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The effect of using teaching using problem-solving strategy in the collection of teaching methods and the development of students creative thinking skills

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Abstract

The research aims to identify the difference between the lecture method and the problem-solving strategy in the cognitive achievement of the subject of teaching methods for students of the second stage in the College of Physical Education and Sports Sciences / University of Al-Qadisiyah and the development of creative thinking among students. into two groups of 20 students for each group, the first is a female officer who studied according to the lecture method followed by the teacher of the subject and the other is an experimental one which was studied according to the problem-solving method. As for the study tools, it was represented by the achievement test in the subject of teaching methods and the creative thinking test. The two researchers prepared an educational program consisting of 16 educational units for each A group, and after completing the implementation of the program, the achievement and creative thinking tests were conducted, and after obtaining and processing the data by statistical means represented by the (t) test for independent samples of equal number, and the results were obtained and in the light of them, the researchers concluded that the experimental group that was studied with a problem-solving strategy was superior to the control group that I studied by the lecture method in the test of cognitive achievement and creative thinking of the subject of teaching methods for students.

Keywords: Problem-solving strategy, cognitive achievement, creative thinking

Introduction

Recent studies in all fields, including the field of physical education and sports science, tended to keep pace with the rapid development in delivering the knowledge aspect to students in various teaching ways and methods. It included scientific progress, technological development, and openness to the world. In order to keep pace with these rapid developments, we must pay attention to developing creative minds capable of thinking and creativity. And the search for solutions without the help of the teacher, who has become a course at the present time only guidance and guidance, and therefore the development of students' mental abilities has become the main goal of the educational process in all countries of the world, as the progress of countries is measured by their ability to develop the minds of their children through the use of teaching methods that students have from They have the right to participate even in part of the teaching process. The choice of teaching methods and methods is not limited to improving their levels during the learning period, it extends to periods of time that they can benefit from in their future life after graduation. Therefore, the knowledge acquisition process for everyone is continuous and does not end with the end of a school stage. The subject of teaching methods is considered as the backbone in the faculties and departments of physical education and sports sciences, whose teaching objectives are not limited to the cognitive, emotional and behavioral aspects, but extends to making the target of education (students) develop various skills such as thinking and creativity skills. A teacher of physical education and sports sciences to rely on the capabilities, abilities and experiences he acquires from the subject of teaching methods, whether in the theoretical or practical aspect, and to take advantage of methods that have a nature that makes the student preoccupied with research, thinking and investigation of how performance is by stimulating his thinking skills.

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During the current time period, most educators tended to train the teaching staff on modern methods and methods and their applications because they have a role in stimulating students' thinking to participate in their own capabilities, which has a positive effect on the learner by his preoccupation with how the performance of the question raised by the subject teacher makes him search for the correct answer. New discoveries and creative solutions, including problem-solving strategy. In the light of the foregoing, the importance of conducting this research stands out in the field of teaching methods for the second stage in the College of Physical Education and Sports Sciences through the development of the cognitive level and creative thinking of students in the subject of teaching methods, which is the common base from which to increase achievement and develop their thinking as well as encourage teachers Using modern teaching methods and methods that simulate students' thinking. The problem of the study was identified by the two researchers through his work and his experience in teaching the subject of teaching methods. The students noticed that they are accustomed to the imperative method of listening and memorizing the study vocabulary, and this in turn makes the student have narrow limits when learning, since the greatest dependence depends on the teacher only without participating in the educational process, which makes them below the required level. Also, the use of traditional methods, whether ordered or otherwise (lecture) in teaching, has led to failure to keep pace with developments that are constantly occurring in teaching. Therefore, the researchers resorted to the subject of the study to use the problem-solving strategy in the collection of teaching methods and the development of thinking skills for students through the contribution of this method by making the student through the educational unit their ability to remember, retrieve information and search for the correct solutions, which are based on the cognitive side that he already possesses. The study aimed to identify the impact of the problem-solving strategy and the lecture method on the cognitive achievement of the subject of teaching methods for second-stage students, and the impact of the problem-solving strategy and the lecture method on developing students' creative thinking skills. The hypothesis of the study is that there are statistically significant differences between the pre and post measurements of the control and experimental groups, which are taught by the problem-solving strategy and the lecture method in cognitive achievement and in favor of the dimension, as well as there are statistically significant differences between the pre and post measurements of the control and experimental groups, which are taught by the problem-solving strategy and the lecture method in developing Creative thinking skills and in favor of dimensionality.

Methodology

The researchers relied on the use of the experimental method consisting of two groups to suit the objectives of the research.

The study population and its sample

Research Community: The research community was chosen by the intentional method, represented by the students of the second stage in the College of Physical Education and Sports Sciences / University of Al-Qadisiyah for the academic year (2022-2023), whose number is (135) students. D-C) The two groups were chosen by the simple random method of drawing

lots, as (C) division was tested to represent the control group and taught in the style of the subject teacher in the lecture method, and (D) division represented the experimental group taught by problem-solving strategy, and the total sample number reached (40) students after excluding students Exploratory experience and absent students.

Equivalence was conducted between the two study groups in a number of variables that are believed to affect the results, as equivalence was conducted before the start of the experiment in the variables that play an influencing role on the experimental variable. The variables were age and intelligence by using the (Raven) test, which is a booklet that includes (60) positions in 60 pages, as well as creative thinking skills as one of the important variables in the equivalence procedure for the two groups.

Tests used

Cognitive achievement test

In his study, the researchers relied on the achievement test prepared by Muhammad Suhail, which includes three levels (remembering, application, and discovery). (Najm, 2004: 327) The two researchers identified the scientific material that is being taught by analyzing the content of the teaching methods book, which is taught for the second stage and decided by the sectoral body for students of the College of Physical Education and Sports Sciences at Al-Qadisiyah University. Teachers who teach the subject of teaching methods, with the aim of determining the classes and topics that they actually teach during the school year, and to determine the classes that obtain an agreement rate of (100%). Five chapters have been identified, which are (general methods in teaching physical education, physical exercises, types of exercises physical education, instruction, physical education lesson plan).

We're according to the type of questions, as one point was given for the correct answer and zero for the wrong and left answer. between (0 - 60) degrees. As for the essay questions, the questions of the type (define, number, draw) were given one point for the correct answer and zero for the wrong and left answer. As for the questions of the type (cause, design, analyze, give examples), two degrees were given for the correct answer and zero for the wrong and left answer. Thus, the total score for the essay questions ranged between (0-40) degrees, and thus the total score for the test ranged between (0-100) degrees (Najm, 2004: 124).

Creative thinking test

The researchers used the creative thinking scale used in the Center for Interdisciplinary Research and Studies, which consists of 30 items divided into three axes: (intellectual fluency, originality, risk) and the answer alternatives are (never = 1, rarely = 2, sometimes = 3, often) = 4)

Creative thinking levels

The degree of the scale ranges from (30 – 120)

1. If the score ranges between (0-30), then the person rarely tends to think creatively.
2. If he gets a score ranging between (31-60), then the person sometimes tends to creative thinking.
3. 3 - If he gets a score ranging between (61-90), then the person is very inclined to creative thinking.
4. If the score ranges between (91-120), then the person tends to think creatively all the time.

Creative thinking test

T	Paragraphs	Never	Scarcely	Sometimes	Mostly
1	Experiment with new ways of doing things				
2	I practice new activities or hobbies on a regular basis				
3	When I face a problem I talk to a lot of people about it				
4	I like talking to new people and not just old friends				
5	I enjoy discussions with people who have different points of view				
6	Enjoy learning about things that are new to me				
7	Make an effort to take on new challenges				
8	I am open to new ideas, even those that challenge my way of thinking				
9	Spend time thinking about how you will learn				
10	I like to think of connections and similarities between things				
11	I love activities that include patterns, such as crossword puzzles, puzzles, and picture puzzles				
12	I don't like to choose the first solution I think of for any problem				
13	I deliberately try to break my routine				
14	I love trying to solve difficult problems such as puzzles and various issues in life				
15	I make an effort to use techniques that help me think differently				
16	I'm willing to try things even if I think I'm going to find it difficult or I can't see the point clearly				
17	When I do something wrong, I review it to see what I could have done differently				
18	I try to experiment with several ideas before settling on a solution to any problem				
19	I get bored if I don't change things up in order				
20	I try to find ways to do things so they seem impossible				
21	I really don't like it when I have to change my routine				
22	I tend to use the same routes to and from work every day				
23	When I go to a party I prefer to talk to only people I know				
24	I find myself struggling to solve problems, especially when they are something out of the ordinary				
25	I find that others see patterns and similarities more easily than I do				
26	I haven't started a new hobby or interest in the past few months				
27	When I encounter a problem I tend to go with the first solution that comes to mind				
28	I prefer not to talk about problems with others				
29	I am skeptical of the benefits of new techniques and ways of thinking				
30	I really don't like thinking about what I've learned or reviewing my mistakes				

Pre-test

The researchers conducted the pre-tests for the control and experimental complexes to the test of cognitive achievement and creative thinking on 17-18/2/2023 inside the hall designated for the teaching methods lecture, taking into account the control of all conditions to ensure the smoothness of the students' response within the time specified for each test and in the presence of the two researchers and the subject teacher.

Main experience (Tutorial)

After conducting the pre-choice, the two researchers applied the educational program, which consists of (16) educational units for each group of the study groups, so that the control group works according to the method of the lecture, which is followed by the subject teacher. As for the experimental group, its work is done using the problem-solving strategy. Weeks during which the units were distributed, at the rate of two educational units per week for each group, and the time for one educational unit was (90) minutes. The two researchers, after defining the teaching material for the subject of teaching methods, presented the educational program with a problem-solving strategy to a group of arbitrators with experience and competence in the field of teaching methods and expressed their opinions and observations in the educational program for the purpose (to ensure the validity of the application of the educational program with a problem-solving strategy and the extent to which students were able to search Investigating the correct answers to the subjects raised during the lecture period, with the possibility of answering the teacher's questions and

developing solutions, the time division of the educational unit parts, the pattern of questions that were developed in order to achieve the objectives of the program, which are in accordance with the problem-solving strategy for the purpose of challenging their abilities and urging them to search for the answer correctly and give them enough time to think about it). The two researchers implemented the educational program on 22/2/2023 until 4/26/2023.

The two research groups were given the same educational material, and the lecture method was applied to the control group, Division (C). In order for the educational unit to be applied by the method of the lecture within the scheduled lesson and with the same time set for the activities of the lesson of teaching methods by the subject teacher, while the experimental group, which was studied according to the curriculum prepared by the researchers, was working according to the problem-solving strategy represented by Division (D). To study this group with the steps of the curriculum, as the teacher determines the topic of discussing the problem by providing an appropriate theoretical introduction to the subject, provided that he does not dwell on the details in order to allow thinking about the components of the educational material, the teacher reformulates the problem by preparing a set of questions, the teacher prepares the atmosphere of creativity by solving the problem for discussion according to a solution strategy Problems with reminding students of the rules of style and presenting ideas by them regardless of their right or wrong, taking into account the writing of ideas by the course assigned to each group, which is chosen by the teacher, then

They are asked to start by giving their ideas an answer to the

questions, so that the teacher discusses the students with the ideas presented in order to evaluate and classify them into original, useful, applicable and useful ideas.

Post exams

After the researchers finished applying the educational program, they conducted the post-tests for the control and experimental groups in the test of cognitive achievement and creative thinking on 4/28-29/2023 in the hall designated for the teaching methods lecture, taking into account all conditions and the same conditions as the application of the pre-tests to ensure the flow of students' response within the specified time. For each test, in the presence of the two researchers and the subject teacher.

The correction was made after the completion of the application of the tests.

Statistical means: I used the statistical package (SPSS) to extract the results of the study.

Results

Table 1: It shows the arithmetic mean and standard deviations between the pre and post reports of the control group

variants	Pre-test		Post-test		t
	s	±p	s	±p	
Creative thinking	52.85	12.82	91.50	8.90	12.96

Table 2: It shows the arithmetic mean and standard deviations between the pre and post reports of the experimental group

variants	Pre-test		Post-test		t
	s	±p	s	±p	
Creative thinking	53.85	12.82	101.20	8.36	15.75

It is clear from Table (1, 2) that the calculated (t) values are greater than the tabular ones, and this indicates the existence of a significant difference in the creative thinking test. To express on his own the ideas inside him about how to perform and move according to his level, which appear in his creative motor response that he reached with his own effort, relying on his experiences and capabilities, so that he can adapt in new situations and rely on himself in thinking, as he raises the verses, "The development of creativity can be taught and learned if The availability of suitable environmental conditions that help develop creative thinking" (1:18) The researchers add that the interaction between the strategy and the students leads to them going through all the mental thinking processes, because its goal is to stare at their abilities and make them preoccupied with thinking and searching in memory for the correct answer, and the student goes through all the mental thinking processes In every situation and without a break in it, and the students' continuation of that led to an increase in the growth of the mental processes acquired by the students, which increased the development of their creative thinking as a result of following the correct learning process, which is gradual, as (Zafer Hashim) indicates, "It is one of the natural phenomena of the learning process." There must be a development in learning as long as the teacher follows the steps of the sound foundations of learning and teaching, and for the beginning of learning to be sound, the explanation, presentation and rehearsal should be clarified on the correct performance and focus on it until the performance is consolidated and stable" (2: 102). Unlike the control group, which relied on the lecture method and relying on the teacher

of the subject, who is the focus of the educational process without resorting to the use of creativity despite their possession of knowledge information. For the student in a form that does not exceed the first level of Bloom's classification, which is knowledge and memorization" (3: 105).

Table 3: It shows the arithmetic mean and standard deviations between the two control groups Experimental cognitive achievement test

Exam parts according to the level and style of questions	the control group		experimental group		t
	s	±p	s	±p	
to remember	26.33	1.72	30.53	1.62	7.77
application	26.38	2.27	29.24	1.16	4.93
Discovery	15.11	1.39	17.85	1.34	6.22
objectivity	41.22	1.81	46.09	2.58	6.76
his pans	26.6	24. 2	31.53	2.14	6.94
Creative thinking	91.50	8.90	101.20	8.36	36.71

It is clear from the table that the calculated values of (t) are greater than the tabular ones, and this indicates that there is a significant difference in the cognitive achievement test in the subject of teaching methods between the two groups. By reviewing the arithmetic circles, the difference becomes clear in favor of the experimental group that was taught by the problem-solving strategy. The researchers attribute the reason for the progress of the experimental group To the problem-solving strategy that was applied in teaching the subject of teaching methods, the problem-solving strategy is one of the educational strategies that rely on modern technologies involved in all aspects of life, especially education, some of which are concerned with the cognitive side, and some of which are concerned with the applied side to help the learner, and every aspect of this The strategy has its own specificity as it targets a specific corner of learning.

The researchers also attribute the reason for this result to the fact that the questions that arise in the strategy, which give rise to vitality and activity during the lesson, especially in a collective atmosphere dominated by familiarity and cooperation, prompt the students to think, conduct discussions, and search for knowledge solutions to the material that the teacher raised the question about, as Moses raises"

Achievement tests aim at improving the learning and teaching processes more than determining grades, and the importance of that is focused on a better understanding of student learning in order to lead to an improvement in teaching methods and philosophy, objectives, or content" (4: 75). It is clear that it takes into account and encourages group discussion and takes into account individual differences among students. This was clear because the prepared educational curriculum contained all the elements that would bring about the learning process, as (Najah Shalash) indicates that "educational programs help the player or the learner to know how much The maturity that he has reached in order to be able to organize the educational situations that lead him to the correct results, as well as to be able to know the causes of the mistakes he makes when acquiring the skill, and appropriate training for maturity means effective training that achieves the correct results, because if this is not done, then it will be a waste of time and effort (5:118).

Conclusions

1. The superiority of the experimental group that was taught

by the problem-solving strategy over the control group that was taught by the lecture method in the cognitive achievement test of the subject of teaching methods.

2. The preferential effect of the problem-solving strategy from the lecture method in developing students' creative thinking.

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