The Effect of Using the Concept Maps Strategy on the Cognitive Achievement of the Accuracy of Handball and Shooting Skills

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Abstract
The effect of using the concept maps strategy on the cognitive achievement of the accuracy of handball and shooting skills The study aimed to:
1- Preparing an educational curriculum according to the concepts maps in teaching accuracy the skills of handling and shooting in handball for students.
2- To identify the effect of the curriculum prepared by the researchers and followed by the teacher in teaching accuracy the handling and shooting skills of handball to students.
3- Identifying which of the two curricula is better prepared by the researchers or followed by the teacher in teaching handball skills to students.
The researchers used the experimental approach with two equal groups, and the research sample included some students of the second stage in the College of Physical Education and Sports Sciences for the academic year 2021-2022 AD, whose number was (44) students, where the sample was divided into two groups, the number of members of the experimental group was (22) students in When the number of members of the control group reached (22) students, homogeneity was made in the thropometric variables, while equivalence was made in the skill variables of the research sample, where the experimental group used the strategy of concept maps through the educational program prepared by the researchers for a period of (8) weeks at one unit One per week and according to the curriculum prepared by the faculties of physical education and sports sciences in Iraqi universities. The main experiment of the research was conducted on 10/12/2021 AD and the educational curriculum ended on 1/28/2021 AD and on the handball court in the College of Physical Education and Sports Sciences Dhi Qar University.
The following conclusions were drawn:
1 - The method used and concept maps have a positive effect on the accuracy of handball skills and shooting for students.
2 - The active participation through the three phases of the concept mapping strategy gives a clearer picture of the nature of work planning and then practical application.
The recommendations were:
1 - Adopting methods, strategies and methods of teaching in a way that is compatible with the nature of the skill and capabilities of the learners to increase the desire and motivation for education.
2 - Involve the largest number of learners in education using the method of concept maps and encourage its use in the theoretical aspect of achieving the task of practical application.
Keywords: strategy, concept maps, cognitive achievement, handball.

1 Introducing the Research

Introduction and the importance of research

Scientific progress is one of the advantages of our current era, as it includes all aspects of life, including the mathematical aspect, a lot of humanity, to prepare the individual in a comprehensive and balanced way, as a prelude to reaching the higher levels in those who interact with the natural sciences and the chosen sports activity, and since the preparation of the individual It cannot be achieved without these sciences, so it is necessary to develop modern methods and strategies that contribute to the development of all sports activities, especially the handball game that requires physical preparation and high skill, and a targeted plan that achieves the improvement of important mental abilities, including (accurate skill performance) for game practitioners in order to achieve the best performance.

In view of the importance of accurate performance of skills in sports games and in relation to the game of handball, the researcher tried to study it, because it is the best way to obtain points in order to achieve the desired goal, as well as to study some of the mental abilities associated with performing the accuracy of the skill. Therefore, the importance of the research lies in raising the level of skillful performance of the students of the second stage in the College of Physical Education and Sports Sciences, by establishing those relationships between the strategy of concept maps and performance and skill accuracy Handball is in the

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hands of our teachers, coaches and players to be a starting plan to work on developing those abilities and skills that contribute to the development of learned performance and thus improving the level of our players.

The importance of using concept maps lies in the process of developing and improving the accuracy of performance associated with preparing students in the process of learning and teaching in the classroom. Therefore, it is a tool that enables him to organize the concepts within it, due to its importance in communicating theoretical information and even the possibility of applying some attitudes, aspects of knowledge and basic skills in a way that is somewhat close to the practical side by drawing concept maps and giving a number of possibilities to reach solutions to them, attitudes and learning them from By students and under the supervision of an instructor or teaching.

Research problem

The diversity in the use of strategies, methods, and teaching methods did not come arbitrarily, but rather for different reasons and circumstances that depend on the capabilities and capabilities of the students, the academic stage, and the variables that may face the teacher, an educational institution, or an educational environment, and in view of what the world is exposed to unexpectedly and unprepared in all fields and the requirements of life. . Including the field of education, as a result of the Corona epidemic, education has moved towards e-learning through social media platforms using multiple electronic programs and adopting this type of learning as one of the teaching methods and modern strategies, although there are some difficulties and obstacles in application, especially in some areas. Scientific, mostly prepared for theoretical aspects and dialogue.

From each progression, the researchers formulate the research problem of how we can move from the prevailing learning environment before traditional methods to an active learning environment that encourages students to participate in the learning process by building their own models and schemas from the information they get from the new environment, and using One of the learning strategies (concept maps) where they are the main focus and the teacher facilitates the learning process.

Research Objectives

1- Preparing an educational curriculum according to the concept maps in teaching the accuracy of handling and shooting skills in handball to students.

2- To identify the effect of the curriculum prepared by the researchers and followed by the teacher in teaching students the accuracy of performing handball skills. 3- Identifying which of the two curricula is better prepared by the researchers or followed by the teacher in teaching students the accuracy of handling and shooting skills in handball.

Research hypotheses

1- There are statistically significant hypotheses in the pre and post tests of the two research groups for the skills under study and in favor of the post tests.

2- There are statistically significant differences in the posttests of the two research groups for the skills under study and in favor of the experimental group.

Areas of research

The human field: a sample of second-stage students in the College of Physical Education and Sports Sciences / Dhi Qar University for the academic year (2021-2022).

Time range: 11-13-2021 to 01-20-2022

Spatial field: handball court / in the College of Physical Education and Sports Sciences / Dhi Qar University

Definition of terms

1. Cognitive achievement: Successful or outstanding achievement and performance in special subjects, fields, or studies, usually resulting from skill and hard work accompanied by interest, which is often summarized in the form of marks, points, grades, or descriptive notes ( ).

2. Concept maps: It is one of the e-learning strategies to enhance learning through the sense of sight by using graphic maps that include a main or central concept from which ideas branch out, ranging from the most comprehensive to the least comprehensive, organized and presented in a coherent manner (). .3Accuracy of performance: the individual's ability to control voluntary movements to achieve the final result of the components of physical fitness to achieve a specific goal.() Research methodology and field procedures

Research methodology

The experimental approach of two equal groups was used to suit it to solve the research problem.

The research group and its sample

The research community was identified from the students of the second stage in the College of Physical Education and Sports Sciences at the University of Dhi Qar for the academic year (2020-2021), studying the vocabulary of the curriculum prescribed by the sectoral body, which numbered (134) students representing five divisions, while the research sample was tested by The lottery, where division (i) of (22) students represented the experimental group, while division (g), of (22) students, represented the control group, and (10) students from division (h) were adopted as a reconnaissance group, and (2) students were excluded From the experimental group, the research sample became (48) students, representing (67.605%) of the original community.

The researchers extracted the coefficient of variation for the variables (height - mass - age) of the research sample to identify the homogeneity, as the results showed that the values of the coefficient of variation ranged between (3.15 - 7.03). High and if it is more

than (30%), the sample is considered to be heterogeneous (), and equivalence was conducted between the two research groups in all variables, and it was found that it is not significant, and thus the two groups are equivalent in variables, as in Tables (1) and (2).
Variables Units of measure Arithmetic mean Standard deviation Mode Coefficient of torsion

Table (1) shows the homogeneity of the research sample in the variables of chronological age, total height and mass						
T	variants	Measurement units	Arithmetic mean	standard deviation	vein	torsion modulus
1	Chronological	Age	21.17	1.22	20	0.96
2	total length	Cm	175	4.23	172	0.71
3	Mass	Kg	64.97	3.56	63	0.55

20 0.96 years
It shows the homogeneity of the control and experimental groups in the anthropometric variables of the research sample
Shows the equivalence of the control and experimental groups in the research variables of the research sample

experimental group		the control group		measruing unit	variants	T
P	S	P	S			
1.72	4.50	1.63	4.87	Degree	Accurate handling performance	1
2.96	19.83	3.08	20.64	Degree	Shooting accuracy	2

The means of collecting information, devices and tools used in the research

Means of collecting information

Arabic sources
International information network
Personal interviews
Expert opinion form

The devices and tools used

computers
Mobile phones
Data show device
(CD)- discs
(PDF) - Files
Stationery - colors
Tests and measurements used in the research.
Electronic stopwatch.
Handball court.
Metric tape measure.
Adhesive tapes
Flags number 3
6 balls

tests used

After identifying the skills taught to the students of the second stage during the semester, a set of test was presented to a group of experts and specialists in the field of handball, tests and measurement to demonstrate their validity, and (80%) of the agreement of experts and specialists was approved, and the following tests were approved:
Skill tests
Handling skill test (Al-Sumaidaie, 2010, 269 p.).
Objective of the test: to measure handling accuracy.
Tools used: handball, a handball goal drawn on a wall (3 x 2 m), then the goal is divided into nine rectangles to measure the accuracy of shooting, and a line is drawn on the ground at a distance of (9 m) from the goal, as in Figure (11).
Performance method: The player shoots from behind the line with the pivot step, taking into account the following:
A- Rectangles hit (1-3-7-9), which represent the corners of the goal, and whose dimensions are (60 x 100 cm), scores four degrees.
B- Injury to the two rectangles (2, 8), which represents the area above the goalkeeper's head and between his feet, and whose dimensions are (60 x 100 cm), he gets three degrees.
C - Injury to the two rectangles (4,6), which represents the range of the goalkeeper's arms, which has dimensions (80 x 100 cm), gets two marks
D - Rectangle injury (5) represents the goalkeeper's chest and torso area, which has dimensions of (80 x 100 cm) and gets one score. R.
c- If the ball comes outside of that, it will be zero.
H - Each player performs ten throws and each player has only one attempt.
Shooting accuracy test (Mohsen and Hussein, 1993, 35 p.(.
The aim of the test: to measure the accuracy of shooting.
Tools: a handball court, a square goal (60 x 60 cm) suspended and fixed in the upper corners of the goal, (2) men's handballs, (5).
Description of performance: The tester shoots from a standing position and from behind the test line, provided that his feet remain in contact with the ground and that he does not cross the 7-meter line. one on the right and two on the left.
Register:
1. If the ball enters the suspended goal, the tester will be given 3 points.
2. If the ball hits one of the sides of the target, the tester will be given 2 points.
3. If the ball enters the big goal and does not touch the suspended goal, one point is given.
4. If it goes outside the target, a zero is given.

Exploratory experiments

The first experiment was conducted on an exploratory sample, and its purpose was to avoid the difficulties facing the implementation of the curriculum and to identify the time taken to

implement the tests and the efficiency of the assisting team. As for the second experiment, an introductory unit was conducted on the experimental sample in order to identify the nature of the implementation of the strategy, its stages, the distribution of time and movement through the groups.

pre-tests

The results of the equivalence tests were approved as pre-tests that were conducted in the handball court in the College of Physical Education and Sports Sciences at Dhi Qar University for both the control and experimental groups.

Educational Curriculum

After presenting the educational curriculum prepared by the researchers, Appendix (3), to a group of experts and specialists in the field of handball teaching methods, Appendix (1), then applying it after conducting an introductory unit for the experimental group on 10/12/2020 and ended 28/01/2021, and it included (8) educational units, at the rate of one educational unit per week, with a time of (90) minutes, and the work was according to the stages of the three integrated group mental maps strategy in the practical and main sections, with assignments in drawing for the design of mental maps through the Classroom program to be discussed, learned and applied in the practical lesson (the playground yard)

First: the educational activity (pre-reading map)

1. The teacher directs the students to read the subject through a booklet or information sent through the electronic program about the educational unit.
2. During the educational unit in the playground, the teacher writes the main vocabulary for the topic of the lesson and then discusses with the students to put these vocabulary in a map (pre-reading map).
3. Second: while reading
4. The teacher directs the students to read the topic silently for (5) minutes.
5. Third: After reading

The teacher raises the discussion among the students in order to add more information by the groups to the previous map (pre-reading).

1. The groups are asked to design a map, and each group draws its own map.
2. The teacher compares the maps prepared by the groups with the previous map?
3. Choosing a new map to be approved by everyone

applied activity

Students perform some moves under the supervision of the teacher

It is possible to perform all of what was mentioned in a practical way in the arena or by using a computer in groups in the classroom through a program prepared in advance by the teacher.

Post-tests

Post-tests were applied on 01/28/2021 for the control and experimental groups.

Statistical Methods

Statistical data were processed by SPSS Ver 21 to extract the search results.

Presentation, analysis and discussion of results

Presentation, analysis and discussion of results

Presenting, analyzing and discussing the results of cognitive achievement tests for the control and experimental groups:

table (3). It shows the arithmetic mean, standard deviations, and the value of (t) calculated between the pre and post tests of the cognitive achievement of the experimental group and its analysis.

indication type	Slj	T	Post-test		Pretest			measruing unit	Variants
			±p	S	±p	S	N		
moral	0.000	19.02	4.74	41.13	1.81	14.81	22	Class	Experimentalgroup
moral	0.000	26.23	2.73	31.86	2.03	15.18	22	Class	the control group
* D at significance level < (0.05) and below (21) degrees of freedom.									

Presenting and analyzing the results of the post-tests of the cognitive achievement test for the control and experimental groups:

Schedule (4). It shows the arithmetic mean, standard deviations, and (t) value calculated for the control and experimental groups in the post-test of the cognitive achievement test.

indication type	Sig	T	the control group		experimental group		Variants
			±p	S	±p	S	
moral	0.000	5.74	2.73	31.86	4.74	41.13	Cognitive achievement

The experimental group, conceptual mapping strategy, had an arithmetic mean of (14.81) for the pre-test and a standard deviation of (1.81). In the post-test, the arithmetic mean was (41.13) and a standard deviation of (4.74). The arithmetic mean of the difference between the pre and remote tests was (26.32) and the standard deviation of the difference was (2.93), and after calculating the value of (t) using the law of (t) for correlated samples to determine the significance of the difference between the two tests, which was (19.02), which is greater than the tabular value of (t). The value is (2.07) and at the level of significance (0.005) and the degree of freedom (21), and this means that there are statistically significant differences between the results of the pre and post tests in the cognitive achievement test and in favor of the post test. Shown in Table 4. The researcher

attributes this development in the artistic performance of the skill to the fact that the use of the concept maps strategy effectively affects the research sample, because one of the stages of this strategy is the discovery that exposes students to direct experiences that raise questions, for them until they do not find answers in time, so they waste in Carry out activities to find answers to their questions and clarifications to their inquiries. This facilitated learning, made the work orderly, and made them take responsibility for their learning, which in turn led to learning success.

Presenting and analyzing the results of the handling and shooting skills tests in the pre and post tests for the experimental and control groups and discussing them

Table (5). The values of the arithmetic mean, standard deviations, and the rate of development for the pre and post tests of the control group in handling and shooting skills						
Evolution rate	after me		Tribal		measruing unit	Variants
	±p	S	±p	S		
29.63%	2.05	6.92	1.63	4.78	Class	Handlingaccuracy
17.81%	2.64	25.11	3.08	20.64	Class	Aiming accuracy
*D at significance level < (0.05) and below (21) degrees of freedom.						

From Table (5) it is clear that all the variables under consideration for the control group have recorded an acceptable development rate for each of the skills of handling and shooting. The percentage of development in the accuracy of handling has reached a development rate of (29.63%). Its development to (17

Table No. (6) The values of the arithmetic mean, standard deviations, and the rate of development for the pre and post tests of the experimental group in handling and shooting skills.81% shooting skills						
Evolution rate	after me		Tribal		measruing unit	Variants
	±p	S	±p	S		
47.75%	1.69	8.53	1.72	4.50	Class	Handlingaccuracy
%32.17	2.37	29.52	2.92	19.83	Class	Aiming accuracy

From Table (6) it is clear that all the variables under consideration for the control group have recorded an acceptable development rate for each of the skills of handling and shooting. The percentage of development in the accuracy of handling has reached a development rate of (47.75%). Its development to (32.17%.(							
indication type	Sig	T	the control group		experimental group		Variants
moral	30.00	3.11	±p	S	±p	S	Cognitive achievement
			1.69	8.53	2.05	6.92	
moral	0.000	6.34	2.37	29.52	2.64	25.11	Aiming accuracy

Through Table (3) and (4), which show the results of the pre and post tests for the two research groups, it is clear that all values are the function and in favor of the post tests for both groups and for all tests, and this achieves the first hypothesis.

As for Table (5), which shows the results of the post-tests for the two research groups, it was found that all values are a function and in favor of the experimental group, and this fulfills the second hypothesis of the research.

2 Discuss the Results

Through tables (3) and (4), we note that there is progress for both groups in all post-tests. The researcher believes that the reasons for the progress achieved is the nature of the management of the educational units by the subject teacher and working seriously with the students with the optimal use of his experience and teaching competence to achieve the objectives of the educational units. Be it in theory explaining the illustration or through the practical aspect in applying the defensive moves.

The objectives of the educational unit are achieved in a way that gives the learner theoretical and practical experiences when the teacher works with high efficiency, drawing on his experience in using any type of teaching methods and strategies to provide learners with information that improves and develops his physical, intellectual and skill capabilities and increases their motivation to actively participate in learning and achieve goals. ( ).

As for Nahida Abd Zaid, she believes that "most of the changes that occur to the learner during the learning process during the educational units come through the information that is provided to the learner by the teacher. This information may be theoretical or practical and must be given motivation for learning with the use of methods and field experiences for the teacher to achieve this Objectives " ( ) .

This was confirmed by Lamia Al-Diwan, as she emphasized the role of the teacher and the professional competencies he possesses, working to achieve the goals of the educational unit.

Through Table (5), we see the progress of the experimental group over the control group in all tests, and the researchers see the reasons for this progress due to the nature of the philosophy on which the strategy of collective concepts maps is based. It reduces the possibility of students relying on memorization without understanding, in addition to it delights the teacher in the events of meaningful learning among students.

The collective concepts are of great importance to both the teacher and the student, as it contributes to increasing the understanding and assimilation of the concepts in a gradual manner, increasing the interaction of the learners with each other with the educational content, and correcting his erroneous abilities about some concepts ().

Also, this strategy and through teamwork takes place..... Ideas and opinions are exchanged in drawing the required map, so there is a multiplicity of ideas, whether in one group or the ideas of groups combined to choose the most clear and accurate map in achieving the goal of the lesson.

Also, the development in the accuracy of the handling and shooting skills has a clear impact on the development of the level of the players in the performance of the team, and that most of the exercises used in the concept maps led to an increase in the accuracy of the exercise performance and thus the development of the handling and shooting skills, and this was confirmed by (Hassan Al-Sayed Abu Abdo, 2014 "Since the skill abilities play a prominent role for any sporting activity and they are the backbone in achieving the goal, as the skill abilities are linked to learning methods or

Training is closely related, as the mastery of skillful performance depends on the extent to which the learning method or strategy is developed in the accuracy of skillful abilities (Odeh, p. 67, 2014).

Iman Hussein Al-Nahhas believes that the concept mapping strategy is one of the most important strategies used in the education process. It stimulates the learner's motivation to receive information, as it helps to collect information and communicate it to the student's mind easily. And give a comprehensive picture of the subject, and all of this can be done by drawing a map, either by hand or a computer program ().

The strategy of concept maps provides an opportunity for collaborative work through generating ideas, exchanging diverse experiences, rearranging ideas, and generating new ideas that can be exchanged with other learners, whether the group or cooperating groups, or through the exchange of knowledge between the groups and the teacher ().

3 Conclusions

1 - The method used and concept maps have a positive impact on teaching students the accuracy of handball skills.

2 - The active participation through the three phases of the concept mapping strategy gives a clearer picture of the nature of work planning and then practical application.

3 - Giving more opportunity to train students to think, stimulate, and develop a spirit of perseverance and innovation in teaching and applying the researched skills.

4 Recommendations

1 - Adopting methods, strategies and methods of teaching in a way that is compatible with the nature of the skill and the capabilities of the learners to increase the desire and motivation for education.

2 - Involving the largest number of learners in education through concept maps and encouraging its use in the theoretical aspect of achieving the task of practical application.

3- Conducting similar studies using concept maps in teaching different sports skills and events.

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