

The effect of educational exercises accompanied by brain stimulation with (Fit Light) technology in improving the speed of visual vision and learning some volleyball skills

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Abstract

The aim of the research is to prepare educational exercises accompanied by stimulating the brain with (Fit Light) technology in the volleyball lesson for second intermediate students. And to identify the effect of these educational exercises accompanied by stimulating the brain with (Fit Light) technology in improving the speed of visual vision and learning some volleyball skills for students of the second average.

The experimental approach was adopted by designing the experimental and control groups with tight control in the pre and post tests on a sample of (30) students who were selected vertically with a percentage of (39.474%) of the students of the second intermediate grade in the distinguished secondary school for boys within the administrative formations of the Second Karkh Education Directorate in Baghdad Governorate, who are continuing in the official working hours for the year The academic year (2021/212), totaling 76 students. As the researcher proceeded to apply educational exercises accompanied by stimulating the brain with (Fit Light) technology that she prepared in the practical part of the main section of the lesson, the total time of which is (45), as the students' application of them was in a period of (30) minutes of this lesson, with an average of (1) lesson One per week for a period of (9) weeks, that is, three educational units were allocated for each skill for each (3) successive weeks of time. To measure the dependent variables, the visual vision speed test was adopted.

As for the skill tests of the three skills, the transmission and reception test, and preparation were adopted, and after the experimentation, the results were processed using the (SPSS) system, so that the conclusions and applications were that educational exercises accompanied by brain stimulation with (Fit Light) technology help in improving the speed of visual vision and learning the skills of transmitting and receiving and preparing for volleyball for the students of the second average and superior to the students who learned without it. It is necessary to increase the capabilities and competencies of physical education teachers in middle schools to enable them to apply educational exercises accompanied by brain stimulation with (Fit Light) technology because of their important role in the lesson at the mental and skill level.

Keywords: (Fit Light) technology, improving the speed of visual vision, learning volleyball skills.

Research problem and its importance:

Educational exercises in kinesiology, especially kinetic learning, must be supported by continuous updates, especially what helps to stimulate motivation, and stimulate the senses by providing educational facilities in a way that gives this educational process the feature of renewal that learners need to increase their demand to continue skillful learning in all Motivation in the physical education lesson in middle schools, The old saying (what you do is more effective than what you say) is closely related to giving models of behavior and in physical education one of the fastest and most

efficient ways to teach physical activity (sports) are the effective and effective models that highlight the transition points in performance, and this means that the successful teacher who sets points Focus on actual formulation so that the student can know what they are observing." (Mahmoud, 2006),

Also, "the learning theory from the perspective of information processing focuses on attention, but it does not neglect the results of research related to the concept of visual vision and perception." (Saleh, 2003) Likewise, "the associative behavioral learning theories explain learning a change in the learner's behavior as a

result of repeated associations between the stimulus and the response..

As for cognitive theories, this has been explained by insight, perception, organization, and understanding relationships.” (Mahmoud, 2011) as “replaying the stimulus leads to arousing attention, and therefore it is necessary to innovate to avoid boredom, and the stimulus must be attractive to attention, in terms of its nature and its spatial position. From changing it to draw attention, as well as the severity and modernity of this exciting thing, to have an applied importance in many scientific fields.” (Sami, 2017)

And that "the sense of sight is of special importance in education, through which the motor ability develops and the correct understanding of the skill performance sequence, as it is the eye that receives energy and transforms it into physiological and neurological manifestations" (Adel, 2004) as "attention directs awareness (awareness) towards The relevant stimuli so that they become accessible to the senses.. It is the interrelationship between the player and the environment, and attention is closely linked to thinking and observation. (Osama, 2000) As "when the body responds to external stimuli, complex chemical reactions and simple electrical charges occur, which travel quickly in the nerve fibers (Axons)), then another nerve message is followed by another stimulus, and so on, millions and after millions of these electrical nerve impulses, each second firing during conscious and unconscious life. For humans, it goes to and from the brain, muscles, and glands.” (Wilmore and Costill, 2007) “The human brain needs stimuli that increase the activation of its mental processes, which result in inductions for repetitive movements that face the problem of pharmacological fatigue from time to time,

The signals that enhance the brain’s work are divided into three types according to their intensity, as follows: “Signals below the minimum threshold: they are signals whose intensity is less than the minimum threshold and therefore do not cause excitation or response later except in cases of combination with distance and time, and signals with a lower threshold: which are the signals whose intensity has reached the minimum or minimum threshold of intensity, and then causes excitation and response later,

And signals above the minimum threshold: they are signals whose intensity is higher than the minimum threshold, and which cannot cause excitation in the event that the nervous tissue is in an excited state. The body continues to do its work, and in the case of continuous arousal, the speed of the motor activity of the organism increases.” (Ali and Ikhlas, 2005) given that “the organization of work on the central nervous system depends on the function and the system and that the structure and complexity of the system and function are compatible through this important system, Because the function of the central nervous system is to quickly choose the appropriate response to different stimuli, whose effect is seen directly.” (Awais, 2000) Also, “there is no discussion of information processing without checking processing that is automated or controlled. Automated processing uses a series of nerves that become active in response to specific stimuli and this activity does not need dynamic control in a part of the subject, which is the result of good learning,

What is interesting is that it is either organized as a scheme, or it is sent directly to the correct response areas in the brain with limited processing.” (Sareeh, Wehbe, 2010). Thus, “the teacher must realize that technology is a friendly tool for him and not a substitute for him, and that it is complementary to the educational media and resources he prepares for him.” Education To provide a productive and effective learning environment, and what is important is its good use and appropriate situations to use it for the benefit of the trainee, achieving the goals of the educational process and facilitating innovative work in training units.” (William, 2010) And that "the educational aids enable both the learner and the teacher to reduce many of the efforts made in learning and training, provided that they are appropriate for the game or the specialized activity, and that they are appropriate for the age of the players and their training age." (Duane, 2007) All of this is not bifurcated between physiology Kinetic learning and physiological psychology, because the overlap between them can provide us with knowledge that merges into one scientific fact about its interrelationship with psychological and mental explanations of movement in kinetic learning.

Thus, investing in the visual perception of learners with the activation provided by brain

stimulation with (Fit Light) visual technology to support the educational process with matters that do not move away from the issues of mental fatigue or distraction during the lesson, which have received wide attention in research that provides support to learners in enabling them to continue learning at one level, reducing distraction or feeling tired,

Thus, the mechanism of (Fit Light) technology in learning does not present restrictions as much as its work as a stimulus that raises attention and focus in team games that require mastery of skill performance, that is, it is directed towards visual perception, and that the purpose of its use is as a warning stimulus against the decreasing sufficiency of nervous impulses and raising their level according to requirements that limit this attrition. Here, the visual perception is in control of the motivational processes so that the desired productivity of this research is to provide support to both teachers and learners in how to enrich the educational environment with stimuli, controlling them in an orderly and without exaggeration in the physical environment of a lesson learning volleyball skills, and through the researcher's work in teaching, I noticed the need to stimulate The continuous brain during the practical part of the main part of the lesson because there is a clear decrease and weakness in the interaction of students with the educational material presented to them, especially in the second part of this practical part.

In this research, the aim of this research is to prepare educational exercises accompanied by brain stimulation with (Fit Light) technology in the volleyball lesson for second intermediate students, and to identify the effect of these educational exercises accompanied by brain stimulation with (Fit Light) technology in improving the speed of visual vision and learning some volleyball skills for second students Average, The researcher assumes that: There are statistically significant differences between the arithmetic averages of the results of the pre and post tests for the experimental and control groups in improving the speed of visual vision and learning some volleyball skills at the level of significance (0.05), and there are statistically significant differences between the arithmetic averages of the results of the experimental and control groups. In improving the speed of visual vision and

learning some dimensional volleyball skills at the level of significance (0.05).

Research Methodology: The researcher adopted the experimental research method, which is defined as “the approach in which we treat and control an independent variable to see its effect on a dependent variable, noting the resulting changes and doing their interpretation, whether the experiment includes an independent variable and a dependent variable or more than one or more independent variables. Continued.” (Magdy, 2019) In accordance with the hypothesis of the current study and its independent variable, the researcher chose the experimental design with the experimental and control groups, which was controlled by the pre and post tests.

The research community and its sample: the limits of the research community represented by the students of the second intermediate grade in the distinguished secondary school for boys within the administrative formations of the Second Karkh Education Directorate in the governorate of Baghdad, who are continuing in the official working hours for the academic year (2021/212), numbering (76) students distributed in nature among three divisions are (A) And (B) and (C), two divisions were chosen from them in a random way to be the (A) division of the experimental group, 15 students were selected from them, and Division (B) as the control group, 15 students were selected from them so that the total number of the main sample was (30) students At a rate of (39.474%) of their community of origin, the remaining (C) Division (10) students were selected for the exploratory experiment.

Measurement devices, techniques and research procedures: The researcher distributed (3) devices of (Fit Light) technology that work with (LED) daytime lighting or dimming lighting, which are available and easy to use. The playground and on a smooth wall according to the educational exercises for each of the three skills prescribed in their curriculum decided by the Iraqi Ministry of Education, which are (sending from the bottom, receiving, and numbers from the top with the fingers), Each of these three flashes is lit by the control of the teacher by means of a (manual remote control) that operates on a dry battery and is designated for these various and gradual colors, whose role is stimulating to the brain, given that the learner

needs attention, focus and awareness to avoid diminishing movement adequacy and increasing dispersal and has been invested in the environment educational,

The researcher used it in conjunction with the educational exercises that she prepared when applying them in the practical part of the main section in the lesson, the total time of which is (45), as the students' application of it was for a period of (30) minutes of this lesson, at a rate of (1) one lesson per week for a period of (9) weeks, i.e. allocated to each skill (3) educational units in (3) consecutive weeks of time, to measure the dependent variables, the visual vision speed test was adopted for the speed of visual response to the chromatic stimulus modified by the modified Nelson test (Hussain, 2006) with a unit of measurement of the second and its parts. Muhammad and

Hamdi, 1997) and reception to three circles in the attack area with a maximum degree of (90) degrees (Muhammad and Hamdi, 1997), and the test of numbers to the network with a maximum degree of (100) degrees (Ali, 2004), as the researcher proceeded to conduct the exploratory experiment after completing the requirements of the experiment to identify the obstacles that may face at the time, and then apply an introductory unit to the sample as a whole, and then start the experiment. SPSS version (V26), (statistical package for social sciences), to calculate each of the percentage values, (Gttman's stability coefficient), (Pearson's stability coefficient), (Levine's) test for homogeneity of variance, arithmetic mean, standard deviation, and (t-test) -test) for correlated samples, and t-test for uncorrelated samples.

The results and their discussion:

Table (1) shows the results of the tribal tests between the experimental and control groups

indication	deg (Sig)	T (calcul)	control group			experimental group			Sig	liven	Scale and tests
			±y	x	N	±y	x	N			
No indict	0.482	0.712	0.373	5.093	15	0.396	5.193	15	0.608	0.269	visual speed
No indict	0.956	0.056	3.606	11	15	2.939	11.07	15	0.173	1.957	transmitter
No indict	0.366	0.919	6.984	25.07	15	4.713	23.07	15	0.123	2.531	Reception
No indict	0.461	0.748	6.567	24.13	15	6.116	25.87	15	0.532	0.401	preparation

Table (2) shows the results of each of the two research groups in the pre and post tests

indication	deg (Sig)	T (calcul)	ع ف	ت	test after		Test before		grop e	Scale and tests
					±y	x	±y	x		
indict	0.000	19.906	0.381	1.96	0.123	3.233	0.396	5.193	EX	visual speed
indict	0.000	8.742	0.351	0.793	0.33	4.3	0.373	5.093	Co	
indict	0.000	22.437	2.992	17.333	0.91	28.4	2.939	11.07	EX	transmitter
indict	0.000	10.109	4.496	11.733	2.658	22.73	3.606	11	Co	
indict	0.000	24.423	5.561	35.067	2.696	58.13	4.713	23.07	EX	Reception
indict	0.000	12.418	6.758	21.667	3.575	46.73	6.984	25.07	Co	
indict	0.000	30.832	5.108	40.667	2.134	66.53	6.116	25.87	EX	preparation
indict	0.000	14.224	8.495	31.2	4.53	55.33	6.567	24.13	Co	

Table (3) shows the results of the post-tests between the experimental and control groups

indication	deg (Sig)	T (calcul)	control group			experimental group			Scale and tests
			$\pm y$	x	N	$\pm y$	x	N	
indict	0.000	11.741	0.33	4.3	$\frac{1}{5}$	0.123	$\frac{3.23}{3}$	15	visual speed
indict	0.000	7.811	2.658	22.73	$\frac{1}{5}$	0.91	28.4	15	transmitter
indict	0.000	9.861	3.575	46.73	$\frac{1}{5}$	2.696	$\frac{58.1}{3}$	15	Reception
indict	0.000	8.662	2.134	66.53	$\frac{1}{5}$	2.134	$\frac{66.5}{3}$	15	preparation

The results of the tribal and remote tests in Table (2) show the clear improvement of each of the students of the experimental and control groups in improving the speed of visual vision and learning the three skills contained therein in the results of the post tests from what they were in the tribal tests, and the results of the post tests between the two groups mentioned in the table (3) that the students of the experimental group outperformed the students of the control group in these improvements, the researcher attributes the emergence of these results to the students of the experimental group to the role of exercises and the integration of technology with them in excitement to stimulate brain activation, which helped to reduce the phenomenon of diminishing visual speed to realize the requirements that learners need in their performance of the movements that constitute skills in volleyball, as these exercises helped to be an education Mind and body together, i.e. learning by doing or applying, and reducing the burdens that learners receive with the momentum of knowledge about these skills and how to draw the motor program. Application in the practical part of the main section of the lesson on cultivating skill is a common mistake

The (Fit Light) technology provides the learners with each correct performance or not, through the learner's monitoring of them, and controlling the lighting and its color for each performance. Every performance attempt, which had a stimulating role for the eyesight for the purpose of activating the brain, and the brain, as is well known, has a great role in drawing the motor program in the cerebral cortex, which represents the higher levels of the

brain, At the same time, it issues neural prompts to modify the performance paths according to the requirements of a sound performance model that is free of errors.

Thus, if the exercises and the (Fit Light) technique prove their effectiveness or feasibility in these improvements through their suitability to the specificity of the skill learning and the level of learners in this study, as "through the presentation processes and then using the information return (feedback) can have a positive impact on building and developing motor perception ". (Mohammed, 2001) "The player can continue to perform well in the event of mental fatigue using the cognitive activation process, compensatory effort, and changing the performance rules, by using information repeatedly and renewed at the same time, in addition to using cognitive rules that require less mental effort." (Ghada, 2006), Because, "Whenever there are many repetitions of responding to a particular stimulus, this will speed up the decision-making process, and then shorten the reaction time and increase its speed." (Yarub, 2002) and "In the sequence of exercise, the relationship between the brain and muscles is strengthened, and repetition helps to neglect External stimuli in the performance of the movement, and this sequence serves in the submission of the body to a change in the improvement of strength and athletic skill in the end." (Lee & Brenda, 2007) as "the nerve signal in the muscle is strengthened by the effect of physical exercise in the efficiency of the locomotor system, and alerts the movement centers in the cerebral cortex and inhibits the emotion centers." (Siddiq et al., 2012)

Abstracts and applications:

1- Educational exercises accompanied by brain stimulation with (Fit Light) technology help in improving the speed of visual vision in volleyball for students of the second intermediate .

2- Educational exercises accompanied by brain stimulation with (Fit Light) technology help in learning the skills of sending and receiving and preparing for volleyball for students of the second intermediate .

3- That the students of the second intermediate learners of educational exercises accompanied by stimulating the brain with (Fit Light) technology excel in improving the speed of visual vision and learning the skills of transmitting and receiving and preparing for volleyball.

4- It is necessary to increase the capabilities and competencies of physical education teachers in middle schools to enable them to apply educational exercises accompanied by brain stimulation with (Fit Light) technology because of their important role in the lesson on the mental and skill levels.

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Annex (1) shows a sample of the educational exercises accompanying the technology (Fit Light)

The students stand and at the signal they take the position of readiness for the facing serve and then perform the skill of serving from the bottom of the walk (performance without the ball is 5 repetitions), the teacher lights the (Fit Light) technique for the command to serve and gives a light color for the correct performance, and a light color for the incorrect performance.

- Same as the previous exercise, but the preparation is with the ball (5 repetitions) and the performance of the skill of the service from the bottom is free (in the straight direction), the teacher lights the technique (Fit Light) for commanding the serve and gives a light color for the correct performance, and a light color for the incorrect performance.

- Students stand in the form of a line in front of a wall and perform the skill of serving from the bottom to the wall (5 repetitions) without specifying a place on the wall and the distance is (3 meters). The exercise is repeated by increasing the distance to (6 meters) and (5 repetitions), the teacher lights the (Fit Light) technique for the command to send and gives a light color for the correct performance, and a light color for the incorrect performance

- The students stand on the service line and perform the skill of serving from the bottom to the opposite court and perform (10 repetitions) without specifying the area they are sent to, the performance is free without technique.