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The effect of a program based on the theory of brain-based learning in learning some basic skills for students in table tennis

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Abstract

The aim of the research is to identify the effect of a program based on the theory of brain-based learning in learning some basic skills for students in table tennis. Statistical significance in the post tests for the experimental and control groups to learn some basic skills of the students in table tennis, and the researchers used the experimental method to suit the problem of the study. The sample was chosen by the simple random method, totaling (24) students were divided into two experimental and control groups of (12) in each group. The exploratory experiment and the main experiment were also conducted, and the statistical bag (SPSS) was used to display the treatment of the problem. For data, the results of the study resulted in: There is a positive effect of the educational program based on the theory of brain-based learning. Where members of the research sample helped the students learn some basic ping-pong skills, the researchers recommend the need to use the brain-based learning theory to learn all the basic ping-pong skills, and the need to use the brain-based learning theory to activate the motor program for the skills studied, and also conduct research similar on different samples.

Keywords: Brain-based learning theory, learning, basic skills in table tennis

Introduction

The contemporary world is characterized by rapid change and tremendous development in all fields and in the field of science and technology in particular, which characterizes our modern age (Ibrahim *et al.*, 2019) [9] this development has been accompanied by a shift in scientific research so that the view of the educational process has changed. It is no longer the product of external factors such as the teacher, the curriculum and the educational environment only, but there are internal factors that greatly influence the learning process, such as the ability of the learner to think. (Caine, R & Caine, G, 1994) [6] (Ibrahim *et al.*, 2020) [10], hence the interest in learning theories that are concerned with teaching students how to think; The theory of brain-based learning, as mentioned by it, is “a learning theory that is added to other learning theories so as to add an advanced investment to the interactive, biological, anatomical and neurological characteristics and capabilities that the learner has, so that he looks at the learner with a new comprehensive and effective view that demonstrates his ability to manage his mind by himself, and if it is considered a theory Learning in the light of brain research is one of the modern trends in the current century, which considers learning to be the greatest function of the brain, and that learning is the result of physical and actual growth of the brain. This makes learning situations easier, more flexible and deeper.” (Al-Qatami and Al-Mashaaleh, 2007) [12] Continuous use of the brain strengthens nerve connections and increases the ability to learn (Al-Badri *et al.*, 2020) [4], as brain activity until the age of ten increases its activity in adults, and if neurons are not used in a timely and appropriate manner. It guarantees its survival, as it will disappear and be unable to perform its function in the future (Abdul-Hussein, 2014) [1]. There have been many explorations in the field of brain-related research recently, which crystallized the relationship between the structure of the brain and learning through understanding its structure. In the environment and the outside world, where the teacher presents the information in a method of indoctrination, and as for the method of measurement,

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it is through the amount of information that the learner stored and then retrieved, and through the presence of researchers in the field of teaching and training for most of the racket sports activities as teachers in the College of Physical Education and Sports Sciences, They found that most of the learners suffer from weakness in the performance of some basic skills in table tennis, despite the construction of the motor program for the skills studied correctly, Active educational compatibility with the needs of the brain and works to increase its readiness for the currency of learning the required skills Table reel.

Methodology and procedures

Participants

The research community was determined from the educated students of the third stage in the College of Physical Education and Sports Science - Samarra University for the year 2020, and they numbered (43) students As for the research sample, it was randomly selected by (24) students who were divided into two experimental and control groups and (12) students for each group, after excluding the absent students and the students participating in the pilot experiment, thus the sample percentage from the original community was (55%), To ensure that the two groups are equal, the researcher used the Mann Whitney test, which showed that there were no significant differences between the two groups. in Table (1).

Table 1: Shows the equivalence of the two research groups

Statistical indicators research variables	Measuring unit	The value of Man Whitney	Indication level	Indication type
transmitter	Degree	8	0.73	insignificant
forehand	Degree	6	0.55	insignificant
backhand	Degree	7	0,67	insignificant

n1=12 n2=12 significance level (0.05)

Tests and Measurement

Table tennis service accuracy test

After giving the lab (10) minutes to warm up, the student to be tested stands on the other side of the table to perform the sending play, after which (5) trial attempts are given after the warm-up is performed to learn how to perform the test and provide instructions and instructions for the test from the researcher to the laboratory, and each player is assigned (10) Attempts to serve and the ball must fall within the bounds of the service area marked with specific straight marks of (1-5) degrees, as shown in Figure (1). (Geek, 2002) [7].

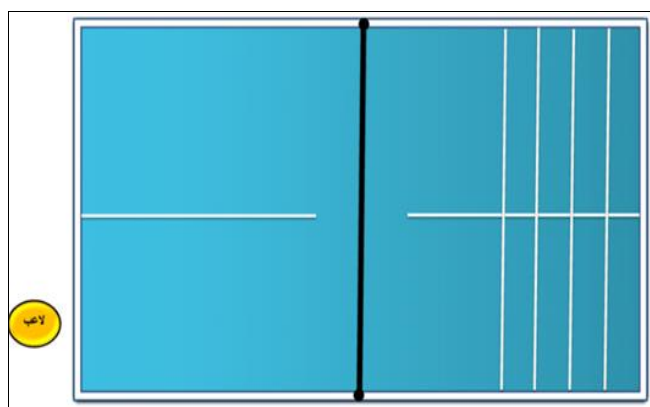


Fig 1: Shows the test of serving skill in table tennis

Test the accuracy of the forehand and backhand in table tennis The test includes the standing of the student to be tested on the second side of the table, and (5) experimental attempts are given to him after the warm-up procedure to know how to perform the test. It is shown in the figure, and the student starts the test by trying to return the ball with his racket and using the front or back hit, and each student is assigned (10) attempts for the front hit, and (10) attempts for the back hit, and after collecting the points, the arithmetic mean of the attempts is extracted from the front and back hit, given to her Various ascending grades whose value ranges from (1-5) degrees. (Geek, 2002) [7].

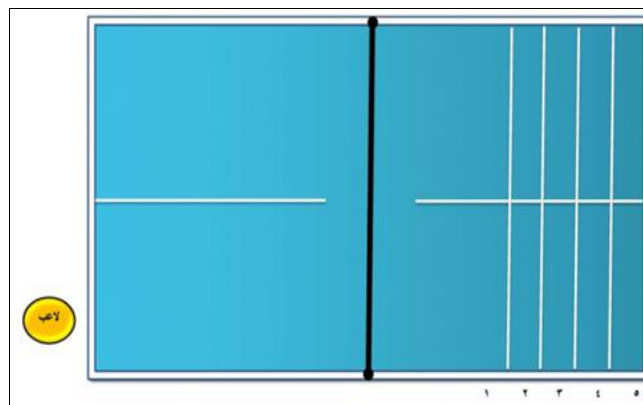


Fig 2: Shows the forehand and backhand test in table tennis

Method and procedures

The educational curriculum was prepared according to the stages of the theory of brain-based learning, where the skills were graded according to these stages with the pairing between them in order to benefit from this theory in learning these skills and employing the energies of the brain well. The curriculum took 8 educational units and weekly units. Where each skill had two educational units, in addition to two independent units, the three skills were paired, and special exercises prepared by (Habib, 2012) were used according to the stages of theory and the creation of an educational environment rich in stimuli, in addition to the use of musical tones during the learning process. was time Unit educational 90 Dr and swear time Unit educational to me Section Preparatory (25 d) and section main (55 d) and oath Final (10 d), so start curriculum educational at 4/1/2/2020 _ _ _ _ M And it's over at day 12/30/2020 _ _ M.

Statistical means

The statistical package for the social sciences (SPSS) version (26) was used to process the statistical data and achieve the results. (Radwan, 2003) [13] using the following laws: (arithmetic mean, standard deviation, percentage, Spearman correlation coefficient, Mann-Whitney test, Wilcoxon test).

Results

The results obtained from the students who represent the research sample, and the statistical treatment that was used for the purpose of arriving at the final results, were presented and discussed, as well as a discussion of those results to determine their compatibility with the research objectives and hypotheses, as shown in table (1), (2) and). 3).

Table 2: Wollcoxon values calculated for the pre and posttests and for the experimental group

The exams	Pretest		Post test		Wilcoxon value	Indication level	Indication type
	s-	p	s-	p			
Transmitter	5, 16	81, 0	2, 28	33, 2	301, 2	02, 0	moral
Forehand	17	31, 1	29	41, 2	049, 2	03, 0	moral
Backhand	15,3	2,22	27,6	1,03	2,202	0.02	moral

n = 12 level of significance (0.05)

Table 3: Wollcoxon values calculated for the pre and post tests and for the control group

The exams	Pretest		Post test		Wilcoxon value	Indication level	Indication type
	s-	p	s-	p			
Transmitter	17	22, 1	25	97, 1	204, 2	02, 0	moral
Forehand	16	63, 0	26	71, 0	033, 2	03, 0	moral
Backhand	13	2,04	22,2	1,63	2,212	0.02	moral

n = 12 level of significance (0.05)

Table 4: Wollcoxon values calculated for the post-tests and for the experimental and control groups

The exams	Experimental group		Control group		Mann whitney value	The exams	Experimental group
	s-	p	s-	p			
Transmitter	2, 28	33, 2	25	97, 1	0,00	0,00	moral
Forehand	29	41, 2	26	71, 0	0,00	0,00	moral
Backhand	27,6	1,03	22,2	1,63	0,00	0,00	moral

n 1 = 12 n2 = 12 level of significance (0.05)

Discussion

From the presentation and analysis of the results of tests and skills in the pre and posttest and for the two research groups (experimental and control), which were shown in tables (1) and (2), it was found that there are significant differences between the pre and posttests in favor of the post test, and this is what appears clear on the two research groups, especially on the experimental group. Which used the educational curriculum according to the theory of learning based on the two hemispheres of the brain, and the researchers attribute this difference to:

The integrity of the educational curriculum and its scientifically selected exercises with correct and consistent repetitions consistent with the level and capabilities of the sample members and based on correct practice. "Exercises that are consistent with the nature of the skill, its conditions and its motor duties are the right way to ensure progress in objective conditions on which the educational and training process depends. In approaching the form and method of performance to raise the level of the learner and confirm the positivity of teaching through these exercises. (Al-Araji, 2006) [3]

One of the factors that helped in acquiring learning for the members of the research sample is the effect of learning according to the theory of brain-based learning, which depends on organizing the learning process for the basic skills of table tennis and making it clear, making it easier for learners to absorb them, and it helped to link the new knowledge with what the students have From a store of knowledge about the skill, and it also gives a new curve about linking concepts and correcting misconceptions, and it has a kind of favorable challenge to the minds of the learners, and the changes in the environment that accompany the brain-based learning theory make the learners more attracted to attending the educational units, which improves their comprehension of the parts skill and lead to mastery and progress.

As for the development in the control group, the researchers attribute it to the practice of exercises prepared by the subject teacher, which had an impact on the occurrence of this

development.

From the presentation and analysis of the results of the skill tests in the post-test, which were clarified in Table (3), it was found that there are significant differences between the two research groups and in favor of the experimental group in the skill tests. Harmonious with the brain that takes into account the higher mental processes that the brain performs during the acquisition of skills and it depends on educational stimuli that contribute to improving the ability to learn, and make decisions, and this "helps the brain's interaction with various educational situations, and to create better learning by placing the player In an educational environment that is compatible with his abilities and inclinations, and being a structured learning theory, it helps expand students' mental perceptions, and form positive attitudes towards thinking and learning." (Caine, R & Caine, G, 1997) [5].

The theory of brain-based learning has contributed to enabling the student to immediately recall the skill by deepening the sensory fields in the brain. Brain-based helps the learner to quickly recall previous experiences by performing many activities: This leads to a deeper understanding and an increased awareness of concepts and the relationships between them.

The development and difference in the accuracy of the basic skills of table tennis, which is achieved by the experimental group by a large amount compared to the control group, is due to the exercises adopted by the researchers and based on scientific foundations by organizing the exercises in proportion to the method of training and the difficulty used that makes the difficulty of the exercise similar to competition, which developed a level The skillful performance of the basic skills on the one hand, and on the other hand, the continuous correction of technical errors and the performance of exercises aimed at reducing these errors and giving feedback of both types (information about performance and information about the result).

The adoption of the principle of diversity in the performance of the basic skills of table tennis by increasing the excitement in teaching makes the student perform automatic movements with a high degree of readiness and ability to perform skills

with their various ranges and different forms, "The exercise inevitably leads to the development of achievement, if it is built on a scientific basis. In organizing and programming the training process, as well as the use of optimal repetitions and effective inter-rest periods. (Ismail, 1996)^[11].

Conclusion

The results of the study indicated that the educational curriculum based on the theory of brain-based learning helped the research subjects to learn some basic skills of the students in table tennis, and the experimental group that learned according to the theory of brain-based learning excelled in learning the skills studied in table tennis, and the learning According to the theory of brain-based learning, it helps to activate the motor program of the studied skills and the formation of various images in the brain about the skills. In activating the motor program for the studied skills, as well as conducting similar research on different samples.

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