The Effect of the Inverted Learning Strategy in Developing the Most Important Visual Abilities and Performing the Skill of Serve Receive in Volleyball for Students

Hussein Rahim Jabr[(1)]Prof.Dr.WissamRiad Hussein [(2)]

[(1)]Ph.D. Student. Faculty of Physical Education and Sports Sciences / University of Babylon, Iraq.

[(2)] Faculty of Physical Education and Sports Sciences/ University of Babylon, Iraq.

hrhym2949@gmail.com,phy.wisam.r@uobaylon.edu.iq

Abstract

The purpose of this paper isto identifying the effect of the inverted learning strategy in developing the most important visual abilities and performing the skill of serve receive in volleyball for students. The experimental approach was used to design the two equal groups, and the research community was represented in the third stage students in the College of Physical Education and Sports Sciences, the University of Kufa for the academic year 2020/2021, who numbered (85).) students and the research sample included (28) students, with (14) students for each of the control group and the experimental group.The most important results of the research indicated that the inverted learning strategy has a prominent impact in developing the most important visual abilities associated with the skill of receiving serve in volleyball for students, and following it during the implementation of the educational units has a great role in developing the skill of receiving serve and shortening the class time that the teacher spends with the learners.The recommendations were to adopt the inverted learning strategy in the educational units of volleyball, to adopt visual exercises characterized by excitement and suspense, to involve the sense of sight in the exercises, and to develop the player's sense of changing stimuli in the educational environment, such as pictures, colors, light flyers, balls, colored figures, circular rings, colored rugs, and optical techniques.

Keywords: Inverted learning, visual abilities, volleyball

Introduction and research problem

With the trends of the modern era, which is witnessing scientific progress, rapid technological development and the information revolution, it is necessary to reconsider the prevailing traditional patterns of education, through the use of modern educational strategies that bring joy to the hearts of students and thrill the elements of the educational environment within the educational curricula and units and increase their willingness to learn and take them into account. For individual differences between learners, and among the best modern strategies for the development of learning methods is the concept of flipped learning, "a type of learning in which the traditional class or lecture is transformed, through available and appropriate technology, into recorded lessons that are placed on the Internet, and students can access them outside The class session to allow space to do other activities within the class, such as problem-solving, discussions, and solving assignments" (Atef Abu Hamid Al-Sharman, 2015). This strategy works on building an interactive, participatory classroom environment centred on the student and stronger relationships between students and the

teacher on the one hand and between the students themselves, on the other hand, better utilization of the class time spent by the teacher with the learners, and activating the strategy of brainstorming, discussion and simulation, and practising higher-order thinking skills.

Volleyball is one of the team sports that is characterized by many defensive and offensive skills, the most prominent of which is the skill of Serve Receive, as it is one of the important defensive skills in volleyball, and the success of the team depends on the ability of its players to control and direct the ball in the right way at the moment of receiving it to the prepared player and building a successful attack So get the point.

And since the educational process is centered mainly on the learner, and therefore the development of his abilities and his skill ability is the main goal in this process, mastering the skill of Serve Receive in volleyball in the correct way requires high visual abilities, and therefore it will have a significant impact on the level of performance and the development of skills. One of the important abilities in the field of learning basic skills in various activities and sports can be developed through a repetitive and sequential series of easy and continuous exercises. The degree of response to it, in this case, is less than expected, and the visual abilities depend on the restoration of clear, fully normal vision" (Isabel Walker, 2001).

The importance of the research is highlighted by integrating technology tools and means into the curriculum through the concept of flipped learning, by preparing and designing educational videos that include a set of exercises within the main section of the educational units using the flipped learning strategy to develop the most important visual abilities and perform the skill of serve receive in volleyball for students, serving the educational process And students of colleges and departments of physical education and sports sciences.

Everyone knows the impact of the Coronavirus pandemic in all aspects of life, including the educational systems, which affected the level of all school and university students, who need to be more present in the classroom and more time to learn and take into account individual differences, each according to their capabilities and method of learning through theoretical and practical lessons, as is the case in Faculties of physical education and sports sciences, especially when learning and applying the basic skills of games, especially the game of volleyball, which is characterized by its overlapping defensive and offensive skills, which we cannot separate one from the other in terms of importance, and it needs skills and abilities that the student performs to master these skills in the correct way, and according to For these data, there has become a clear shortcoming in the learning processes due to the lack of time and the number of working days for the student, which are set for two or three days during the week in which practical lessons are applied according to the schedule prepared by the faculties.

Therefore, the researchers find, in line with these difficult circumstances, the need to work on introducing strategies that keep pace with technological progress and scientific development within the physical education lessons, and this is what led them to choose the flipped learning strategy and include it within the main section of the educational units and apply it to the research sample, and make better use of the class time spent by the teacher With the learners, in order to raise the level and achieve learning outcomes that are compatible with the development in the field of educational technology and employ it to develop the most important visual abilities and perform the skill of serve receive volleyball for students.

Research objective:

- Identify the effect of the inverted learning strategy in developing the most important visual abilities in volleyball for students
- Identifying the effect of the inverted learning strategy in developing the performance of the serve receive skill in volleyball for students.

Research methodology and field procedures:

Research Methodology:

The two researchers followed the experimental method as it fits with the nature of the research problem, by designing two equal groups with two tests (pre- and post-test).

Community and sample research:

The research community is represented by the students of the third stage of the Faculty of Physical Education and Sports Sciences at the University of Kufa for the academic year 2020-2021, whose number is (85) students, due to the availability of research requirements, and the research sample was chosen by random (lot) with a number of (28) students, (14) students for each of the control and experimental groups, and thus the percentage of this sample is (32.94%). morphological which is(length, body mass, chronological age), and the skew coefficient was used before starting the application of the main experiment on the control and experimental groups, where the skew coefficient values were smaller than (+1), which indicates the homogeneity of the research sample within the natural curve in the variables of length and body mass and chronological age,

The researchers used the following research methods: Arab and foreign sources and references, questionnaire, personal interviews, tests, measurement, observation, visual ability tests evaluation form, and two forms for evaluating technical performance and accuracy for the skill of serve receive volleyball.

Means of collecting information and data:

The researchers used the following research methods: Arab and foreign sources and references, questionnaire, personal interviews, tests, measurement, observation, visual ability tests evaluation form, and two forms for evaluating technical performance and accuracy for the skill of receiving volleyball transmitters.

The following tools and devices were used: (Mikasa) volleyballs (12), a medical scale to measure body mass (kg), a tape measure with a length of (10 m), a poster showing the fixed and moving visual ability test (overlapping circles) measuring (1.5 x 1) 5 m), a poster showing the depth perception test measuring (3 x 1 m), a colored rug (1 x 1 m) (6), a whistle (1), a stopwatch (1), a hand calculator (Casio) (1), a calculator (Lip top type Hp (1) - (3) DVD, Canon camera with (1) stand.

Field research procedures:

The most important visual abilities of volleyball were determined and their tests accepted (4 visual abilities) got higher than (77.14) of relative importance, and higher than (57.14%) after taking the opinion of (7) experts and specialists, and the researchers adopted

the visual abilities tests of the researcher (AfrahBaqir Abdul-Jalil, 2016, 40-45) for its suitability to the level of the research sample members of the students, after making some adjustments to it with regard to the distance in light of the suggestions and observations of most experts and specialists about the modification when presenting the questionnaire to determine the tests, as all experts and specialists agreed on The modifications are (100%), and the researchers determined the test for the technical performance of the skill serve receive based on standardized tests used by previous researchers and on the same specifications as the main research sample is for (Nahida Abdel Zaid Al-Dulaimi and others, 2014, 93).In which depends on the apparent construction of skill in the evaluation process, where three attempts are filmed for each laboratory and presented to three arbitrators (evaluators) on three DVDs, as each assessment is given three marks for each laboratory,Note that the final evaluation score for each attempt is (10 marks).It is divided into the three skill sections, which are (3)marks for the preparatory section, (4) marks for the main section, and (3) marks for the final section, after which the best degree is selected for each assessment, and by extracting the arithmetic mean of the best three marks , the final score is extracted for each laboratory, and the researchers also relied on standardized tests to measure accuracy by (Ahmed Abdel Dayem, Ali Mustafa Taha, 1999, 24),Where the tested student performs (5) attempts from the area (a) and (5) attempts from the area (b) to centers (2, 3, 4), and the tested student takes the marks of the center in which the ball is located, so the ball that lies in the center is (4) The tester takes (1) a marks, the ball that lies in the center (3) takes the tester (2) two marks , and the ball that lies in the center (2) the tester takes (3) marks, and the ball falls on the line separating two areas, the score of the highest note counts The maximum score for the test is (30).

The researchers conducted an exploratory experiment for all tests on a sample of (20) students who were chosen randomly, representing third-year students in the College of Physical Education and Sports Sciences - University of Kufa. The tests were conducted on Sunday; 3/1/2021 at (8:30 am) in a closed hall, a week later, and the exploratory experiment was repeated on the same sample members and under the same conditions in the tests concerned with the study. The tests were conducted on Sunday, 10/1/2021 at (8:30 am), and after implementing the exploratory experiment, the researchers reached several results, including- Clarity of the tests For all members of the sample, and their understanding of the instructions, knowing the time taken for each test and for all tests, the understanding of the assistant work team for the procedures of the tests, avoiding negatives and enhancing the positives, and making sure of (honesty, stability and objectivity of the tests).

The researchers carried out the pre-tests on the research sample on Wednesday 13/1/ 2021 at eight-thirty in the morning, and the results of the tests were photographed and recorded in forms prepared in advance by the assistant work team and under the direct supervision of the researchers. Then the two researchers conducted an equivalence process for the experimental and control groups and for all tests.

Table (1) shows the equivalence of the control and experimental groups in the tests of the most important visual abilities, serve receive and accuracy in volleyball.

Variables	Measuring unit	Control		Experimental		T value	Level Sig	Type Sig
		Mean	Standarddeviation	Mean	Standard deviation			
Fixed visual ability test	Degree	6.9286	1.20667	7.0714	0.91687	0.353	0.727	Non sig
Moving visual ability test	Degree	7.2143	0.97496	7.4286	1.08941	0.548	0.588	Non sig
depth perception test	Degree	10.2857	1.38278	10.5714	1.15787	0.593	0.558	Non sig
Visual reaction speed test	Sec	2.2064	0.10330	2.1929	0.11958	0.321	0.751	Non sig
Technical performance of the skill serve receive	Degree	4.5714	0.75593	4.4286	1.01635	0.422	0.677	Non sig
serve receive accuracy test	Degree	18.5000	1.34450	18.7143	1.06904	0.467	0.645	Non sig

Table (1) shows that there is a difference and variance in the values of the arithmetic means and standard deviations in the research tests between the two groups, and it appeared insignificant, as the significance level (0.05) is smaller than the value of (Sig) and below and the degree of freedom (26), and this indicates the equality of the two research groups in all the exams.

The researchers implemented the vocabulary of the educational units of the flipped learning strategy in the experimental group on Monday, 18/1/2021, according to the college schedule, by preparing and designing educational videos sent (3 days) before the lecture via Telegram, with the number of educational units of the flipped learning strategy amounting to (12) One unit, and each week has one educational unit. The time of the educational unit is (90) minutes. The two researchers entered the main section of the educational unit, whose time was (60 minutes), of which (35 minutes) was allotted to implement the flipped learning strategy within the educational part and its time (5 minutes) during which it is clarified What was shown in the video and directing the specific questions implicit in the video to ensure that students are familiar with the lecture, answer students' questions and activate the strategy of brainstorming, discussion and simulation, and the applied part and its time (25 minutes), so that the video content that includes exercises related to the development of visual abilities and the skill of serve is applied. Implementation of the educational curriculum decided for the third stage students on the members of the control group and its application by the teacher of the same subject. The post-tests were carried out on the research sample on Wednesday 7/4/

2021 at eight-thirty in the morning in the College of Physical Education and Sports Sciences, University of Kufa. By the assistant work team and under the direct supervision of the researchers.

Statistical methods: The search data was processed through the Statistical Package for the Social Sciences (SPSS).

Presentation, analysis and discussion of results:

Table (2)shows the arithmetic means, standard deviations and (t) values calculated in the pre and post-tests for the most important visual abilities and technical performance of serve receive volleyball for the control group

Variables	Measuring unit	Pre- test		Post-test		T value	Level Sig	Type Sig
		Mean	Standard deviation	Mean	Standard deviation			
Fixed visual ability test	Degree	6.9286	1.20667	9.9286	1.14114	14.309	0.000	Sig
Moving visual ability test	Degree	7.2143	0.97496	10.0000	0.87706	14.905	0.000	Sig
depth perception test	Degree	10.2857	1.38278	15.0714	1.32806	13.654	0.000	Sig
Visual reaction speed test	Sec	2.2064	0.10330	2.0500	0.5897	7.337	0.000	Sig
Technical performance of the skill serve receive	Degree	4.5714	0.75593	7.2143	0.80178	19.887	0.000	Sig
serve receive accuracy test	Degree	18.5000	1.34450	22.2857	1.32599	17.667	0.000	Sig

Table (2) shows that there is a difference and variance in the values of the arithmetic means and standard deviations between the pre and post-tests for all tests of the control group. The researchers resorted to using (t.test) for symmetrical samples and the results showed that the (Sig) values for all tests are less than the significance level (0.05) at the degree of freedom (13), which indicates the existence of moral differences between the pre and post-tests and in favor of the posttest.

Table (3) shows the arithmetic means, standard deviations and (t) values calculated in the tribal and remote tests of the most important visual abilities and technical performance of serve receive volleyball for the experimental group

Variables	Measuring unit	Pre- test		Post-test		T value	Level Sig	Type Sig
		Mean	Standard deviation	Mean	Standard deviation			
Fixed visual ability test	Degree	7.0714	0.91687	11.4286	1.22250	15.070	0.000	Sig
Moving visual ability test	Degree	7.4286	1.08941	11.9286	0.99725	25.886	0.000	Sig
depth perception test	Degree	10.5714	1.15787	16.7143	1.54066	15.203	0.000	Sig
Visual reaction speed test	Sec	2.1929	0.11958	1.9507	0.12640	7.443	0.000	Sig
Technical performance of the skill serve receive	Degree	4.4286	1.01635	8.1429	0.77033	15.207	0.000	Sig
serve receive accuracy test	Degree	18.7143	1.06904	23.8571	1.09945	16.485	0.000	Sig

Table (3) shows that there is a difference in the values of the arithmetic means and the standard deviations between the pre and post-tests for all tests of the experimental group. The researchers resorted to using (t.test) for symmetrical samples. at the degree of freedom (13), which indicates the existence of moral differences between the pre and post-tests and in favor of the post-test.

Table (4)shows the arithmetic means, standard deviations, and (t) values calculated in the dimensional tests of the most important visual abilities and technical performance of serve receive volleyball between the control and experimental groups.

Variables	Measuring unit	Control		Experimental		T value	Level Sig	Type Sig
		Mean	Standard deviation	Mean	Standard deviation			
Fixed visual ability test	Degree	9.9286	1.14114	11.4286	1.22250	3.356	**.002**	Sig
Moving visual ability test	Degree	10.0000	0.87706	11.9286	0.99725	5.434	**.000**	Sig
depth perception test	Degree	15.0714	1.32806	16.7143	1.54066	3.22	**.006**	Sig
Visual reaction speed test	Sec	2.0500	0.5897	1.9507	0.12640	2.664	**.013**	Sig

Technical performance of the skill serve receive	Degree	7.2143	0.80178	8.1429	0.77033	3.125	**.004**	Sig
serve receive accuracy test	Degree	22.2857	1.32599	23.8571	1.09945	3.413	**.002**	Sig

Table (4) shows that there is a difference in the values of the arithmetic means and the standard deviations in the post-tests of the two experimental and control groups. 0.05) at a degree of freedom (26), this indicates that there are significant differences between the post-tests and in favor of the experimental ones.

Table (5)shows the arithmetic means, the amount of development and the percentage of development between the pre and post-test of the most important visual abilities and technical performance of serve receive volleyball skill between the control and experimental groups.

Variables	Measuring unit	Control				Experimental			
		Mean		evolution amount	evolution percentage %	Mean		evolution amount	evolution percentage %
		Pre-test	Post-test			Pre- test	Post-test		
Fixed visual ability test	Degree	6.9286	9.9286	3	%43.29	7.0714	11.4286	4.3572	%61.61
Moving visual ability test	Degree	7.2143	10.0000	2.7857	%38.61	7.4286	11.9286	4.5	%60.57
depth perception test	Degree	10.2857	15.0714	4.7857	%46.52	10.5714	16.7143	6.1429	%58.10
Visual reaction speed test	Sec	2.2064	2.0500	0.1564	%7.088	2.1929	1.9507	0.2422	%11.044
Technical performance of the skill serve receive	Degree	4.5714	7.2143	2.6429	%57.81	4.4286	8.1429	3.7143	%83.87
serve receive accuracy test	Degree	18.5000	22.2857	3.7857	%20.46	18.7143	23.8571	5.1428	%27.48

The results of Table (5) show that there is a clear development between the pre-test and the post-test for all tests in both the control and experimental groups and in favor of the post-tests, and the percentage of development in all variables in the experimental group is greater than that in the control group.

Discussion of the results:

The results showed through what was presented in tables (2, 3, 4,5) for the arithmetic mean values, standard deviations, and (sig) values in the tests of the most important visual abilities, technical performance and accuracy for the skill of receiving the transmission in volleyball, and that there were significant differences between the tests The tribal and remote tests and in favor of the post-tests in both the control and experimental group, as the results of

Table (2) showed that there are significant differences between the tribal and post-tests in the control group and in favor of the post-tests number of iterations, In addition to the commitment of the students of this group, providing information and correcting errors, it had a clear impact on the development of visual abilities and technical performance of the skill serve receive as a result of the repetitions applied in the main part of each educational unit, and this was confirmed (YarubKhayun, 2002) "The excessive repetition of any work will reduce error rates and increase learning rates, as well as lead to the speed of withdrawing information from memory, so the learner is given many attempts while starting to learn."Seiller, 2004) states that "Volleyball players, like all athletes, often do not realize that visual abilities can be evaluated, trained, practiced and improved".

As for the results of Table (3) for the experimental group, it showed significant differences between the pre and post-tests for the research variables and in favor of the post-tests, and the researchers attribute these differences to the effect of using the inverted learning strategy, as the results indicated the effectiveness of the exercises and videos prepared and designed by the researchers using this strategy, which It provided the student with educational content electronically outside the classroom, which gave an advantage and preference through which the student was able to harmonize between the educational material and his desire to use tablets and the Internet. "Flipped learning allows more time for practical learning with the teacher's guidance to students, which allows them to help students understand information and create new ideas" (Abdullah Hussein Al-Lami, 2018).. As this strategy contributed to a clear development of the visual capabilities associated with learning the skill of receiving transmissions in volleyball, which contributed to the development of technical performance and accuracy of the skill of receiving transmissions, and thus the research hypotheses were achieved. As these abilities are among the important abilities that students must have while learning this skill, as all the exercises within this strategy focus on the sense of sight as it is one of the very important senses in the process of learning and training motor skills, "as motor performance requires the visual aspects to realize all the variables And the ability to deal with it correctly to avoid mistakes and consider the sense of sight the basic sense of reaction and the performance of the motor duty. (Ammar Jabbar Abbas, 2016). "The purpose of learning is to bring about changes and development in the learner's entity, and learning includes an activity by the teacher or coach who works to provoke the learner's motives for learning and the formation of tendencies and desires through the use of aids that lead to the correct development of the skill and the possibility of its performance."(QassemLazamSabr et al., 2005), and this is what the researchers did by showing videos and introducing various stimuli and aids within the exercises in the educational units that require a visual response, as he used colors and tools such as signs, rugs, circular rings and colored light flyers on the playing field to develop abilities the visual associated with the skill of receiving serve and the accuracy of its performance, with the repetition of the gradually increasing exercise to stabilize the relative level, "Modern learning depends on investing all the learner's senses by using different educational means that address more than one sense because of their effective role in activating the educational process and deepening the practical effects Learning" (Abbas Fadel Abbas, 2000).Among table (4), there is a difference and variance in the values of the arithmetic means, standard deviations and (sig) values in the post-tests of visual abilities, technical performance and

accuracy of the skill of receiving transmissions in volleyball between the control group and the experimental group and in favor of the experimental group. Flipped learning in this group, optimum use of time and taking into account individual differences through the learner receiving new concepts of the educational task at home through the teacher's preparation of video clips and using assistant programs for a short period of up to ten minutes, and sharing this clip through social networks or through media The various types that are available to the teacher and the learner (such as telegram, modem, etc., as the learner receives the concepts of the new task while sitting at home through modern technologies such as smart mobiles, computers, iPads .... etc., and the learner can repeat the video clip several times to be able to Accurately absorbing its content (Wissam Salah and others, 2019). The exercises and aids used in the main part of the educational unit contributed and helped in developing the visual abilities, technical performance and accuracy of the serve receive skill. These exercises helped in developing the student's sense of changing stimuli in the educational environment, as colors, light flyers, colored figures, balls, circular rings and colored rugs were introduced. And put it in different places, once according to the center and again according to the color on the playing field. The student depends heavily on his senses, especially the sense of sight, in determining the direction of the movement of the ball from the opponent and the movement of the colleague during the performance of the serve receive skill.

As for the results of Table (5), the arithmetic circles, the amount of development and the percentage of development between the pre and post-test of the most important visual abilities and technical performance of serve receive volleyball skill between the control and experimental groups and in favor of the experimental group, the researchers attribute this development in the control group to the iterations supported by feedback and explaining The skill was presented by the teacher in an adequate manner, which helped in developing the visual abilities and perfecting and installing the serve receive skill. (WajihMahjoub, 2002) stated that "when the movement is repeated, learning, arranging and refining the movement becomes understandable to the learner and distinguishes this clearly because he has absorbed the movement, making it ready To prove that explanation, clarification and repetition play a major role in understanding the technique of skill. As for the degree of superiority and development in the experimental group, the researchers attribute it to the effect of using the flipped learning strategy in this group by providing a class or lesson time for activities instead of consuming it in the explanation that may be forgotten and making the student the focus of learning with the help of the teacher and activating brainstorming, discussion and simulation strategies through what is presented and presented From the questions at the end of the video clip, through which the learner acquires experience through what he saw and then the application of what he saw in class (experience practice), which achieves the balance required to achieve the learning process.And effective, as it included visual exercises that were characterized by excitement and suspense, increasing focus, engaging the sense of sight, and pairing each information related to the skill with a picture, illustrations, or presentation of the live model. Motor skill, especially in volleyball, due to the size of the playing field, the number of players and their movements (Tarek &Osam 2013).

Conclusions and recommendations.

Conclusions:

- The inverted learning strategy has a prominent impact in developing the most important visual abilities associated with learning the skill of serve receive in volleyball, and great effectiveness in developing the technical performance of the skill of serve receive in volleyball for students through the application of exercises prepared in educational units, as well as helped to shorten the time and effort that is consumed in the explanation that may be forgotten by the student
- The clear development of the students of the experimental group at the expense of the students of the control group in the tests of visual abilities and the skill of serve receive in volleyball is due to the use of the inverted learning strategy.

Recommendations:

- The need to use the inverted learning strategy in the educational units for volleyball and all those in charge of the educational process should adopt exercises that develop the player's sense of the changing stimuli in the educational environment, such as pictures, colors, light flyers, balls, colored figures, circular rings and colored carpets, and place them in different places according to the color on the ground Play,
- Adopting visual exercises characterized by excitement and suspense, increasing focus and engaging the sense of sight in each stage of the educational units, increases students' motivation and desire to learn skills, especially serve to receive in volleyball,
- Urging other researchers to conduct similar studies and research on visual abilities and other motor skills, whether in volleyball or other games.

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