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THE EFFECT OF AN EDUCATIONAL CURRICULUM ACCORDING TO THE OVERLAPPING WAVES STRATEGY ON COGNITIVE ACHIEVEMENT AND LEARNING THE SKILL OF CRUSHING VOLLEYBALL FOR STUDENTS

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ABSTRACT

The research and study included four chapters, where the first chapter included an introduction to the research and its importance, in which the researchers touched on scientific development, especially in the field of education and modern educational methods and strategies. The strategy of overlapping waves in skill learning was also discussed, as well as the game of volleyball and its specificity in skill learning. The research problem in which the reason for studying and delving into this experience was addressed, and the research problem came from the fact that most of the teachers depend on explaining the skill and presenting the model, ignoring the cognitive aspect that the students do not possess, and that most of the subject teachers focus in their teaching on imperative educational methods in learning skills, and that there is There is a lack of use of modern learning strategies and their application in the field of skills education, and reliance directly on the delivery by the teacher and the student is the recipient. The importance of research and study in helping physical education teachers in using one of the modern strategies in teaching that helps in improving and acquiring Cognitive achievement for learning the skill of smashing a volleyball among students who are members of the research sample. The aim of the research is to prepare a proposed educational curriculum using the overlapping waves strategy in cognitive achievement and learning the skill of smashing a volleyball for students, as well as knowing the effect of the educational curriculum on gaining cognitive achievement and learning the skill of smashing a volleyball for students in College of Physical Education and Sports Sciences. The method used in the research was also discussed, which is the experimental approach designed by two equal groups. The research population was identified and they are the students of the second stage in the College of Physical Education and Sports Sciences / Al-Qadisiyah University for the academic year (2022-2023), numbering (148) students. As for the research sample, it was selected by a simple random method (lottery), which amounted to (40) students who were divided by (20) students for each group, where some failing students and players were excluded, and homogeneity and parity were conducted for the two groups. The third chapter also included the research procedures and the mechanism for determining The variables of the study and its tests, as well as its scientific foundations, in addition to the exploratory experiment, cardiac tests, the main experiment, and post-tests. The fourth chapter included a presentation, analysis, and discussion of the results reached by the researchers, while the fifth chapter included some conclusions and recommendations that were developed based on the results that were reached. .

1- Chapter One:

1-1 Introduction and the importance of the research:

The world today is witnessing clear development in various fields, including the great and rapid development in the cognitive aspect in all areas of life, and among those fields is the educational aspect, that is, everything related to the educational and pedagogical process, which has witnessed the development of teaching methods, focus on thinking of all kinds, and the demonstration of many modern teaching strategies and methods, which It makes the student the focus of the educational process and the basis for participation in it. The goal of the educational process is not only to obtain information in quantitative and qualitative terms, but in addition to that, to acquire multiple skills in the field of education, whether they depend on the student's own efforts or the students' collective efforts in order to reach To information that can be used for better learning.

The overlapping waves strategy is considered one of the modern and effective strategies in the educational and pedagogical process. The purpose of using this type of strategy in learning is to help students acquire skills and knowledge, as this educational strategy gives the student a role by making him more active and energetic, because this strategy in learning It gives a basic idea to the student that the learner's previous knowledge is a basic condition for building new learning. Therefore, this strategy is concerned with the existing cognitive structures among the students, which directly affect the educational process and which are reflected in the students' skill performance well, and through which scientific content can be presented clearly. This, in turn, contributes to increasing the learner's mental abilities and skills and thus contributes to increasing his cognitive achievement.

Volleyball is one of the team games that is characterized by its popularity and ease of practice by different age groups, in addition to the technical and tactical development of its various skills, including the smashing skill (the subject of the research), as this skill is considered one of the important skills through which it is possible to obtain a direct point that gives precedence. To win the match, it is considered one of the crucial skills in volleyball.

The importance of the research lies in the implementation of an educational curriculum using the overlapping waves strategy in gaining cognitive achievement and learning and performing the skill of smashing the volleyball for members of the research sample in order to bring the student to the stage of learning skill performance with the least effort and fastest time and in a way that is compatible with the students' capabilities and capabilities.

1-2 Research problem:

Through the researchers' review and follow-up of a number of educational lessons, as well as the interviews they conducted with some volleyball teachers, they noticed that the teaching method used in the educational lessons for skills in volleyball is the imperative method, as most teachers rely on explaining the skill, presenting the model, and ignoring the aspect The knowledge possessed by the students, and thus the result is weak cognitive achievement about the (new) learned skill. Hence, the researchers, with a serious attempt, resorted to using the overlapping waves strategy in cognitive achievement and skill learning in order for this to

contribute to achieving better and faster results in the learning process, especially the learning of beginners. in the game .

1-3 Research objectives: The research aims to.

1- Preparing a proposed educational curriculum using the overlapping waves strategy in cognitive achievement and learning the skill of hitting volleyball for students who are members of the research sample.

2- Knowing the effect of the educational curriculum on gaining cognitive achievement and learning the skill of overwhelming multiplication for students who are members of the research sample.

1-4 Research hypotheses: The researchers assume that:

1- There are statistically significant differences between the averages of the two measurements (pre- and post-test) for members of the research sample in the level of cognitive achievement and learning and performing the skill of hitting a volleyball with a smash.

2- There are statistically significant differences between the means of the two post-measurements between the two research groups (experimental and control) in the level of cognitive achievement and performance of the skill of hitting a volleyball with a smash.

1-5 Research areas:

1- Human field: second-year students in the College of Physical Education and Sports Sciences / Al-Qadisiyah University for the academic year (2022-2023).

2- Temporal scope: the period from 12/1/2022 to 4/4/2023.

3- Spatial area: The indoor sports hall and the outdoor volleyball court in the College of Physical Education and Sports Sciences / Al-Qadisiyah University.

Chapter III :

3- Research methodology and field procedures:

3-1 Research methodology:

The researchers used the experimental method in the style of two equal groups for its suitability and the nature of the research.

3-2 Research population and sample:

The researchers identified the research population, which is the second-year students at the College of Physical Education and Sports Sciences at Al-Qadisiyah University for the academic year (2022-2023), numbering (148) students, where the sample (they are the research population itself) was chosen by a simple random method (lottery) with a ratio of (40 Students from two divisions were divided into two control groups, numbering (20), working in the method followed by the subject professor, and experimental groups, numbering (20), working according to the method prepared by the researchers (the overlapping waves strategy). The sample represented a percentage of (27.02) of the research community, and it was completed. Excluding a number of students (absentees, repeaters, and club players).

Before starting work, homogeneity was conducted for the experimental and control groups in the variables (height, weight, age), as shown in Table No. (1), and parity was conducted between the two groups in (cognitive achievement, square multiplication skill) as shown in Table No. (2). .

3-3 Field research procedures:

3-3-1 Homogeneity and equality of individuals in the research sample:

3-3-1-1 Homogeneity of the members of the research sample:

Table No. (1) It shows the homogeneity of the two groups in variables (height, weight, age)

Variables	Measurement unit	homogeneity				Skewness		Result
		Experimental		Control				
		Mean	St.deviation	Mean	St.deviation	Experimental	Control	
Height	Cm	177.16	7.869	179.25	6.560			equinoctial
Weight	Kg	68.23	5.856	69.36	5.740			equinoctial
Age	Month	20.8	11.232	20.47	13.266			equinoctial

3-3-1-2 Parity for members of the research sample:

Table No. (2) Shows participants in the ongoing study race

Tests	Parity				Torsion coefficient		Results
	Control		Experimental				
	Mean	St.deviation	Mean	SD	Control	Experimental	
Crushing skill	3.15	0.55	3.85	0.51	0.36	0.73	equinoctial
Cognitive achievement	11.03	1.66	11.66	1.85	0.374	0.823	equinoctial

3-4 Methods, devices and tools used in the research:

- Arab and foreign sources and references
- Tests and measurements used in research
- Personal interviews
- Note
- Test evaluation form.
- Cognitive achievement scale form Appendix (1)
- Video camera type (SONY)
- Computer
- Discs (CD)
- Legal volleyballs
- Sirens (3)
- Terraces (3)
-Metal tape measure
- Colored adhesive tape

3-5 **Determine the tests used in the research:**

2-5-1 Test for evaluating the technical performance of the crushing skill, (Nahida, 2002, 56).

- **Objective of the test**: To evaluate the technical performance of the volleyball smashing skill based on the apparent form of the skill and its three sections (preparatory, main, final).

- **Tools used:** a legal volleyball court, 5 legal volleyballs, a video camera.
- **Performance specifications:** The tested student performs the smash hit from position (4), while the teacher prepares the ball for him from position (3), and the tested student performs the smash hit skill, trying to drop the ball into the opposite court.
Performance conditions: Each student has (3) consecutive attempts.
- The student gets a "zero" in the event that the ball does not cross to the opposite court, as well as in the event of performing a smash in a manner other than previously agreed upon."

- **Registration**: Filming the three attempts of the laboratory student, after which the filming is shown to three experienced and specialized evaluators for the purpose of evaluating performance. Each evaluator awards three marks to each laboratory student according to the chosen division, which is awarding (3) marks to the preparatory section and (5) marks to the section. The main grade and (2) grades for the final section - note: "The total grade for each attempt is (10) grades - after which a grade is chosen for each component, and by extracting the average for the best three grades, the final grade for the tested student is calculated.

3-6 Cognitive achievement scale:

To determine the level of cognitive achievement of students' theoretical information according to the subject taught in the second stage. The researcher reviewed the literature and a group of studies that were conducted with the aim of measuring cognitive achievement related to volleyball, and through that. It was based on a cognitive test designed by Dr. Saddam Muhammad Farid, and after taking the opinions of some experts, it was agreed that it was 100% appropriate.

3-7 Scientific foundations of the tests used in the research:

3-7-1 Scientific foundations of the overwhelming multiplication test:

The content validity of the test used was obtained by presenting the test to a group of experts and specialists in the field of volleyball, tests, measurement, and teaching methods. The experts unanimously agreed in their answers that the test actually measures what it was designed for. Therefore, the researchers obtained content validity, which It indicates the validity of the test. As for the stability of the test, it was calculated by applying the test and re-applying it after a specified period, on the sample of the exploratory experiment, as it was applied on (4/12/2022) and the test was repeated seven days after the date of the first test, provided that the two tests were conducted under the same conditions and after Treating the results statistically by finding the simple correlation coefficient (Pearson), the correlation value (0.84) appeared, which indicates good stability of the test. As for the objectivity of the test, it was calculated through the value of the correlation coefficient between the arbitrators' results, as the value of the objectivity coefficient reached (0.91), which confirms the high objectivity of the test.

3-7-2 Scientific foundations of cognitive testing:

3-7-1 Honesty:

The researcher relied on the most important type of validity, which is content validity in cognitive tests, which is linked to the opinions of experts. This procedure was done when the test items were presented to a group of experts and specialists to demonstrate their validity. The experts' answers were that the aforementioned test actually measures the student's cognitive achievement, and therefore it was stated that The researchers obtained content validity.

3-7-2 Stability:

Reliability is the accuracy of the test in measurement and the consistency of its results when applied several times to the same individuals. (Al-Yasiri, 2010, 70). The researcher used the reliability calculation using the split-half method to extract the reliability coefficient, which is dividing the test items into two equal parts and calculating the correlation between them. The items were divided into parts (30) items into individual items (15) items and (15) even items, and then the simple correlation coefficient (Pearson) was calculated between the two halves of the test, reaching (0.732), which measures half the reliability. After that, the Spearman-Brown equation was used to measure the full reliability. Thus, the value of the coefficient for the reliability of the test was (0.835), which is high and indicates the reliability of the test.

3-7-3 Objectivity:

The researchers believe that the test used in the study to measure cognitive achievement is characterized by objectivity, since the answer to the items is determined through a correction scale and a multiple test, and thus the answer is not affected no matter how the evaluators (arbitrators) differ.

2-8 Exploratory experience:

In order to determine the validity of the cognitive achievement scale and the possibility of its application, the researcher conducted a reconnaissance experiment on a sample of (10) students chosen randomly from the research community outside the research sample. The reconnaissance experiment was conducted at exactly ten o'clock in the morning on Thursday, corresponding to (12/8/). 2022), where the cognitive achievement scale was distributed to the sample of the exploratory experiment in order to determine the suitability of the scale to the level of the sample, as well as to train the assistant work team, as well as to verify the location of the video cameras for the studied skill.

3-9 Main experiment:

2-9-1 Pre-test:

An introductory unit was conducted in which the aforementioned skill was presented to the research sample. At the end of the unit, pre-tests were conducted by photographing the research sample's performance of the studied skill. Thus, the research sample was photographed (pre-test), as the two researchers conducted the skills pre-test on Thursday, (12/15/2022) and at 9 a.m., on the volleyball court at the College of Physical Education and Sports Sciences. At Al-

Qadisiyah University, the researchers also conducted the pre-test of the cognitive achievement scale in the halls of the College of Physical Education and Sports Sciences on the same day after completing the skill tests.

3-9-2 Tutorial:

The educational program for the control and experimental groups began through the subject teacher. The implementation of the educational program took (8) educational units, two units per week, as the implementation of the main experiment began on Sunday, corresponding to (12/18/2022), until Tuesday, corresponding to (12/27/). 2023) The duration of the educational unit is (90) minutes. The control group works with the curriculum prepared by the teacher, and the experimental group works with the curriculum prepared by the researcher using overlapping waves according to the following stages:

1- Introduction: At this stage, the subject teacher presents the information of the previous lesson and links it to the new information. The subject teacher then asks questions that reveal the introductory preparation for the prior concepts and attract the students' attention to the lesson.

2- Lesson presentation: In this stage, ideas related to the new topic are presented and a concept map for the new topic is prepared.

3- Divide the students into small groups of (3-8) students in each group and assign a course for each group to be chosen from the teacher and his colleagues.

4- Preparing worksheets for groups that include tasks given to students in the form of overlapping waves that are implemented by the students and discussed among members of one group.

5- Each group is given an overlapping circle in which the answers are recorded and what is required of the students is determined. After completing the answers, they are recorded in the form of waves on the worksheet.

6- After all the groups have finished working, the teacher collects the work papers from the group rapporteurs, and each group is discussed in front of the other groups.

7- The teacher provides immediate feedback to the groups that need help, corrects wrong answers, and reinforces the correct answers.

3-9-3 Post-test:

After completing the application of the educational curriculum on 12/27/2022, post-tests for the skill under study were conducted (for members of the research sample) and in the same imaging method as for the pre-test, where post-tests were conducted for the studied skill and the cognitive achievement scale was applied to members of the research sample for the control and experimental groups on Tuesday, 12/29/2022, on the same volleyball court of the College of Physical Education and Sports Sciences on which the pre-test was conducted, and the post-test for the cognitive achievement scale was also conducted on the same day in the same classrooms. The researcher was keen to establish the same conditions that were used in the pre-test in terms of time, place, tools used, method of implementation, and the supporting work team.

2-8 Statistical methods:

The researchers used the SPSS statistical package

4- Presentation, analysis and discussion of the results:

4-1 Presentation, analysis and discussion of the results of the pre- and post-tests of the overwhelming multiplication skill in the research for the control and experimental groups.

Table (3) Shows the statistical treatments for the pre- and post-tests of the crushing multiplication skill for the control and experimental groups.

Skill	Groups	Pre		Post		Calculated t value	Significance level
		Mean	St.deviation	Mean	St.deviation		
Crushing skill	Control	3.15	0.55	6.47	0.78	12.260	Sig.
	Experimental	3.85	0.51	7.43	0.43	26.440	Sig.

***The tabular T value (2.09) is below the significance level (0.05) and has a degree of freedom (19).**

Table (3) shows the arithmetic mean, the standard deviation, the calculated (t) value, and the level of significance for the control and experimental groups in the pre- and post-tests. We find that the arithmetic mean for the crushing multiplication skill in the pre-test for the control group was at a value of (3.15) with a standard deviation of (0.55), while we find The arithmetic mean in the post-test was (6.47) with a standard deviation of (0.78). When calculating the t-value, we find it to be (12.260), which is greater than the tabular value of (2.09) at a degree of freedom (19) and below the level of significance (0.05). As for the experimental group, its arithmetic mean for the crushing multiplication skill in the pre-test was a value of (3.85) and a standard deviation of (0.51), while we find that the arithmetic mean in the post-test was a value of (7.43) and a standard deviation of (0.43). When calculating the value of (t), we find it as a value (26.440) which is greater than the tabulated value of (2.09) at the degree of freedom (19) and below the significance level (0.05).

By presenting and analyzing the results of the pre- and post-tests in Table (3) for the volleyball skill test (crushing hit) for members of the research sample and for the two groups, it became clear that there are significant differences between the tests (pre- and post-tests) and in favor of the post-tests for the two groups. The researchers attribute that the reason for these differences in the post-tests and the control group is due to the effectiveness of the method used by the subject teacher in learning the students the skill of crushing multiplication, as well as the method followed by the teacher in preparing the exercises and applying them in the applied part. All of this helped the students in the learning process and controlling their performance. Skills to a certain degree, after the teacher explains the details of that skill and its performance to the students in the required manner, and this is consistent with (Abbas, Abdul Karim: 1991, p. 77) (The teacher presents the required skill and gives instructions regarding the skill and then specifies the model, but the student's duty is to follow those orders or decisions and their implementation)

The researcher also attributes the differences in the post-tests (for the experimental group) to the great influence of the overlapping waves strategy within the educational units of the same

group, which focuses on the cognitive aspect of the learning process, where the learner is active, energetic, positive, involved, and effective in all the information he obtains. The researchers believe that this strategy also focuses on the interactions and things that happen in the mind, the environment, and the field as a step towards harmonizing these components in one direction that represents the cognitive performance of the learner. This is consistent with Griff, 2000, 66), "The waves strategy uses methods that allow students to participate in a comprehensive manner." Active in the learning process, their knowledge is generated by forming mental connections between concepts. When a student analyzes a new material, they integrate the new knowledge with the old knowledge, and when this information matches, new relationships and mental structures are built for them.

4-2 Presentation, analysis and discussion of the results of the post-tests of the crushing multiplication skill for the experimental and control groups

Table (4) Shows the statistical treatments for the post-tests of the overwhelming multiplication skill in the research for the experimental and control groups.

Tests	Control group		Experimental group		Calculated t value	Significance level
	Mean	St.deviation	Mean	St.deviation		
Crushing skill	6.75	0.85	7.43	0.35	4.778	Sig.

***The tabular (t) value (2.02) is below the significance level (0.05) and with a degree of freedom (38)**

Table (4) shows the arithmetic mean, the standard deviation, the calculated T-value, and the level of significance for the control and experimental groups in the two post-tests. We find that the arithmetic mean for the control group for the crushing multiplication skill is (6.75) with a standard deviation of (0.85). As for the experimental group, we find that the arithmetic mean (7.43) with a standard deviation of (0.35), and the value of (t) calculated for the two groups in the post-test of the overwhelming multiplication skill is (4.778), which is greater than the tabulated value of (02, 2) under the level of significance (0.05) and with a degree of freedom (38).

The researchers believe that the reason for the superiority of the experimental group over the control group in the post-tests is due to the effect of the educational approach used (the overlapping waves strategy), which is one of the modern and advanced strategies that works to improve the choice of method, method, and educational means to provide solutions to the problems facing the teacher in lesson management, which require... To high skill in performance and all matters related to the lesson that lead to learning,

Which works to achieve the desired goals, and is formed in the form of steps taken by the teacher, and each step has alternatives, meaning that it is characterized by flexibility when learning, and this step is transformed into steps and details in order to achieve the goals of the lesson, which depicts a state of development in the educational unit that differs from the other unit. Educational method in which the method used by the teacher is used. The researchers confirmed that the experimental group applied and focused on the important aspects of the educational process by providing the student with the basic cognitive aspects to refer to when practicing skill performance, and that the use of this strategy in the learning process led to the

acquisition of knowledge in a way It is successful and allows the student to remember, understand, and retrieve it in a better way. All of this contributed to achieving a good environment for the learning process (for members of the research sample), especially during discussion and dialogue, as the student is considered an active learner and not just a recipient of information, and this is consistent with (Aziz, 2010, 142)." The waves strategy works to engage the learner positively during the course of the lesson by using his maximum cognitive abilities and potential."

4-3 Presentation, analysis and discussion of the results of the pre- and post-tests of cognitive achievement for the control and experimental groups:

Table (5) It shows the statistical treatments for the pre- and post-tests of cognitive achievement for the control and experimental groups

Statistical treatments Test	Pre test		Post test		Calculated t value	Significance level
	Mean	St.deviation	Mean	St.deviation		
Cognitive achievement of the control group	11.03	1.66	20.6	2.55	5.53	Sig.
Cognitive achievement of the experimental group	11.66	1.85	23.24	2.33	7.63	Sig.

***The tabular T value (2.09) is below the significance level (0.05) and with a degree of freedom (19)**

Table (5) shows the results of the cognitive achievement test for members of the research sample from the control group. The arithmetic mean value reached (11.03) with a standard deviation of (1.66) in the pre-test, while in the post-test the arithmetic mean value reached (20.6). With a standard deviation of (2.55), the calculated T value was (5.53), which is greater than the tabulated value of (2.09), with a degree of freedom of (19), and below a significance level of (0.05). This confirms the presence of significant differences. between the two tests and in favor of the posttest.

As for the experimental group, it achieved results in the cognitive achievement test with an arithmetic mean of (11.66) and a standard deviation of (1.85) in the pre-test. As for the post-test, the arithmetic mean value in the same test reached (23.24) and a standard deviation of (2). ,33), while the calculated (t) value was (7.63), which is greater than the tabulated value of (2.09) and below the level of significance (0.05) and with a degree of freedom (19). This confirms the presence of large moral differences between the two tests and in favor of the post-test.

Through what is presented in Table (5), the researchers see that there is a clear development in the level of cognitive achievement for the two groups, but there is a large difference in this development and in favor of the experimental group. The researchers believe that this development of the members of the control group is due to the commitment of the members of that group to attendance at work and their attendance at the lesson as well. The skill was explained by the subject teacher, who helped the students to receive knowledge through which they were able to develop the level of cognitive achievement. The researcher also believes that the teacher prepared the educational program designated for the academic stage, determined the main objectives of his lesson, developed his own plan, and used it to advance the educational

process. As Zakia Ibrahim and others confirmed (2002), "The teacher is considered a designer of the educational environment. Who innovates educational systems, prepares them, and sets goals required lesson and teaching situations to improve learning outcomes."
The researchers also believe that the reason for the superiority of the experimental group in the results of the post-test for cognitive achievement is that the use of the overlapping waves strategy stimulated the student's mental abilities, which contributed to stimulating the students' thinking processes in searching and investigating information related to the lesson, and searching for everything related to the learned skill, and the researchers confirmed The method of learning with this strategy gave students the sufficient opportunity to express their opinions, dialogue, and cooperate with each other and with the teacher, which helped create an atmosphere of fun and excitement, raise questions, and the desire to participate and suggest unconventional solutions, which contributed to helping the student change his way of thinking and thus developed his knowledge acquisition about The tasks and skills required, and this is what was confirmed by (Qatami, 2015, 247) that the learner in the overlapping waves strategy uses a group of thinking processes in one strand to reach the solution of a specific problem, complete missing information, and make a decision regarding it to be consistent with the desired goal.

3-4 Presentation, analysis and discussion of the results of the experimental and control groups in the post-test for cognitive achievement:

Table (6) Shows the statistical treatments for the experimental and control groups in the post-test for cognitive achievement

Statistical treatments Test	Control group		Experimental group		Calculated t value	Significance level
	Mean	St.deviation	Mean	St.deviation		
Cognitive achievement	20.6	2.55	23.24	2.33	3.14	Sig.

***The tabular T value (2.02) is below the significance level (0.05) and has a degree of freedom (38).**

Table (6) shows the results of the post-tests for the two groups (the control and the experimental) in the cognitive achievement test (under study), where the value of the arithmetic mean was (20.6) and a standard deviation of (2.55) for the control group, while the members of the experimental group achieved the test. The dimension of cognitive achievement had an arithmetic mean of (23.24) and a standard deviation of (2.33), while the calculated (t) value was (3.14), which is greater than the tabulated value of (2.02), at a significance level of (0.05), and below the degree of Freedom (38), and this confirms the presence of significant differences between the test for the two groups.
It is clear from Table (6) that there are statistically significant differences in the results of the post-tests in favor of the experimental group that used the overlapping waves strategy, the use of which had a significant impact on the progress of the individuals (the experimental group). The researchers believe that the use of the overlapping waves strategy helped in arranging the scientific material in Memory: This strategy also helps students mentally analyze movement,

which facilitates the process of retrieving and remembering cognitive or motor information again when needed.

The researchers also attribute the reason for the superiority of the experimental group in the cognitive achievement test to the fact that the overlapping waves strategy provided the students with the cognitive aspect, which is one of the important matters in the sports field. Correct learning does not take place by learning the skill, tactical, and psychological aspects only, but must be linked to the theoretical information of the aspect. The cognitive aspects that explain how to perform each skill and the benefit of the cognitive aspects of the learned skill, which is an incentive for the athlete to develop it, as providing the student with information and knowledge helps in speeding up his learning of the skill aspects and making it easier to apply them, as this information constitutes the complementary part of the skill and a high level of performance in it, and this What was emphasized by Muhammad Subhi Hassanein (1997) is that the true success of students is confirmed in combining the practice of the activity and knowledge, meaning that the cognitive field must go hand in hand with the motor and emotional field, and that there is a necessity for every athlete to be familiar with the sports information and knowledge that pertains to The game he plays

5- Conclusions and recommendations:

5-1 Conclusions:

Through the results of the research, the researchers reached the following conclusions:

1- Learning using the overlapping waves strategy is more effective than the imperative method used by the teacher in learning the skill of crushing multiplication (under study).

2- The educational units using the overlapping waves strategy have a positive impact on learning the skill of hitting the volleyball for members of the research sample.

3- The educational units using the overlapping waves strategy had a positive impact on developing the cognitive achievement of the members of the research sample.

4-2 Recommendations:

Based on the research results, the researchers recommend: -

1- Emphasis on the application of educational units using the overlapping waves strategy in teaching volleyball skills to second-year students in the College of Physical Education and Sports Sciences.

2- Conducting similar studies for different samples using the overlapping waves strategy in learning other volleyball skills.

3- The necessity of using the overlapping waves strategy in learning skills in different activities.

4- The necessity of using educational strategies that increase the effectiveness and participation of the learner in the learning process.

5- Paying attention to educational strategies that work to increase students' cognitive achievement and develop it because of its impact on raising the level of artistic performance to the best.

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Appendix (1)

Cognitive test items

	Paragraphs	Answer mark	
		✓	X
1	The smashing skill is a defensive skill		
2	A smash is the act of hitting the ball with one hand so that it passes completely over the net and into the opponent's court		
3	The crushing skill is used with mid-level teams		
4	The skill of smashing is one of the skills that is easy to learn		
5	The smashing skill puts the opposing team in a weak defensive position		
6	The skill of smashing requires a combination of timing, balance, muscle strength, and speed of movement		
7	When performing a crushing strike, the distance between the feet is shoulder width and the center of gravity of the body is on the pivot foot		
8	The main purpose of an ace is to gain a match point and hold the serve		
9	In a crushing strike, the feet are pointing forward, with the possibility of advancing one over the other		
10	The skill of striking does not require height, but rather precision in performance		

11	When performing a crushing strike, the knees must be bent and the torso must be bent		
12	Speed of movement, agility, and neuromuscular coordination are factors for successful striking		
13	In a landslide, the eye is always on the opponent		
14	Slamming requires jumping power that gives the player the best height		
15	To perform a smash, the ball is placed on the tips of the fingers and in front of the waist belt		

Paragraphs		Correct answer
16-It is a crushing blow to face	a-The simplest type of crushing multiplication	
	b-The most difficult type of crushing beating	
	c-One of the most complex types of crushing strikes	
17- The smash is often performed from a position	a – 2-4	
	b- 2-3	
	c- 1-2	
18- The player is in the rough steps phase of the mode	a - Total attention	
	b - Completely relaxed	
	c- curvature	
19- The player takes 3-4 steps, making the third move	a - long	
	b – moderate	
	c – short	
20- When performing a crushing strike, there is flexion in the knee joint in preparation	a - Run forward	
	b - Jump to the top	
	c- To hit the ball	
21- In the rise phase, the player	a - By bending the torso	
	b- Curving the trunk	
	c- Torso twisting	
22- When the player hits the ball, he lands lightly on	a - sole	
	b- Tiptoes	
	c- Foot the fulcrum	
23- A little bend in the knee joint during landing helps	a – balance	
	b- Absorbing the severity of the drop	
	c- The player remains in a state of readiness	
24- To perform the facing serve, the feet are shoulder-width apart and presented	a - Left leg over right	

	b- Right leg over left	
	c- They are on the same level	
25- The ball is shot on the left hand and in front	a - Head	
	b- belt	
	c- thigh	
26- The body also leans forward slightly and the weight of the body is on	a – Right leg	
	b- left leg	
	c- equally on both legs	
27- The ball is hit at the server facing you	a - Down behind	
	b- above behind	
	c- From the middle	
28- The hand that strikes the ball	a - Hollow	
	b- open	
	c- closed	
29- In the final stage it is the arm	a - Huddled against the body	
	b- Spread in front of the body	
	c- Behind the body	
30- The knees are straight and the weight of the body is on	a - Right	
	b- left	
	c- both	