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Effect of Learning Strategy Based on the Problem on the teaching and improvement of Learning Processes for the Students of Physical Education Teaching Methods

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Abstract

The aim of present study is to know the effect of learning strategy based on the problem on the teaching and improvement of learning processes for the students of physical education teaching methods. Sixty two (62) students from faculty of basic education-University of Mustansiriya in Baghdad province were selected intentionally assigned into two groups (n=62), where each group consisted of 31 students. An experimental research design was used because it is suitable to the nature of the study. Research tool is a test of science processes that was made by Al-Saify (2002) which including 31 graphs. The study was conducted in 2012-2013 and data was analyzed by using SPSS. However, our conclusions confirmed that using learning strategy based on the problem has a positive effect on learning processes for the students of physical education teaching methods and improve mental capacities for students. In addition, it helps to improve discover processes.

***Keywords*:** Learning strategy, learning processes, teaching methods, physical education.

1. Introduction

The teaching strategies pursued by the teacher in the classroom are necessary elements which enable the teacher to train his students to solve problems and to equip them the skills, processes and patterns of thinking they need. However, learning-centered strategy or based on the problem is one of these strategies that have proven effective in this aspect. This strategy is part of the radical changes in the perception of teaching and how is given to the learners.

This kind of learning increasingly prevalent with time because it provides the student open learning positions which different of traditional teaching methods. The modern learning involves specific skills should be teaching to students such as problem-solving skills, communication skills, learning skills with meaning, and the skills of science operations, this is what we find available when apply the learning strategy based on the problem because this kind of learning works to provide scientific material for students in design of scientific problems lead to revitalize activity in the ration. Learning strategy based on problem different of problem solving strategy in a number of matters. The strategy of the problem solve can be used without requiring curriculum design (and teaching units) as required by learning based on the problem. Strategy of problem solving is mostly achieved during learn concepts and principles by strategies and methods differently, the role of strategy is to use concepts and educated principles and employed in solving the academic and life problems, so the importance of present study is to provide teaching strategic reduce the emphasis on conservation and develop other aspects among female students such as science operations in response to many of the recommendations and researches on a global and local level which calls attention to the need for the development of learning processes.

The reality of teaching in our schools still rely on the lecture and indoctrination which is a major drawback negative learner, the abolition of motivation, save the information, and repeated without understanding, this was confirmed by many studies (Gawth, 1987; Zaror 1987; Alsharqi, 1993). There is no doubt that the nature of teaching methods of physical education has a special importance for the other subjects because they allow to the learner the opportunity for discovery and innovation, and the development of the scientific method of thinking for the learner which qualifies him to address the surrounding environmental problems. Several studies focused on using different teaching strategies, trying to find out the impact of these strategies in the development of various aspects of learning such the collection, direction, and innovation, this studies varied in their results which leaves the door open for further studies. Present study is trying to investigate the effectiveness of the teaching strategy and help students in building their knowledge of themselves through provide different positions to them.

So improves the science operations and training to use in daily life of students are main objectives which must be achieved by teaching in general and teaching physical education materials in particular, the careful check to the current school environments can be easily observed the limits of modernity in this aspect. There is an urgent need to focus on give students these skills through the use of certain methods and teaching strategies for example learning strategy based on the problem. Through practical experience in the field of teaching and supervising, researchers have seen there is no adequate attention in the preparation of the person who is able to solve the problem and attention to science operations which leading to graduation lacked generations are not able to deal with the problem in scientific method. However, the main aim of faculty of basic education Mustansiriya University generally and the department of physical education in particular is to improve science operations and training strategies.

Moreover, identify the impact of the learning strategy based on the problem in the teaching and development skills of science operations for methods of physical education teaching.

2. Methodology

Researchers used experimental design method which consisted of (experiment and control groups) because it is suitable to the nature of present study.

2.1 Subject

Society of study included whole students of forth class of physical education department\ faculty of basic education Al-Mustansiriya University, years of 2012-2013 and study part was the seventh. Number of sample is 62 girl student assigned into two groups (experiment and control groups). Experiment group used teaching strategy which based on problem, whereas second group (control) used normal teaching. However, we achieved an equal between two groups in science operations before teaching our method, so we can see the results in table (1) as following:

Table (1)
Shows mean, stander deviation, and T test for both groups

Groups	Mean	SD	T test	Freedom degree	Significant
Control	11.1	3.78	0.243	122	No
Experimental	11.2	4.33			

No significant at the level less than 0.05 and freedom degree 122.

Table (1) showed that no significant differences between middle of both groups degrees, so the two groups are equal in science operations test.

2.2 Study materials

We divided study materials into:

2.2.1 Teacher guide: which including

1. Theoretical introduction about teaching strategy based on problem, such as what is it, it is benefits, philosophy of teaching which connect with it and how using them inside class.
2. Lessons depend on learning strategy based on the problem are vocabularies of physical education teaching methods which including aims, activities and scientific issues, and methods of evaluation.
3. References and internet sites can be important to the teacher to benefit of them.

2.2.2 Student guide

It was prepared to help the student to study the unit by using a learning strategy based on the problem. Guiding is included a simple theoretical background and worksheets for each lesson of the unit lessons by using the strategic. However, worksheets included a scheme about students working plane by depending on learning based on problem.

2.3 Study tool

It is a science processes test which was made by Saify (2002) on a great sample similar to present study sample. This is one of the reasons to select this test, as has already been introduced on a large sample of arbitrators, in addition to knowledge of persistence which amounted to (0.80) using the stability of internal consistency. The test is consisted of 31 items, the choice is multiple and included number of science processes as shown in table (2).

Table (2)
Shows distribution of the test items on science operations

Science operations	Numbers of items	Account
Observe	11 ،9 ،1	3
Classification	27 ،18 ،14 ،13	4
Inference	23 ،17	2
Conclusion	29 ،25 ،19 ،4 ،3	5
Use numbers	21 ،16 ،12 ،8 ،2	5
Explain	26 ،7	2
Forecasting	30 ،20،22	3
Hypotheses impose	31 ،28 ،6	3
Adjust the variables	24 ،15 ،10 ،5	4
Total		31

Evidences has been showed after complete on the number of arbitrators from the professors of physical education department in the faculty of basic education Al-Mustansiriya, and a number of educational supervisors and teachers. However, arbitration is aimed primarily to review the evidence from the scientific and educational and directorial aspects.

2.4 Scientific research procedures

First: Identify the unit which will be applied in the study to be the first unit (physical exercise and divisions).

Second: Reorganization of the selected unit in line with the learning strategy based on the problem.

Third: Prepare a teacher guide which including lessons from the selected unit building on the learning strategy based on the problem designed for the use in the teaching process and shows it to the arbitrators to verify the truthfulness.

Fourth: Prepare the student handbook to be used while teaching by using learning strategy based on the problem and verify the truthfulness.

Fifth: Select two classes for the experimental group and two classes for the control group randomly.

Sixth: Science operations test was used by the study sample (experimental group and the control group). The aim is to ensure equality of the two groups in the science operations before the starting of the study.

Seventh: Chose work team for the teaching of experimental and control groups and training them on the teaching by using learning strategy based on the problem.

Eighth: The actual using of the proposed unit for a period of 8 weeks by (16) educational unit.

Ninth: Using science operations test again by the study groups after completed of teaching learning unit directly.

Tenth: Perform statistical analysis suitably to get good results and discos them.

2.5 Steps of experimental group teaching

1. Division the students into cooperative groups (each group consisting of 5-6 students) so as to adjust the impact of cooperative learning.
2. After introduction of the lesson, the teacher is given a simple introduction about the problem at hand that is related to the lesson.
3. We would distribute the working paper to the students which included the steps of problem solve, and diverse sources of magazines, books or references or from the international information network.
4. Teacher is determined the time to achieve the task and her role in this part is to make learning operation easy.
5. Students discuss the problem and solve it.
6. After completed the time of groups, teacher will discuss the groups about their solutions that got them and confirm the best solution then will give the information which not discussed.
7. Teacher will state the points which not showed by groups such as show slides or part of movie.
8. Teacher can be evaluation work of groups.

2.6 Statistical analysis

Researchers used SPSS to find out the differences and statistic treatment by depending on the questions of study.

3. Results and Discussion

Results for the first sub-question: What is the difference between the means in grades of two study groups in the test of science operations?
To answer this question, the means, standard deviations, and independent T test of the performance of the control group and the experimental group were calculated for each process of science operations and at the test as a whole (table 3).

Table (3)
Shows means, standard deviations, and independent T test of the performance of the control group and the experimental group in science operation test

Operation	Groups	Mean	SD	T test	Freedom degree	Significant
Observe N= 3	Control	1.37	0.84	1.216	122	No
	Experiment	1.58	0.93			
Classification N= 4	Control	1.91	0.73	0.590	122	No
	Experiment	2.02	1.06			
Forecasting N= 3	Control	1.24	0.86	0.099	122	No
	Experiment	1.26	0.96			
Explain N= 2	Control	0.68	0.67	3.098	122	S
	Experiment	0.97	0.727			
Inference N= 2	Control	0.89	0.68	2.166	122	S
	Experiment	1.16	0.73			
Conclusion N= 5	Control	1.92	1.08	2.202	122	S
	Experiment	2.37	1.20			
Use numbers N= 5	Control	2.26	1.04	2.722	122	S
	Experiment	2.81	1.20			
Adjust the variables N= 4	Control	2.32	1.13	0.297	122	No
	Experiment	2.40	1.81			
Hypotheses impose N= 3	Control	1.15	0.87	2.092	122	S
	Experiment	1.48	0.94			
Total performance	Control	14.9	4.41	2.301	122	S
	Experiment	16.7	4,84			

N= number of items. Each item= one degree

We can observe from the above table that the mean of the performance of experimental group students (who studied by learning strategy based on the problem) was higher than the performance of the control group (who studied by depending on the prevailing method), where the mean of the first group (experimental) was 16.7 with a standard deviation of 4.84, either for the mean of second group (control group) has

reached 14.9 with a standard deviation of 4.41, and the difference between the means statistically significant at the level of $\alpha \leq 0.05$. This results can be attributed that students of the experimental group (who studied by learning strategy based on the problem) gained science operations during the exercise of this type of learning, since the problems which approached to subjects of unit studied by the students did not gain only the content but they gained a set of mental and scientific skills such as analysis, interpretation, and the conclusion and the imposition of hypotheses.

Chun-Yen and Barufaldi, (1999) sees as stated by Ibrahim (2004) that learning based on problem is not based only on the knowledge and information (know what) but beyond that through focus on cognitive measures (ie. find out how), where (know what) enables learners to acquire only theoretical knowledge while (find out how) enables learners to use the knowledge and concepts in new situations. this application requires the use of a set of mental skills (science operations) such as observation, interpretation, and conclusion and others. Duch (1996) confirmed that students in the learning strategy based on the problem passing with experience is known as (Science exercise), which means using the skills of different science operations previously mentioned in the access to information.

Moreover, this type of learning is not provide ready information to students but the learner himself searched for and accessed through multiple sources for example scientific books, encyclopedias, and electronic sources (ie: Internet). To do this, the learner uses a set of skills such as observation, forecasting, conclusion, reasoning, and analysis, thus the student acquires the information and grow with him. However, the female students in the control group was not improved, Sonmez (2003) pointed out that the problems provided to students in learning based on problem method confirm and work to acquire and develop different thinking skills (science operations), and analysis skill. It is also concluded from table (3) that experimental group was better than control group in performance in five operations (ie: Explanation, inference, conclusion, number using, and hypotheses impose) where means amounted (0.97, 1.16, 2.37, 2.81, 1.48), while means of the same operations for the control group were (0.68, 0.89, 1.92, 2.26, and 1.15).

However, no significant differences between two groups in (observation, classification, forecasting, and adjust of variables) because of teaching by using learning strategy based on problem focused on specific science operations acquire and improve it more than other. The problems provided to the students in learning science operation based on problem method which needed to explanation, inference, conclusion, hypothesis impose, and numbers using were very clear when compare it with prevalence method which was not clear or because biology teacher was not focused on continent. Means of other operations for experimental group which studied depending on learning strategy based on problem were higher than means of control group which studied depending on prevalence method but it is not significant, we can

confirm that these operations are not needed a large effort by teacher to improve them and we can improve them by the prevalence method.

Results for the second sub-question: What is the difference between means of degrees of two groups in pre and post-studies for science operations test?

To answer this question, the means, standard deviations, and independent T test were used to know significant between means of pre and post-tests. So researchers divided results of question to two tables, table (4) concluded basic science operations (Observation, classification, forecasting, inference, conclusion, numbers using), and table (5) included integrative science operations (Explanation, variables adjust, hypothesis impose, and whole performance), the aim of the division is to make it easier to the reader.

Table (4)
Shows means, standard deviations, and independent T test of the performance of the control and the experimental groups in science operation of pre and post-test (Basic)

Operation	Groups	Type of test	Mean	SD	T test	Freedom degree	Significant
Observe N= 3	Control	Pre	1.08	0.89	1.82	61	No
		Post	1.39	0.84			
	Experiment	Pre	0.89	0.52	4.56	61	S
		Post	1.58	0.93			
Classification N= 4	Control	Pre	1.62	0.95	1.96	61	No
		Post	1.92	0.73			
	Experiment	Pre	1.61	0.93	2.42	61	S
		Post	2.02	1.06			
Forecasting N= 3	Control	Pre	0.72	0.81	3.61	61	S
		Post	1.24	0.86			
	Experiment	Pre	0.95	0.84	1.87	61	No
		Post	1.23	0.96			
Inference N= 2	Control	Pre	0.42	0.50	0.127	61	No
		Post	0.58	0.67			
	Experiment	Pre	0.66	0.65	3.92	61	S
		Post	1.16	0.73			
Conclusion N= 5	Control	Pre	1.50	0.90	2.32	61	S
		Post	1.92	1.07			
	Experiment	Pre	1.37	0.98	5.31	61	S
		Post	2.37	1.24			
Use numbers N= 5	Control	Pre	1.90	1.05	1.96	61	No
		Post	2.26	1.04			
	Experiment	Pre	2.03	1.01	4.01	61	S
		Post	2.81	1.20			

Table (4) showed improvement in science operations skills for experimental group which studied by using learning strategy based on problem in whole science operations have been previously mentioned in table (4) but no in forecasting, where means of science operations in pre-test were (0.89, 1.61, 0.66, 1.37, 2.03) while in post-test (1.58, 2.02, 1.16, 2.37, 2.81) this differences are significant whereas no significant differences between pre and post- test in forecasting skill. No significant differences were showed for control group who used prevalence method in science operations such observation, classification, inference, and numbers using while was significant in forecasting and conclusion skills. However, table (5) showed integrative science operations.

Table (5)
Shows means, standard deviations, and independent T test of the performance of the control and the experimental groups in science operation of pre and post-test (integrative)

Operation	Groups	Type of test	Mean	SD	T test	Freedom degree	Significant
Explanation N= 2	Control	Pre	0.42	0.50	1.56	61	No
		Post	0.58	0.67			
	Experiment	Pre	0.56	0.597	3.67	61	S
		Post	0.97	0.727			
Variables adjust N= 4	Control	Pre	1.35	0.777	5.11	61	S
		Post	2.32	1.13			
	Experiment	Pre	1.66	0.947	2.70	61	S
		Post	2.02	1.82			
Hypothesis impose N= 3	Control	Pre	1.03	0.75	0.766	61	No
		Post	1.15	0.87			
	Experiment	Pre	0.98	1.41	2.33	61	S
		Post	1.48	0.94			
Whole performance N= 31	Control	Pre	11.1	3.78	5.39	61	S
		Post	14.9	4.11			
	Experiment	Pre	11.2	4.33	6.56	61	S
		Post	16.7	4.84			

Table (5) showed that experimental group was improved significantly between pre and post-test in integrative science operations where means of these skills were (0.56, 1.66, 0.98) while in post-test (0.97, 2.02, 1.48). The control group was improved significantly in the operation of science (variables adjust) only, where mean of the performance of students in the pre-test (1.35) while in the post-test (2.32). Moreover, the table showed there is an improvement in the performance of students of the experimental and control groups between the two tests (pre and post-test) of whole test, where the mean of experimental group in the pre-test was (11.2) while in the post-test (16.7), while for the control group was mean for the performance of students in the pre-test (11.1), and in the post-test (14.9), although the improvement was greater

when the students of the experimental group. However, we can say that learning strategy based on problem helped students a lot in an improvement most of science operations which was tested in the present study because of using science operation through search about information in the different sources and find a solution for these problems. Gagne as stated in the Najdi and Rashid (1999) indicated that science operation is an acquire behavior which can be learned and trained and can be generalized and transferred to other aspects of life, since many of life's problems can be analyzed and propose appropriate solutions when achieve of science operations. Greenwald (2000) indicated that learning based on the problem helps students to acquire science operations because they practice it during their search for the sources of knowledge to solve problems given to them. Hassard (2005) see that there is a very strong relationship between the acquisition of the student for science operations and its ability to solve problems because solving problems require carrying out different thinking.

4. Conclusion

Our conclusions confirmed that using learning strategy based on the problem has a positive effect on learning processes for the students of physical education teaching methods and improve mental capacities for students. In addition, it helps to improve discover processes.

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