

The Effect of Providing the Corrective and Imagery Feedback on Improving the Performance Accuracy for the Skills of Underhand Serve, Overhand Serve and Jump Serve in Volleyball

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Abstract

The aim of the current study was to assess the effect of different types of feedback on developing serves' skill in volleyball. The researcher used the experimental approach. The study sample consisted of the male students enrolling in the course of volleyball(1) in the second semester for the academic year 2015/2016 with a total of (24) students who were distributed to the experimental group and the corrective group with(12) students in each group .

The study results showed that there are statistically significant differences between the pre and post tests for the skills of (under hand serving, overhand serving and jump serving) among the students of the experimental group which used the corrective feedback in favor of the post tests. There are statistically significant differences in the accuracy of performing the different serve skills between the pre and post test measurements in favor of the post tests for the corrective group that used the imagery feedback. There are statistically significant differences for the different test measurements regarding the measurements of the post test for the experimental and corrective groups in favor of the experimental group . The researcher recommended the necessity of using the types of feedback that are used in this study in order to raise the level of skilled performance among the students, particularly the corrective feedback when learning the skill of serving in volleyball.

keywords: Corrective feedback, imagery feedback, the skill of serving in volleyball .

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أثر تقديم التغذية الراجعة التصحيحية والصورية على تطوير دقة الأداء لمهارة الإرسال من الأسفل
ومن الأعلى والساحق بالكرة الطائرة

جمال ربابه

هدفت الدراسة التعرف على أفضل أنواع التغذية الراجعة التصحيحية والصورية في تطوير مهارة الإرسال بالكرة الطائرة، والكشف عن الفروقات بين أثر تقديم التغذية الراجعة التصحيحية للمجموعة التجريبية وتقديم التغذية الراجعة الصورية للمجموعة الضابطة في تعلم مهارة الإرسال بالكرة الطائرة، استخدم الباحث المنهج التجريبي، وتكونت عينة الدراسة من الطلبة الذكور المسجلين لمساق الكرة الطائرة (2) في الفصل الدراسي الثاني للعام الجامعي (2015 / 2016) والبالغ عددهم (24) طالبا موزعين على مجموعتين بواقع (12) طالب لكل مجموعة.

أظهرت نتائج الدراسة وجود فروق ذات دلالة إحصائية عند مستوى الدلالة (0.05) بين الاختبارات القبلية والبعديّة لمهارات (الإرسال المواجه من الأسفل، الإرسال المواجه من الأعلى، الإرسال الساحق) لأفراد المجموعة التجريبية الأولى والتي استخدمت التغذية الراجعة التصحيحية، وجود فروق ذات دلالة إحصائية عند مستوى الدلالة (0.05) في دقة أداء مهارات الإرسالات المختلفة بين قياسات الاختبارات القبلية والبعديّة ولصالح الاختبارات البعديّة وذلك لمجموعة البرنامج المجموعة التجريبية الثانية والتي استخدمت التغذية الراجعة الصورية، وجود فروق ذات دلالة إحصائية عند مستوى الدلالة (0.05) لمختلف أنواع الإرسالات في قياسات الاختبار البعدي للمجموعتين التجريبية الأولى والثانية ولصالح المجموعة التجريبية الأولى، أوصى الباحث أن التغذية الراجعة تساعد في رفع كفاءة التعلم وجودته من خلال توفير الوقت والجهد وزيادة الوضوح والاتصال ما بين الطالب والمدرس.

الكلمات الدالة: التغذية الراجعة التصحيحية، التغذية الراجعة الصورية مهارة الإرسال بكرة الطائرة.

Introduction:

The process of guided learning is the basic pillar in the civilized development of the human beings; it represents the constant change in the students behavior, which also means the psychological process which is based on the right accumulation of information that directs the behavior. Learning is an accumulative process of experiences which represents the base of the learning future. Using the modern methods of learning in the educational process is a vital process which includes economy in time, effort and money, especially when using the appropriate learning method and the type of the desired skill in terms of its style and characteristics, since there is no learning method that is efficient with all the skills of the different games (Abdulhussein & Wisam, 2012)

Feedback has an important role in the field of physical education. Its importance lies in considering it as a basic element for performing the movement, since it contributes either consciously or subconsciously in the internal modulation of the muscles which, in turn, makes an internal modulation between the motor and sensory nerves, and that contributes to the control of behavior (Kammash & Al-Shawish, 2011).

The study of (Schmidt, 2006) suggests that the teacher should focus on the feedback in its various forms and then choose the teaching method that corresponds to the basic skill in order to reach the peak of the positive and effective performance within the context of the established educational units. The teacher needs to perform many repetitions in order to enable the group students to reach a high level of performance and mastery. The plurality in the methods of feedback contributed to the development of the learning process by providing the student with the positive and negative information about the performance that helped in mastering the skill, especially if the best and most influential type was restricted for the learner. The feedback takes many forms, such as the verbal, corrective and imagery, where the corrective feedback provides the student with the required tasks that should or shouldn't be done as well as telling him about the technical steps of the skill and this, in turn, increases his level of performance when he notices the good results of his performance. The imagery feedback allows the student to compare his performance with correct imagery models (Rairigh & Kirby, 2002).

The corrective feedback is defined as the feedback which is provided to the learner due to committing a certain mistake in order to help him to improve his performance and correct his responses, while the imagery feedback is defined as that type of feedback which allows the student to notice the advancement of his performance by comparing his performance with correct imagery models.

The study of (Lee & Wall, 1996) suggests that providing the learner with the feedback contributes to increasing the effectiveness of his learning and their integration into the attitudes and educational experience through increasing the frequency of correct responses. The efficiency of the response is the core of the educational process and that the failure to secure such information will prevent the learner from reaching the complete learning process ; besides that, using more than one method, or changing the time through which this information is provided affects performance.

The study of (Anderson, 1992) suggests that feedback plays an important role in the educational process. It also contributes to developing the motor skills as well as connecting all the elements of movement and forming the whole conceptualization of the skill, in addition to raising the level of skilled performance. Therefore, the researcher recommend about using it frequently until the learner reach to the stage of constant skill.

The study of (Hikmat, 2006) suggests that feedback in volleyball is considered as one of the elements that contributes in the educational process as well as acquiring the information specified to the skill, that pass through the various stages of verbal explanation and practical model in learning the correct movement style, up to reaching the stage of mastering the performance.

The study of (Simon, 2006) suggests that technical and planned performance for the skill of serving in volleyball has too much to do with the team's strategic considerations if the player is able to choose the right type of serving in the right time and the right place which will, in turn, contribute to gaining more scores and consequently winning the match. The skill of serving represents about 15% from the total basic skills in volleyball. The basic skills in volleyball need a distinguished preparation during the time of learning them in terms of the technical aspect and they

require a nervous-muscular coordination in order to perform it in the required way.

The study of (Al-Heiti, 1999) suggests that the skill of serving depends on the psychological aspect, control over the nerves, and the skilled performance. This skill needs continuous teaching and training according to the technical requirements related to the movements of serving. Therefore, coaches and teachers should spend a long period of the time allotted to training in developing and enhancing the basic and important skills which contribute to winning the match if they are performed in the right way.

The study objectives:

This study aimed at identifying:

- 1- The effect of providing the corrective feedback in developing the skill of serving in volleyball for the experimental group.
- 2- The effect of providing the imagery feedback in developing the skill of serving in volleyball for the corrective group
- 3- Comparing between the effect of providing the corrective and imagery feedback in developing the skill of serving in volleyball.
- 4-

The study questions:

- 1- Are there statistically significant differences between the results of the pre and post tests for the experimental group which used the corrective feedback in developing the skill of serving in volleyball?
- 2- Are there statistically significant differences between the results of the pre and post tests for the corrective group which used the imagery feedback in developing the skill of serving in volleyball?
- 3- Are there statistically significant differences between the students of the experimental group which used the corrective feedback and the students of the corrective group which used the imagery feedback in the post tests?

The study procedures:

The Methodology:

The experimental approach was used for the two groups (the experimental and the control). The study population consisted of (140) students from those enrolled in the course of volleyball (1) in the second semester for the academic year 2015/2016 with a total of (24) students who were chosen in the intentional way and distributed to the experimental group and the corrective group with(12) students in each group. The experimental group used the corrective feedback, while the corrective group used the imagery feedback.

The researcher used paired sample t-test and independent sample t-test in order to calculate the homogeneity between the study groups in the pre test regarding the study variables (age, weight, and height) and the tests of accuracy for the serving skills (underhand serve, overhand serve and jump serve). Table (1) illustrates that:

Table (1) The homogeneity of the experimental and corrective groups in the variables of (age, weight, and height) and the serving skills (underhand serve, overhand serve and jump serve)

variables	Measurement unit	experimental group		corrective group		(t) value
		mean	Standard deviation	mean	Standard deviation	
Age	year	19.5	1.63	20.53	2.52	0.522
Weight	Kilogram	73.33	7.56	75.72	9.88	0.652
Height	Centimeter	178.02	3.92	176.15	4.42	0.762
underhand serve	degree	11.14	2.18	12.13	2.12	0.825
overhand serve	degree	11.20	1.63	10.50	2.32	0.782
jump serve	degree	9.41	2.34	7.70	2.62	0.982

t-table value at the significance level of (0.05) which is (2.03).

The results of table (1) show that there are no statistically significant differences at the significance level of (0.05) in all the study variables regarding the pre test for the experimental and corrective groups, which indicates that both groups are homogeneous and comparable in all variables.

The researcher used the serve test which was developed by (Hasanein and Mun'im, 1997) in order to measure the accuracy of the skill. In this test, each student performs ten correct serves according to the rules for each type of the serves, where the student serves the ball from the end of pitch line, figure (1), and the score of the player is recorded based on the place where the ball fell in accordance with the divisions and degrees illustrated in figure (1). The maximum score for each serve is (50) degrees, while the minimum score is (0) in case the ball fell outside the borders of the pitch.

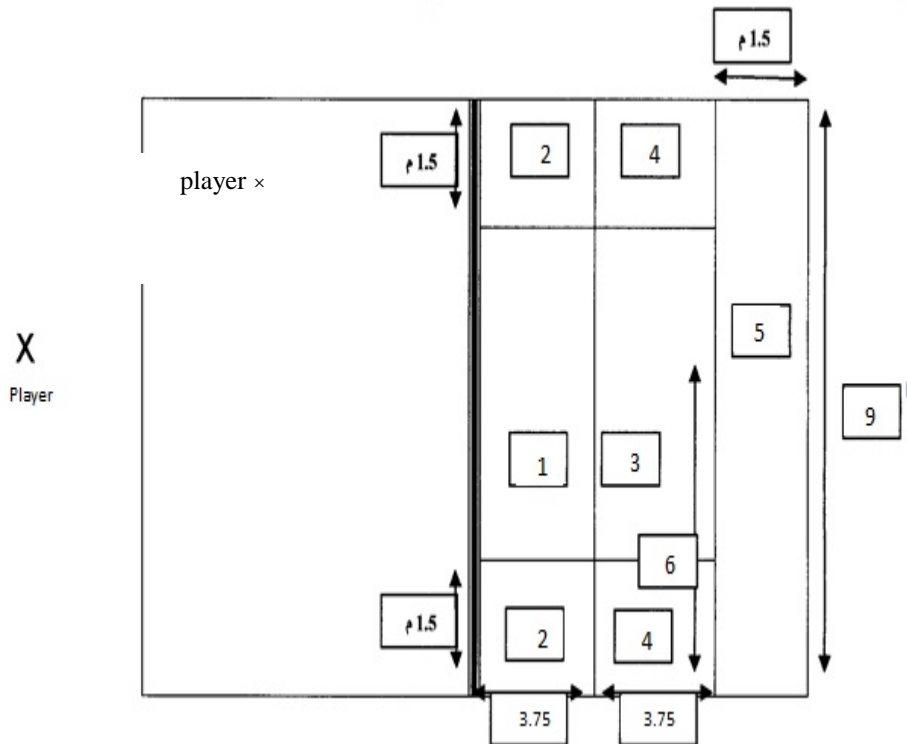


Figure (1) the score of the player based on the place where the ball fell in accordance with the divisions and degrees

The coefficients of reliability and (test-retest) validity (inrernal) for the serving tests were calculated, where the values of test validity ranged between (0.87-0.90) and the values of reliability coefficients ranged between (0.78-0.82). Table (2) illustrates that.

Table (2) reliability and validity coefficients for the test of serving in volleyball

The test title	First measurement		Second measurement		Scientific coefficients	
					reliability	validity
underhand serve	19	1.50	21	1.87	0.90	0.82
overhand serve	20	1.62	23	1.95	0.88	0.79
jump serve	17	1.58	19	2.03	0.87	0.78

Applying the study :

The researcher applied the study to a pilot study sample that consisted of eight students from the outside of the study sample in order to identify the difficulties that may face the researcher during performing and solving the tests before applying the program.

The researcher supervised the teaching process of the suggested program for the course of volleyball(1) to the students of the experimental group after performing the per tests for the two groups. The researcher explained and showed the way of performing the pre tests in order to evaluate the accuracy of performing the serve. The researcher taught the corrective group using the traditional program that is taught in the faculty in addition to supervising the practical part of the course and contributing to the process of correcting the mistakes.

The suggested educational program included (12) teaching units ,with two units in each week in the course of volleyball (1), taking into consideration that the program won't confuse the educational curriculum of the faculty and that there will be a continuity in teaching the specified elements of volleyball (1), with two units weekly distributed to two days (Monday and Wednesday) and 45 minutes for each unit.

The method used in teaching the course and the content of the teaching unit was unified in the introductory part , the main part and the final part . The test of accuracy was used for all the different types of serves . The selected physical exercises were distributed to the suggested curriculum for six weeks. During the process of performing the suggested educational curriculum, the researcher considered the following:

The researcher performed the post tests at the end of the educational period, in the same way of performing the pre tests .

The statistical processing :

The data were processed by using the statistical package (SPSS), where the following statistical analyses (mean, standard deviation, and t-test) were used to calculate the significance of differences between the means of the pre and post tests.

Displaying the results and discussing them

Displaying and discussing the results regarding the first question:

Are there statistically significant differences between the results of the pre and post tests for the experimental group which used the corrective feedback in developing the skill of serving in volleyball?

Table (3) The means, the standard deviation, (t) calculated value, and the percentage of improvement between the pre and post measurements for the variables in the pre and post tests among the students of the experimental group.

The study variables	Measurement units	Pre test		Post test		(t)calculated value	percentage of improvement
		M	SD	M	SD		
underhand serve	degree	11.14	2.18	37.40	6.07	18.57*	70.20
overhand serve	degree	11.20	1.63	33.50	5.69	14.23*	66.60
jump serve	degree	9.41	2.34	23.82	5.49	11.55*	60.50

t-table value at the significance level of (0.05) which is (2.11).

The results of table (3) show that there are statistically significant differences at the significance level of (0.05) in the accuracy of performing the different serve skills between the measurements of the pre and post tests in favor of the post tests for the group that used the corrective feedback, where the means of the post test for the skills of (underhand serve, overhand serve, and jump serve) are (37.40, 33.50, 23.82) with a standard deviation of (6.07, 5.69, 5.49) respectively, while the means of the pre test for the skills of (underhand serve, overhand serve, and jump serve) are (11.14, 11.20, 9.41) with a standard deviation of (2.18, 1.63, 2.34) respectively.

The results also show that there are statistically significant differences at the significance level of (0.05) between the pre and post tests for the skills of (underhand serve, overhand serve, and jump serve), where the (t)calculated values are (18.57, 14.23, 11.55) respectively in favor the post tests, which is more than t-table value which is 2.11 at the significance level of (0.05) with a percentage of (70.20, 66.60, 66.50) respectively.

This means the educational program developed the skills of (underhand serve, overhand serve, and jump serve) in volleyball. This finding corresponds with the study of (Al-Aani, 2007), the study of (Al-Naddaf, 2007), the study of (Hikmat, 2004) and the study of (Jaradat, 2004). The researcher attributes that to following the steps of the educational program according to correct scientific bases in setting the units which included exercises that are directed towards developing the element of accuracy. The efficacy of using these exercises also depends on the methodological ways of applying them as well as the existence of personal motivation among the students of the experimental group in addition to the existence of a special interest in developing the elements of physical fitness which, in turn, contributed to the improvement of the skilled performance for the different types of serves. The constant corrective feedback when the mistakes occur was helpful, where the repetition in the primary part is more intensive among the students of this group during the stage of implementation.

Displaying and discussing the results regarding the second question:

Are there statistically significant differences between the results of the pre and post tests for the corrective group which used the imagery feedback in developing the skill of serving in volleyball?

Table (4) The means, the standard deviations, (t)calculated value, and the percentage of improvement between the pre and post measurements for the variables in the pre and post tests among the students of the corrective group

The study variables	Measurement units	Pre test		Post test		(t)calculated value	percentage of improvement
		M	SD	M	SD		
underhand serve	degree	12.13	2.12	27.81	3.17	6.36	18.10
overhand serve	degree	10.50	2.32	22.00	5.38	5.62	19.20
jump serve	degree	9.50	2.62	19.33	4.16	4.23	17.47

t-table value at the significance level of (0.05) which is (2.11).

The results of table (4) show that there are statistically significant differences at the significance level of (0.05) in the accuracy of performing the different serve skills between the measurements of the pre and post tests in favor of the post tests for the corrective group that used the imagery feedback, where the means of the post test for the skills of (underhand serve, overhand serve, and jump serve) are (27.81, 22.00, 19.33) with a standard deviation of (3.17, 5.38, 4.16) respectively, while the means of the pre test for the skills of (underhand serve, overhand serve, and jump serve) are (12.12, 10.50, 9.50) with a standard deviation of (2.12, 2.32, 2.62) respectively.

The results also show that there are statistically significant differences at the significance level of (0.05) between the pre and post tests for the skills of (underhand serve, overhand serve, and jump serve), where the (t)calculated values are (6.36, 5.62, 4.23) respectively in favor the post tests. The researcher attributes that to the program used in developing the accuracy of the skilled performance which accompanies the imagery feedback which resulted in a little improvement, where the teacher stops all the students and give the feedback and the percentage of repeating the performance in the primary part is little in comparison with the corrective feedback. This finding corresponds with the study of (Ay, 2011), the study of (Okour and Eissa, 2008), and the study of (Hikmat, 2007). The researcher attributes that to the positive effect of the class of physical education on developing the element of physical fitness which, in turn, contributed to the improvement of the skilled performance.

Displaying and discussing the results regarding the third question:

Are there statistically significant differences between the students of the experimental group which used the corrective feedback and the students of the corrective group which used the imagery feedback in the post tests for the various types of serves (underhand serve, overhand serve, and jump serve)?

Table (5) The means, the standard deviations, and (t)calculated value of the post measurement for the variables of the two groups

The study variables	Measurement units	Corrective group		Imagery group		(t)calculated value
		M	SD	M	SD	
underhand serve	degree	37.40	6.07	27.81	3.17	11.97*
overhand serve	degree	33.50	5.69	22.00	5.38	9.78*
jump serve	degree	23.82	5.49	19.33	4.16	4.64*

t-table value at the significance level of (0.05) which is (2.03).

The results of table (5) show that there are statistically significant differences at the significance level of (0.05) for the different types of serves in the measurements of the post test for the experimental and corrective groups, where the mean of the skills of (underhand serve, overhand serve, and jump serve) are (37.40, 33.50, 23.82) with a standard deviation of (6.07, 5.69, 5.49) respectively, while the means for the different types of serves for the corrective group are (27.81, 22.00, 19.33) with a standard deviation of (3.17, 5.38, 4.16) respectively.

The results also show that there are statistically significant differences at the significance level of (0.05) between the experimental and corrective groups regarding the post tests for the skills of (underhand serve, overhand serve, and jump serve), where the (t)calculated values are (11.97, 9.78, 4.64) respectively in favor of the experimental group which used the corrective feedback. The researcher attributes that to the types of used feedback which

contributed positively to the development of the level of performance among the students, where the students of the first group received a positive corrective feedback via clear and sufficient information and instructions at the time of implementing the given skill based on the technical aspects of the skill in terms of the nature of preparation, application and follow up as well as the immediate and particular correction which is based on modifying and correcting the wrong response for the given skill and the frequency of the repetitions in the application part of the primary activity in addition to the average rate for the repeating the corrective feedback. The results showed that the underhand serve gave better results in comparison with the other types of serves, and the researcher attributes that to the ease of this serve. This finding correspond with the study of (Al-Fihmi, 2005); as the amount of the common elements increases between two given processes, the possibility of the effect of learning on one of these processes to the other will increase. Finally, the results showed that the skill of jump serve is the least influential serve in evaluating the accuracy in comparison with the other types of serves, and the researcher attributes that to the difficult nature of this serve which relies on serving the ball with the highest and strongest possible manner inside the borders of the opponent team's pitch regardless the falling point within the pitch borders, in addition to the difficulty in testing the accuracy due to the high jump of the player which doesn't allow for seeing all the sites of the pitch and focusing on the place where the ball falls.

The findings of this study correspond with the study of (Al-Khurasat, 2015; Al-Dababseh, 2016; Al-Dulaimi, 2007; Hikmat, 2007; and Al-Naddaf, 2007), in that the positive verbal feedback led to a positive effect on improving the level of skilled performance.

As for the other group which received the imagery feedback with regard to the technical steps of the skill in terms of preparation, implementation, and follow up, the results asserted about the importance of this type of feedback in providing the player with the multiple perceptual information in the practical side either in the individual or team games as well as its positive effect on improving the skilled performance and contributing the player in identifying his responses to the required skill that he has to learn and apply so as to improve the level of skilled performance and correct the motor action.

Conclusions:

- 1- This study is considered as a confirmation for the results of some previous studies in terms of using the verbal and imagery feedback, where using the various types of feedback contributed to improving the performance of the serving skill in volleyball.
- 2- The corrective feedback is the most influential type in improving the skilled performance.
- 3- Informing the student with the results of his learning after the direct implementation of the skill has a positive effect on modifying and correcting the wrong responses of the student.

Recommendations:

- 1- The necessity of using the types of feedback that are used in this study in order to raise the level of skilled performance among the students, especially the corrective feedback when learning the skill of serving in volleyball.
- 2- The necessity of focusing on demonstrating each type of the feedback, particularly during introducing the programs of teachers' preparation, as well as demonstrating that to the student of field training in the faculties of sports.
- 3- Conducting similar studies by using more advanced technological methods such as video, computer and data show.

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