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Summary of the research

Use the learning-by-learning strategy with an educational device to teach and retain the front and back hitting skills of a tennis ball

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Abstract: The aim of the research is to use the learning strategy by mastering with an educational device to teach and retain the front and back hitting skills of the tennis ball, as well as to identify the effect of using the learning by mastery strategy with an educational device to teach and retain the skills of front and back hitting the tennis ball, since learning by mastery of educational strategies that depend on skill with Feedback taking into consideration note the individual differences of learners in the learning process, as the researcher used the experimental approach to its suitability to solve the research problem and the design of the two equivalents with the same Tbarren tribal random selection and post, as the research sample consisted of students from the Phase III Division (c) in the Faculty of Physical Education and Sports Science at the University of Baghdad and by (20) Students, and by lot they were randomly divided into two experimental and control groups, each group (10) students, as the numbers were randomly drawn (1-20), so the individual numbers represented the experimental group and even numbers represented the control group, as well as the use of appropriate means, tools and devices , And the exploratory experiment was conducted, as well as conducting tribal tests for the two groups, applying the educational curriculum, then applying the tests enabling the experimental group after four weeks, then conducting the post-tests for the two groups, and then the data was emptied and statistically processed, and then presented and analyzed Discussed, the researcher reached several conclusions, namely :

1. The learning-by-doing strategy greatly assisted in teaching and retaining the front and back hitting skills of tennis
2. The educational system has greatly contributed to the teaching and retention of the front and back hitting skills of tennis .

3. That the learning-by-learning strategy with an educational apparatus had a positive effect in teaching and retaining the skills of front and back strokes of the tennis ball .

The researcher reached several recommendations :

1. Using the learning strategy by mastering the educational process to achieve the best possible learning .

2. Use a variety of educational equipment to teach basic tennis ball skills .

3. Use other modern educational strategies on other sports .

Keywords: *learning-by-learning strategy, back hitting skills, Tennis Players*

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I. Introduction :

The educational process in physical education and sports science contributes to reaching educated students to high levels of physical, skill, planning and psychological aspects, which made the specialists in this field looking for modern and various educational strategies that contain the training aspect that supports these educational strategies in order to raise the level of learners 'performance of the skills Essential for sports .

" The ground tennis game is one of the sports games that have witnessed an evident development using the correct scientific application, especially in the learning process and for learning basic skills, which is transmission, front strike, back stroke, which is the backbone of the game where the transmission hit is very important in the game of tennis The starting stroke is considered the first attacking attack where the sender can put the opponent player under pressure and give the sender the lead of the game, so we find that all players choose to send if they win the draw, while the front strike is the most important and most used and special strikes The ratio of the player Debutante where the easiest way to return the ball if the ball came in front of the player or on the right of him, It is the second strike that comes after the transmission i.e. the receipt of the transmission, as well as the rear strike comes the importance of this strike in the second degree after the front strike and uses this strike when the ball comes to the left side of the player and if carried out this strike correctly can be considered an offensive strike as in the front strike " (Ammar Jabbar 2005: 19) .

Therefore, the educational process must be brought out in the best possible way by investing time and effort to accelerate the learning process through educational strategies that give its users creativity in performance and access to the highest level of learning and increase repetitive attempts and give the learner multiple opportunities to practice in different educational forms to increase his experiences as well as achieve different goals At the same time set to learn .

The research problem lies through the researcher's observation of many teachers who follow the traditional method in which the different learners may not take into account their levels and educational capabilities as well as their different inclinations and desires in the learning process, as well as this method is characterized by not providing the beginner learner with sufficient repetitive attempts, as well as the lack of devices and tools The educational process that plays a large role in the learning process, and despite the multiplicity of learning strategies and educational devices, the learning process still needs to know educational strategies and modern and influential educational devices that enable the student to learn better, so The researcher felt the study of this problem through the use of the learning by mastery strategy, accompanied by an educational device to teach and retain the skills of front and back hitting the tennis ball and improve the level of performance .

The fields of research on the human field included the third stage students, Division (C) in the College of Physical Education and Sports Science - University of Baghdad, by (20) A student, while the temporal field was for the period from 24/2/2019 to 20/5/2019, and the spatial field in the tennis arenas in the College of Physical Education and Sports Science - University of Baghdad .

II. Research methodology and field procedures:

- Research methodology :

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Empirical research is " the most accurate type of scientific research that can influence the relationship between variables specific to the experiment" (Abdel Hafeez and Bahi: 2000: 107), the researcher used the experimental approach to suit the nature of the problem, and the design of the two equivalent groups with random pre- and post-tests were chosen. Experimentation is " an approved or exact expression of the specific conditions of an accident and the observation and interpretation of the changes resulting from the incident itself " (Wajih Mahjoub: 1985: 237) .

And the " experiment may include more than one independent variable and more than one dependent variable, and the experiment allows observing new facts that were not expected before or whose features have not been clarified yet, and determines the extent of their conformity with the established purpose " (Resan Kharibat 1987: 96) .

- The research sample :

The research sample was chosen intentionally by the third stage students, Division (C) in the College of Physical Education and Sports Science at the University of Baghdad, and the number (20) students out of a total of (25) students, and by lottery way they were randomly assigned to two experimental and control groups and by (10) students for each group, as numbers (1-20) were withdrawn and then the individual numbers represented the experimental group and even numbers the control group, and thus represented the proportion The sample is from the original community (80%) .

- means, devices, and tools used in the research :

- means of gathering information :

Arab and foreign sources and references, tests and measurements, personal interviews, the assistant team) .)

- The tools and devices used in the research :

Medical scale to measure weight (kg), tape measure for height approved (cm), electronic stopwatch number (2),) legal tennis ball, whistle) .

- Determine the tests :

- Determining the safety and background strikes test :

" The tests are one of the means of evaluation, measurement, diagnosis, and orientation in the different curricula and plans for all levels and ages, as they play an influential role that clearly indicates the progress and success in achieving the objective goals " , (Abdel Hamid and Hassanein: 1997: 267), so the researcher selected the 1966 average hight tests based on his field experience in the field of tennis .

- tests used in research :

- Front and rear ground strikes (Ammar Jabbar, quoting Dhafer Hashem Al-Kazemi : 2005: 56) .

The name of the test : Measure the accuracy of the front and back ground strokes - this test is performed on a regular tennis court with rackets and (30) A tennis ball, registration form, and rope fixed as shown in Figure 1, showing the lab parking areas, how to take the test, and calendar marks .

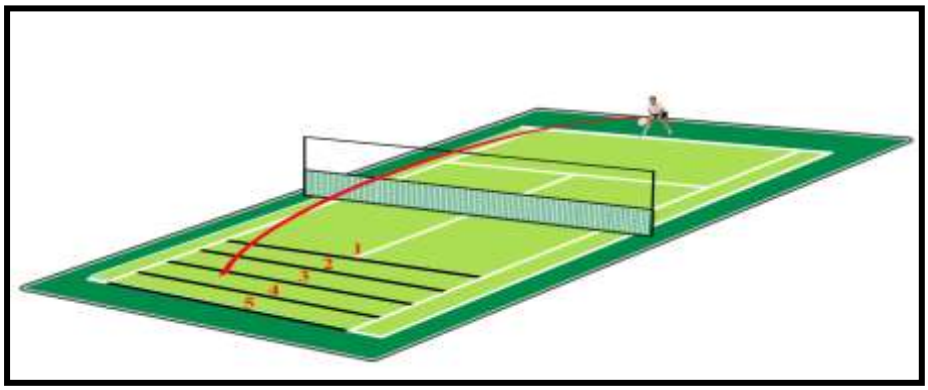

Figure (1)

It shows the Calendar tags and the parking areas of the testers and how to perform the modified ground white tennis test for the front and back hitting skills

- Fix a rope on two columns in the grid posts and parallel to it and at a height (7) feet from the ground and (4) feet from the sleeve mesh in Figure (1) .

- draw three parallel lines between the transmission line and the baseline so that the distance between the lines (4.5) feet .

- The player stands on the middle mark, which is located in the middle of the baseline and is granted five experimental attempts to know the performance of the test after providing instructions by the teacher provided that the ball is tossed directly behind the transmission line by the ball thrower if it is found or by the competent teacher, and the player begins by trying to return the ball with his bat Using the forehand or backhand, each player is assigned ten attempts for the front strike and ten attempts for the backhand, the player's scores are the total points he gets by collecting his ten attempts, and the ball must cross the net and the bottom of the rope and the student gets progressive scores from (1 - 5) degrees and if the ball crosses over the rope, it gives half of the orthodontic mark to the correct area that falls on it.

- Exploratory experience :

The exploratory experience is a " practical training for the researcher to determine the negatives and positives that you encounter during the test to avoid them " (Hussein and others : 1990 : 107), as the researcher conducted the exploratory experiment on Sunday 3/3/2019 on a sample consisting of (4) students from the same sample, as they were randomized and the purpose of the exploratory experiment was :

- Knowing the suitability of the tests for the sample level .

- Bypass errors that occur when performing the test .

- Organizing the work and the procedures of the educational unit, represented by its timing and all its departments .

- Knowing the efficiency of the work team .

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- Ensure that the place is suitable for carrying out the tests and the suitability of the tools and devices used .

- Know how to measure and record data .

- Field search procedures :

- Pre-test :

The researcher conducted the tribal tests on Thursday 3/7/2019 on the tennis ball arenas in the College of Physical Education and Sports Science at the University of Baghdad, and the researcher was keen to establish all the conditions related to the tests in terms of (time, place and climate) in order to be able to create similar or similar conditions when conducting dimensional tests .

- educational curriculum :

In order to reach the main and main goal, the researcher prepared an educational curriculum according to the learning strategy with mastery accompanied by an educational device, the purpose of which is to teach the skills of the front and back strokes of the tennis ball, after taking the views of experts and specialists in the field of teaching methods and kinetic learning, then the observations made by the specialists were taken The curriculum was finalized for the purpose of its application, as it took to implement the curriculum (8) weeks, starting from Sunday, 10/3/2019, until Thursday, 5/2/2019, at the rate of (3) educational units per week where the days (Sunday, Tuesday, Thursday) were educational days, so the number of educational units reached (24) An educational unit, and the educational curriculum contained general and specific exercises. The main section included an educational part and an applied part in order to enhance and correct movement programs for students. The researcher took into account the length of time during the one educational unit for all members of the sample .

- dimensional tests :

Dimensional tests were conducted on the research sample on Sunday 5/5/2019 on the tennis ball arenas in the College of Physical Education and Sports Science at Baghdad University, after completing the application of the educational curriculum, and the researcher was keen to create the same conditions in terms of (time, place and climate) that were applied in the tribal tests .

- Statistical means

The researcher used the appropriate statistical means for the subject of the research and it was according to the statistical bag system (spss) .

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III. Presenting, analyzing and discussing the results :

- Display the results of the pre-test, mastery, and dimensional tests of the experimental group in the front and back stroke tests of the tennis ball, analyze and discuss it.

Schedule (1) Shows the arithmetic mean and standard deviations for the pre- and post-tests of the front and back strokes of the experimental group tennis ball, the calculated value (T) and the significance of the differences

T	Search variables tests	Experimental group						.Q- F	PF	Values (T) Calculated	indication The differences
		Pre-test		Mastery test		Post-test					
		-s	P	-s	P	-s	P				
1	Forward stroke test	21.6	9.282	29.6	8.466	40.4	7.364	18.8	7.216	8.238	moral
2	Backhand test	17.8	7.711	21.9	7.529	32.6	5.909	14.8	5.944	7.876	moral

Values (T) tabular (2.26) below the significance level (0.05) and degree of freedom (9)

The table shows (1) The results of the pre-test, empowerment, and post-tests of the front and back strokes of the tennis ball for the experimental group. The mean of the mean in the post test was (40.4) with a standard deviation (7.364), the mean value of the differences (18.8) and a standard deviation of the differences (7.216), and when extracting the calculated (T) value of (8,238) which is greater than the value of (T) Tables and (2.26) at the degree of freedom (9) and the level of significance (0.05), which indicates the presence Significant differences between the pre and post exams and in favor of the post exam .

On the test for backhand performance, the mean is reached (17.8) and a standard deviation (7.711), while the mean in the test reached mastery (21.9) and a standard deviation (7.529), the mean in the post-test (32.6) and a standard deviation (5.909), and the mean value of the differences (14.8) and a standard deviation For the differences (5.944), and when extracting the calculated (T) value of (7.876) which is greater than the tabular (T) value of (2.26) at the degree of freedom (9) and the significance level (0.05), which indicates that there are significant differences between the pre and post tests in favor of Post-test .

Through the results that appeared in the table (1) We find that the results of the tests have shown significant differences between the pre-test and the mastery and the post-test and in favor of the post-test and the researcher attributes the reason for that to the mastery of learning by mastery that greatly contributed to the development of the front and back strokes of the tennis ball, as it is "an educational plan that includes providing repeated formative tests followed Extra time for corrective feedback and information on skills for students who are not able to complete the learning process ”(Marib: 1991: 30), as well as the educational system accompanying the learning strategy with mastery has contributed significantly to raising the level of performance for the two front-strike skills and Background Tennis reel .

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- Display the results of the pre and post tests of the control group in the front and back stroke tests of the tennis ball, analyze and discuss it.

Schedule (2) Shows the arithmetic mean and the standard deviations of the pre- and post-tests of the front and back strokes of the tennis ball of the control group, the calculated value (T) and the significance of the differences

T	Search variables tests	Control group				Q- F	PF	Values (T) Calculated	indication The differences
		Pre-test		Post-test					
		-s	P	-s	P				
1	Forward stroke test	14.9	7.864	23.1	6.523	8.2	3.830	6.771	moral
2	Exam Backhand	14.1	6.113	21.2	3.862	7.1	3.991	5.625	moral

Values (T) tabular (2,26) below the significance level (0,05) and degrees of freedom (9)

The table shows (2) The results of the pre- and post-tests of the front and back strokes of the tennis ball of the control group. In the pre-test of the front-strike performance, the mean (14.9) and the standard deviation (7.864), while the mean in the post-test (23.1) and the standard deviation (6.523) The mean value of the mean differences (8.2) and the standard deviation of the differences (3.830), and when extracting the calculated value (T) of (6.771) which is greater than the tabular value (T) of (2.26) at the degree of freedom (9) and the significance level (0.05) This indicates that there are significant differences between the pre and post exams and in favor of the post exam .

As for the test of the performance of the backhand, the mean (14.1) and a standard deviation (6.113), while the mean in the post test (21.2) and a standard deviation (3.862), the mean value of the differences (7.1) and a standard deviation of the differences (3.991), and when extracting the calculated (T) value of (5.625) It is greater than the tabular (T) value of (2.26) at the degree of freedom (9) and the significance level (0.05), which indicates the presence of significant differences between the pre and post tests in favor of the post test .

By observing the table (2) We find that the tests showed significant differences between the results of the pre and post tests in favor of the post test, and the researcher attributes the reason for this development in the control group compared to the experimental group to the type of exercises used in the educational curriculum followed by the subject teacher for the control group, which led to a much lower rate of development Compared to the experimental group in the performance of the front and back hitting skills of tennis, the researcher attributes this to the difficulty of forming a picture or idea of the two skills to be learned by members of this group, as well as relying on traditional methods and the lack of equipment and Help tools increase learning opportunity .

- Display the results of the dimensional tests for the experimental and control groups in the front and back stroke tests of the tennis ball, analyze and discuss it .

Schedule (3) Shows the mean, standard deviation, and calculated value (T) of the results of the post-test strikes for the front and back strokes of the tennis ball for the experimental and control groups

T	Tests Search variables		the group		Values Calculated T	indication The differences
			Experimental	Control		
1	Forward stroke test	-s	40.4	23.1	5.275	moral
		P	7.364	6.523		
2	Exam Backhand	-s	32.6	21.2	4.844	moral
		P	5.909	3.862		

Values (T) tabular (2,10) below the significance level (0,05) and degrees of freedom (18)

The table shows (3) Dimensional tests for the experimental and control groups in the skills of the front and back strokes of the tennis ball. In the front stroke test of the tennis ball, the calculated value of (T) reached (5.275) which is greater than the tabular value (T) of (2.10) under the significance level (0.05) And at the degree of freedom (18), this means that there are significant differences between the control and experimental groups in favor of the .experimental group

As for the value (T) Calculated for the results of the dimensional tests of the experimental and control groups in the backhand test of the tennis ball, it reached (4,844), which is greater than the (T) table value of (2.10) under the significance level (0.05) and at the degree of freedom (18) and this means that there are significant differences Between the control and experimental groups in favor of the experimental group.

It can be seen in the table (3) The emergence of significant differences between the two-dimensional tests of the control and experimental groups and in favor of the experimental group, and the researcher attributes the reasons for this to the learning strategy of mastery implemented by the experimental group as it created a clear development in the level of technical performance of the skills of the front and back strokes as a result of the feedback that gave students the opportunity to correct errors and increase In the learning process, Unlike the members of the control group, they can only know the error in performance by the teacher (external feedback), As well as the educational system accompanying the learning strategy with mastery The one who facilitated the teaching process because he was drawing a clear and consistent path for the education process, which led to raising the level of performance for the two skills, as well as sufficient repetition of the two skills was an important factor in this result that the student learned the correct kinetic path of the skill, unlike the members of the control group that lacks the tools and tools

Aid has been negatively affected by manual assistance, and the control group has not had sufficient repetitions that increase the learning process .

- Display the results of the dimensional tests and retaining the experimental group in the front and back stroke tests of the tennis ball, analyzing and discussing it.

Schedule (4) Demonstrates arithmetic mean and standard deviations for dimensional tests and retention of the front and back strokes of the tennis ball for the experimental group, the calculated value (T) and significance of differences

T	Search variables tests	Experimental group				Q- F	PF	Values (T) Calculated	indication The differences
		Post-test		Retention test					
		-s	P	-s	P				
1	Forward stroke test	40.4	7.364	39.7	10.209	0.7	2.186	1.013	moral
2	Exam Backhand	32.6	5.909	32	7.654	0.6	1.793	1.058	moral

Values (T) tabular (2,26) below the significance level (0,05) and degrees of freedom (9)

The table shows (1) The results of the post-test and retention of the front and back strokes of the tennis ball for the experimental group. The mean value of the mean differences was (0.7) and the standard deviation of the differences (2.186), and when extracting the calculated (T) value of (1.013) which is smaller than the tabular value (T) of (2.26) at the degree of freedom (9) and the significance level (0.05) This indicates that there were no significant differences between the two tests: retention and retention .

As for the dimensional test for the performance of the backhand, it reached the arithmetic mean (32.6) and a standard deviation (5.909), while the mean in the test for retention (32) and a standard deviation (7.654), the mean value of the mean (0.6) and a standard deviation of the differences (1.793), and when extracting the calculated (T) value of (1.058) It is smaller than the tabular (T) value of (2.26) at the degree of freedom (9) and the significance level (0.05), which indicates that there were no significant differences between the two dimensions and retention tests .

- Display the results of the dimensional tests and retaining the control group in the front and back stroke tests of the tennis ball, analyzing and discussing it.

Schedule (5) Shows the arithmetic mean and the standard deviations for the pre- and post-tests of the front and back strokes of the control ball with the control group, the calculated value (T) and the significance of the differences

T	Search variables tests	Control group				Q- F	PF	Values (T) Calculated	indication The differences
		Post-test		Retention test					
		-s	P	-s	P				
1	Forward stroke test	23.1	6.523	22.2	9.241	0.9	2.239	1.271	moral
2	Exam Backhand	21.2	3.862	20.4	5.529	0.8	1.939	1.305	moral

Values (T) tabular (2,26) below the significance level (0,05) and degrees of freedom (9)

The table shows (5) The results of the dimensional tests and retention of the front and back strokes of the tennis ball of the control group. In the post-test for the performance of the forward stroke, the mean (23.1) and standard deviation (6.523), while the mean in the test reached retention (22.2) and standard deviation (9.241) The mean value of the differences (0.9) and the standard deviation of the differences (2.239), and when extracting the calculated (T) value of (1.271) which is smaller than the tabular value (T) of (2.26) at the degree of freedom (9) and the significance level (0.05) This indicates that there were no significant differences between the two tests: retention and retention .

As for the back stroke performance test, the mean for the post test was reached (21.2) and a standard deviation (3.862), while the mean for the retention test was (20.4) and a standard deviation (5.529), the mean value for the differences (0.8) and a standard deviation for the differences (1.939), and when extracting the calculated (T) value of (1.305) It is smaller than the tabular (T) value of (2.26) at the degree of freedom (9) and the significance level (0.05), which indicates that there were no significant differences between the two dimensions and retention tests .

- Display the results of the retention tests for the experimental and control groups in the front and back stroke tests of the tennis ball, analyze and discuss it .

Schedule (6) Shows the mean, standard deviation and calculated (T) value for the front and back stroke retention test results for the two tennis groups Experimental and control

T	Tests Search variables		the group		Values Calculated T	indication The differences
			Experimental	Control		
1	Forward stroke test	-s	39.7	22.2	3.812	moral
		P	10.209	9.241		

2	Exam Backhand	-s	32	20.4	3.686	moral
		P	7.654	5.529		

Values (T) tabular (2,10) below the significance level (0,05) and degrees of freedom (18)

The table shows (6) Retention tests for the experimental and control groups of the front and back strokes of the tennis ball. In the front stroke test of the tennis ball, the calculated value of (T) reached (3.812) which is greater than the tabular value (T) of (2.10) below the significance level (0.05) and at the degree of Freedom (18) This means that there are significant differences between the control and experimental groups and in favor of the experimental group

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As for the value (Calculated in the retention tests of the experimental and control groups in the backhand test of the tennis ball, it reached (3.686) which is greater than the tabular value (T) of (2.10) under the significance level (0.05) and at the degree of freedom (18) and this means that there are significant differences Between the control and experimental groups in favor of the experimental group

. Show from the table (4,5) The retention tests for the front and back strokes of the tennis ball for the experimental and control groups showed that there were no significant differences between the dimensional and retention tests, and this indicates that the retention was good for the two groups, but it was better for the experimental group than for the control group, and this is what appeared clearly in the table (6) Through the significance of the differences between the experimental and control groups and in favor of the experimental group, and the reason is due to the use of the learning strategy with mastery accompanying the learning apparatus that gave the learner enough repetitions for each skill and feedback helped The experimental group is distinguished by the retention ratio of the front and back strokes of the tennis ball, " because highly skilled skill achieves education in a faster and easier way and thus achieves greater capabilities in retaining it" (Qasim Lazzam: 2005: 308), and thus is

The acquisition ratio for learning depends on how the learner has been dealt with to reach this degree of higher " learning acquisition and that the ability to remember and retrieve information means retention and retention reflects learning " (yaarub Khion: 2002: 42) .

IV. Conclusion

From the above, the following conclusions were reached :

1. The learning-by-doing strategy greatly assisted in teaching and retaining the front and back hitting skills of tennis.

2. The educational system has greatly contributed to the teaching and retention of the front and back hitting skills of tennis.

3. That the learning-by-learning strategy with an educational apparatus had a positive effect in teaching and retaining the skills of front and back strokes of the tennis ball

The researcher reached several recommendations:

1. Using the learning strategy by mastering the educational process to achieve the best possible learning.

2. Use a variety of educational equipment to teach basic tennis ball skills.

3. Use other modern educational strategies on other sports .

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