving and spiking in volleyball, in the interest of the first group. 2) The using of direct and delayed feedback works to learn and develop the skill performance of some basic volleyball skills. 3) The using of direct feedback with the juniors ensures the correct learning process of basic skills. 4) The use of delayed feedback enables the learner to recognize the result of his performance in order to avoid making the same mistakes.

**Keywords:** Feedback, direct feedback, delayed feedback, serving, spiking, skills

### 1. Introduction

Motor learning is one of the oldest types of learning, most human behavior is kinetic behavior, as it learns kinematic from an early age, and under conditions completely different from animals, as human learns with the help of human and within the vicinity of human society. Modern learning methods are considered one of the main axes and basic pillars on which the teacher relies in the process of producing the physical education lesson, so the methods varied significantly in order to suit different levels, gender and desires, to achieve effective learning. Among the most important of these methods is feedback, which is the sum of the information that can be provided to the recipient or the trainee, even if the means of conveying it differ, and the aim of this information is to evaluate the performance of the skill that is performed by the learner to reach the stage of optimal performance of the skill itself, and this information comes from Different sources ones are external, such as the correction process by the trainer or teacher or others, or internal, which includes information that the learner or player obtains from internal sensory sources such as muscle feeling or through visual or auditory information that the learner or player obtains from different sensory sources. The learning process in team games in general and the volleyball game in particular needs feedback to keep pace with the learning period as a result of the many requirements of this game and the complexity of performing its basic skills that require long learning periods in order for the learner to perform them well in order to avoid making repeated mistakes. All basic skills in volleyball require high-level technical and mechanical performance, and failure to perform the skills in the required manner leads to the loss of points and thus the loss of the match. The learner must, upon learning the basic skill, have an idea and familiarity with the mechanical aspects of the skill to the extent that it enables it to perform appropriately and effectively, and therefore the trainer or teacher must correct errors and increase the effectiveness of learning for these skills that may occur, and so that the learner can identify most of the stimuli that are from You may encounter it. Hence, the research problem centered on the lack of effectiveness of learning some basic skills in volleyball for the emerging learner, and the frequent technical errors and

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the reason is the lack of feedback and the failure to determine the appropriate timing for presenting it in line with the stages of learning the skill, and because of the skill of transmission and the high crushing of great importance in harvesting points and experience. The researcher in the field of the game, so he decided to study the effect of direct and delayed feedback on learning the skill of serving and spiking volleyball among the emerging players and to know the extent of its impact on the learners.

### **1.1 Objectives**

1. Recognizing the effect of direct feedback on learning the skills of serving and spiking volleyball.
2. Identify the effect of delayed feedback on learning the skills of serving and spiking with volleyball.
3. Identifying the differences between the pre and post tests between the two groups of research in learning the skills of sending and spiking high with volleyball.

### **1.2 Hypotheses**

1. The existence of statistically significant differences in the pre and post tests between the two experimental groups under consideration.
2. The effect of direct and delayed feedback in learning the skills of serving and spiking high with volleyball.

### **1.3 Research areas**

1-5-1 The human field: The players of the Basra team for juniors and the Specialized School for the Development of Volleyball in northern Basra.

1-5-2 Time field: for the period from 19/11/2019 to 1/24/2020.

1-5-3 Spatial field: the volleyball court in the Martyr Ezz El-Din Selim Youth and Sports Forum. Second chapter

## **2. Theoretical studies**

### **2.1 Feedback**

The term feedback has become common in many different fields such as psychology, education, communication sciences, social sciences, chemistry, physics and many other fields. It is one of the necessities of the monitoring, control and modification processes accompanying the various fields as in education and others. Its necessity lies in developing behavior and carrying out various functions and pushing individuals towards learning and adjusting their work on an ongoing basis. Feedback helps in learning during a short period if the best way to push the learner to that is found with the provision of information. It is necessary for him constantly, and this feeding may sometimes be unpublished, such as a smile, or a nod to the head in approval or objection to a certain action.

- Information that clarifies the difference between the performance objective and the performed performance (Mofti Ibrahim Hammad 1998) [7]
- Sensory information that comes to the individual and makes it possible for cognitive and skill advancement to occur (stalling 1982) [12]

### **2.2 The direct feedback (simultaneous)**

It refers to the external feedback that is available and given during the learning of the skill, taking into account that it is necessary to correct when the occurrence of the wrong performance, and the simultaneous feedback is considered as a reference for permanent correction by the motor neurons present in the muscle fibers, which affects the continuity of correction, progress and learning, and simultaneous feedback

is given. By marking the body parts that are not in the correct position or by speaking, the teacher tests the learner for errors in his performance at a time when the learner is making the applications of skill and movement. The simultaneous or real-time feedback is used in sporting events that take a not short time, as well as in events that are not very fast (Al-Husseinawi Noha Adaya 2000) [11]

### **2.3 Final feedback**

It is the feedback that takes place after the completion of the movement, and this type of feedback occurs immediately after the completion of the movement or activity performance, because the more immediate and fast the feedback, the better, and usually takes the form of information about the result ( $k_R$ ) and information about performance ( $k_p$ ). Information about the outcome can be given immediately after the performance, and this information can also be delayed (Yarub Kaiouon 2002) [11].

### **2.4 The importance of basic volleyball skills**

The basic technical skills in the game of volleyball represent a group of purposeful movements, whether these movements are simple or complex, and need to be performed in almost all situations required by the game. Al-Khatib states, "All players should perform all basic skills at an equal level so that every player can perform. The implementation of the tasks assigned to the playground, and technical skills must be analyzed into multiple steps in order to facilitate learning and obtain the best results. The basic skills in volleyball can be divided into (Marwan Abdel Majeed 2006) [5]:

1. Serving skill.
2. The skill of reception the serving.
3. The skill of setting.
4. The skill of spiking.
5. The skill of blocking.
6. The skill of Defending.

### **3. Materials and Method**

The researcher used the experimental method to suit the nature of the research and selected the research sample according to the intended intentional method. It consisted of (20) players out of (32) players representing the Basra team for juniors and the players of the Specialized Center for Volleyball Development, north of Basra, and their ages ranged between (13-15) years, and the sample was divided into two experimental groups. Randomly and for each group (10) players, since the sample percentage represents (62.5%) of the parent community, "The researcher should form groups that are at least equivalent in relation to the variables related to the research (Nahida Abed Zaid Al-Dulaimi 2013) [9]." In order for the researcher to refer the differences to the experimental workers, the researcher must The groups shall be equivalent and homogeneous at least with the variables that are related to the research and that have an effect on the dependent variable under study" (Marwan Abdel Majeed 2006) [5]. Therefore, the equivalence process between the two research groups was done to adjust the performance level variable, where the value ( $t$ ) calculated in the serving skill was (0.221) and for the spiking skill was (0.69) and they are both less than the tabular value of ( $t$ ) (1.833) under the degree of freedom (1) and the probability of error (0.05), and this indicates that there are no significant differences among the results of the performance level of the members of the two experimental groups, which confirms their equivalence, and as shown C Countries No. 1.

**Table 1:** shows the arithmetic mean, standard deviations, coefficient of variation, and value (t) for the variables of height, weight, age, transmission test and high crushing multiplication for the two experimental groups \* under a significance level (0.05) and degree of freedom (1)

Variables	The first group		the second group		Calculated t	Tabular t	Sig.
	$\bar{x}$	sd	$\bar{x}$	sd			
height (cm)	173.4	4.765	173.4	5.211	0.090		
Mass (kg)	59.5	3.027	61.2	2.394	1.393		
Age (years)	13.9	0.737	14.2	0.788	0.878		
serving	24.4	2.796	24.7	3.267	0.221		
spiking	55.9	4.175	54.4	5.46	0.69		

### 3.1 Information gathering methods and tools used in the research:

1) Arab and foreign sources. 2) Tests and measurement. 3) A legal volleyball court. 4) A supportive work team. 4) Legal volleyballs. Measuring tape, colored adhesive tapes, data dump form, whistle, medical scale.

### 3.2 Tests used in research

#### 3.2.1 Serving test (tennis)

- Name of the test: the serving test The purpose of the test: to measure the skill of serving.
- Tools: 10 volleyball, dividing the half of the playing field as shown in Figure (1). Each step inside this division expresses the degree that is given to the tester if the ball falls inside the area.
- The specifications of Performance: from the serving area. The player performs ten valid legal servings.
- The conditions:
  1. Each player is granted two training attempts before the test begins.
  2. It is required to perform each serve time according to the legal conditions for serving.
  3. In the event that the ball falls on the line between two areas, the player awards the score in the higher zone.
- **Scientific weight of the test**
  - Honesty: 0.63
  - Stability: 0.68

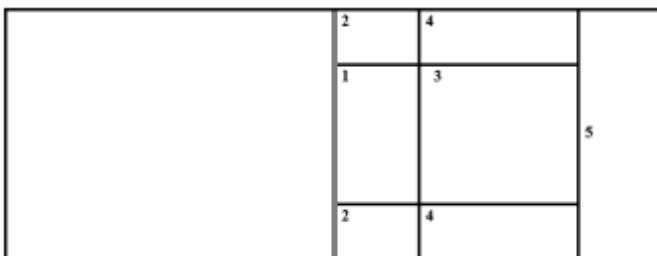


Fig 1: serving test

#### 3.2.2 spiking test from position (4)

- Name of the test: the accuracy of the diagonal and linear overwhelming.
- The purpose of the test: to measure the accuracy of the spiking in the diagonal and straight direction.
- Tools: 30 volleyballs, two orders placed as shown in Figure (2).
- Performance specifications: spiking from position 4, Preparation (via the coach) from position 3. The player must perform 15 attempts of spiking towards the diagonal direction (the rank located in the position 5), and another 15 crushing strokes towards the straight direction (the rank in the position 1), taking into account the appropriate comfort to perform the repetition.
- Register
- Points for every correct spike in which the ball falls on

the rank (small rectangle).

- 3 points for every correct spike ball hitting the shaded area.
- 2 points for every correct spike in which the ball drops area (A) or (B).

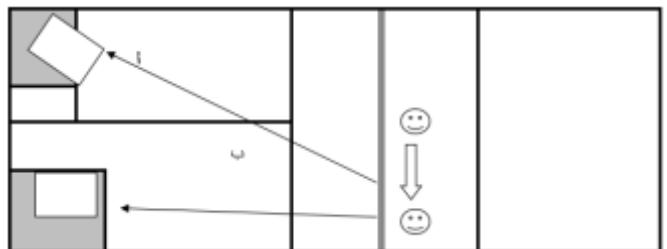


Fig 2: spiking test

### 3.3 Exploratory experience

The exploratory experiment was conducted on Tuesday, 11/19/2019 on a sample of the same 10 players from the Specialized School for Volleyball, and the aim of this experiment was:

1. Ensure that the test is suitable for the individuals of the research sample.
  2. Training the assistant work team and knowing their roles during the educational unit.
  3. Find out how long the test takes.
- This experiment objectives were achieved.

#### 3.3.1 The pre-tests

The pre-tests of the sample were conducted on Thursday, 11/21/2019 at exactly nine o'clock in the morning at the Youth and Sports Forum Stadium in Ezz El-Din Saleem district, after giving a simplified identification unit for the tests and the conditions for the tests were established for the purpose of achieving them In the dimensional tests under consideration.

### 3.4 The main experiment (experimental approach)

The experimental curriculum was implemented starting on Monday 11/25/2019, when the researcher applied his main experiment on the two research samples (Appendix 1 and 2) of 10 players for each group representing the Basra team for the intermediate stage and the Volleyball Specialized Center team. The curriculum consists of sixteen units (eight weeks) with two educational units per week, on Mondays and Wednesdays, as the units included educational exercises for the skills of serving and spiking from position (4) with the use of two types of feedback and the time of the educational unit was (90 minute) and the application was completed The experimental curriculum on 1/15/2020.

#### 3.4.1 post-tests

After completing the application of the experimental method, the post tests were conducted on the two research samples on 01/19/2020 and at the Martyr Ezz El-Din Saleem Youth and Sports Forum Stadium.

### 3.4.2 Statistical Means

The researcher used the statistical bag spss ver.24 in order to extract the following statistical means.

## 4. Presentation, analysis and discussion of results

### 4.1 Presentation of the results of the pre and post test of the skill variables of the two skills of serving and spiking (under investigation) for the first experimental group and analyzing them

**Table 2:** Shows

Skills Variables	Pre test		post test		Calculated t	Sig.
	$\bar{x}$	sd	$\bar{x}$	sd		
serving	24.4	2.796	30.5	3.171	4.982	0.001
spiking	55.9	4.175	70.6	7.396	4.324	0.002

### The arithmetic mean, standard deviation, the calculated t value, and moral significance of the first experimental group in the pre and post tests of the skills of serving and spiking

After processing the data using the statistical bag spss ver.24, and to find out the differences between the pre and post tests of the first experimental group, the (T) test was used, as shown in Table (2), which shows the values of the arithmetic mean, the standard deviation, and the calculated values of (T) and the true significance of the two tests of serving skills. And the spiking from position (4) of the first group, where the arithmetic mean of the serving in the pre-test was (24.4) and the standard deviation (2.796). After performing the post test, the arithmetic mean of the serving reached (30.5) and the standard deviation (3.171). They differ in their values, and this indicates the existence of differences between the two tests, and to clarify the truth of these differences, a (T) test was used, whose calculated value was (4.982) and since the statistical significance is (0.001) which is less than the level of significance (0.05), this indicates the existence of a significant difference Between the two tests and for the benefit of the post test. The arithmetic mean of the spiking in the pre-test reached (55.9) and the standard deviation (4.175). After performing the post test, the arithmetic mean reached (70.6) and the standard deviation (7.396). When these indicators are noticed, we find a difference in their values, which indicates that there are differences between the two tests. To clarify these differences, the researcher used the (T) test, whose calculated value was (4.324) and the statistical significance was (0.002), which is less than the significance level (0.05). This indicates the existence of significant differences between the two tests and in favor of the post test.

### 4.2 Presentation of the results of the pre and post test of the skill variables of the two skills of transmission and high crushing under investigation for the first experimental group and their analysis:

**Table 3:** Shows

Skills Variables	Pre test		post test		Calculated t	Sig.
	$\bar{x}$	sd	$\bar{x}$	sd		
serving	24.7	3.267	27.1	3.414	3.207	0.011
spiking	54.4	5.46	60.2	4.022	3.955	0.003

### The arithmetic mean, standard deviation, the calculated t value, and moral significance of the second experimental group in the pre and post tests of the skills of serving and spiking

The data were processed using the statistical bag spss ver.24, to find out the differences between the pre and post tests of

the second experimental group, the (T) test was used, as shown in Table (3), which shows the values of the arithmetic mean, standard deviation, and the calculated and real mean (T) values of two skills tests for the second group, where the arithmetic mean of the serving in the pre-test was (24.7) and the standard deviation (3.267). After performing the post test, the arithmetic mean of the serving reached (27.1) and the standard deviation (3.414). The two tests, and to explain the truth of these differences, the researcher used the (T) test, whose calculated value was (3.207) and the statistical significance was (0.011) and it was less than the level of significance (0.05). This indicates that there is a significant difference between the two tests and in favor of the post test. The arithmetic mean of the spiking in the pre-test reached (54.4) and the standard deviation (5.46). After performing the post test, the arithmetic mean was (60.2) and the standard deviation (4.022). To clarify the reality of these differences, the researcher used the T-test whose calculated value was (3.955) and since the statistical significance is (0.003) which is less than the significance level (0.05), this indicates that there is a significant difference between the two tests and in favor of the post test.

**Table 4:** Shows

Skills Variables	First group		Second group		Calculated t	Sig.
	$\bar{x}$	sd	$\bar{x}$	sd		
serving	30.5	3.171	27.1	3.414	2.307	0.033
spiking	70.6	7.396	60.2	4.022	3.906	0.001

**The arithmetic mean, standard deviation, the calculated t value, and moral significance of the both experimental groups in the pre tests of the skills of serving and spiking**

Table (4) shows the values of the arithmetic mean, the standard deviation, and the calculated (T) values and their significant significance for the two research groups (first and second experiments) in the post test. In the serving test, the arithmetic mean of the first experimental group (direct feedback) (30.5) and the standard deviation (3.171) And the arithmetic mean of the second experimental group (delayed feedback) (27.1) and the standard deviation (3.414), and if we observe these indicators, we find that they differ in their values, and this indicates the existence of differences between the two groups, and to clarify the truth of these differences, the (T) test was used, whose value was The calculated (2.307) has a level of significance (0.033), which is less than the level of significance (0.05). This indicates that there is a significant difference between the two groups and in favor of the first experimental group (direct feedback). In the spiking test, the arithmetic mean of the first experimental group (direct feedback) reached (70.6) and the standard deviation (7.396), and the arithmetic mean of the second experimental group (the delayed feedback) was (60.2) and the standard deviation (4.022). If we observed these indicators, we find them different. In terms of their values, this indicates the existence of differences between the two groups, and to clarify the truth of these differences, the researcher used the (T) test, whose calculated value was (3.906) at the level of significance (0.001) and it is less than the level of significance (0.05). This shows that there is a significant difference between the two groups in favor of First experimental group (direct feedback)

### 4.3 Discussing the post-test results for the two groups of research on skill tests (sending and spiking skills)

By presenting and analyzing the results of the tests for the two skills of serving and spiking in the post-test, which are shown

in Table (4), it became clear that there are significant differences between the two research groups and in favor of the first experimental group (direct feedback). The researcher attributes the reason for these differences in development to the following:

Direct and delayed feedback has great importance in the learning process, as it is important and necessary in the skill learning process, especially in the early stages of kinesthetic learning, in terms of controlling performance control to reach optimal performance by correcting errors and isolating excessive and unwanted movements, and its importance emanates from its function in Modifying behavior for the better, in addition to its important role in stimulating the motivation of the learner by helping him discover the correct responses and prove them, and delete the wrong responses (Manal Taha 2004) [8].

The development in the results of the first experimental group (direct feedback) came as a result of repetition, correction, detailed explanation and practical application of skills by the researcher before, during and after the motor act until the learner reaches the degree of mastery of the skill by giving direct feedback so that the goal of direct feedback was to facilitate completion Each stage of learning a skill and reaching it to stability, and thus technical errors were isolated for each skill and the ideal performance was installed.

Giving direct and delayed feedback was as follows: Before, during and after the learner's performance to the two skills of sending and hitting the spiking, a clear picture is formed through the explanation, where the direct feedback was provided by the researcher and aimed at forming a clear and correct picture of these skills. Then the errors are diagnosed and corrected through continuous guidance and redo.

As for the development in the results of the second experimental group (delayed feedback), it came as a result of explaining and displaying the skills of serving and spiking one day before each educational unit and standing on the most important main points to control performance, as well as on the day that follows the educational unit to show the most important mistakes that accompanied the learners after being written down By the researcher to trim the skill from errors and fix the perfect performance.

## 5.1 Conclusions

1. The use of direct feedback has a clear advantage over delayed feedback in learning the skills of serving and spiking in volleyball, in favor of the first group.
2. The use of direct and delayed feedback works to learn and develop the skill performance of some basic volleyball skills.
3. The use of direct feedback with the beginners ensures the correct learning process for basic skills.
4. The use of late feedback enables the learner to recognize the result of his performance in order to avoid making the same mistakes.

## 5.2 Recommendations

1. The necessity of using types of feedback in learning basic volleyball skills
2. The necessity of using direct feedback in learning each skill, especially with beginners, so that mistakes are corrected continuously.
3. The necessity of conducting research on other samples in which direct and late feedback is incorporated into learning the skills of serving and spiking high with volleyball.
4. The necessity of conducting research on samples and other skills in volleyball.

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**Appendix Table 1.**

**Number of players:** 20 minutes

**Number of balls:** 20 minutes

**Main section:** 32 minutes

Explanation of the exercise	The theoretical side	The practical side	Repetition and exercise time	Rest between repetitions	The total time
The player stands on the side line of the stadium and sends the ball facing from the	Explanation and presentation of the	Emphasize the correct pose for serving	5 x 1 min	30 seconds	7 minutes

top towards the colleague of the stand on the other side of the court, who in turn catches the ball and sends it back to his teammate who sent it	model 4 minutes divided into exercises at a rate of 1 minute for each exercise				
Repeat the previous exercise, but from the outside lines of the field, and the results are recorded in each performance.		Emphasis is placed on throwing the ball at an appropriate height	5 x 1 min	30 seconds	7 minutes
Playing the serving using each serving area. Results are also recorded		Emphasizing flexion and extension in the joints of the body	5 x 1 min	30 seconds	7 minutes
The performance of the serving continuously towards signs located in the other square without interruption during the time of each iteration and the calculation of the performance result		Focusing on the person and trying to hit him with the ball	5 x 1 min	30 seconds	7 minutes

Appendix Table 2.

**Educational unit:** First**Week:** The first**Objective:** To teach the skill of spiking**Number of players:** 20 minutes**Number of balls:** 20 minutes**Main section:** 32 minutes

Explanation of the exercise	Theoretical side	Practical side	Repetition and exercise time	Rest between repetitions	The total time
The player stands on the side line of the stadium while holding the ball and he applies rounding steps, jumping and throwing the ball on the ground towards his colleague on the other side of the playing field, who in turn catches the ball and applies the same exercise	Explanation and presentation of the model 4 minutes divided into exercises at a rate of 1 minute for each exercise	Emphasize the right steps and jump high	5 x 1 min	30 seconds	7 minutes
The player stands on the side line of the stadium and throws the ball forward and walks two steps, then hits the ball towards the colleague standing on the other side and the colleague responds with the same exercise.		The emphasis is placed on throwing the ball at an appropriate height Hand movement is smooth, with wrist joint guidance	5 x 1 min	30 seconds	7 minutes
Standing in the 4th position, then throwing the ball high, rising from stability and hitting the ball from the highest point above the net.		Emphasis on facing the ball at the highest point	5 x 1 min	30 seconds	7 minutes
The player is standing in position 4 and the coach prepares the ball from position 3, and the player must take approximate steps and hit the crushing strike towards the signs located in the centers 1 and 5		Focusing on the person and trying to hit him with the ball	5 x 1 min	30 seconds	7 minutes