

THE IMPACT OF THE PROBLEM-SOLVING STRATEGY IN STIMULATING STUDENTS' MOTIVATION TO LEARN SCIENCE

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ABSTRACT: *The study aimed to identify the impact of problem solving strategy in stimulating motivation of students to learn science, and to achieve the objectives of the study followed the researcher descriptive analytical approach in terms of application of the study tool and data collection and analysis, and the study population of all eighth grade students in the Directorate of Education Jerash. The sample of the study consisted of (30) students of eighth grade in Al-Fadl Ibn Abbas Elementary School for Boys. The study found that there is an impact of problem solving strategy in stimulating students' motivation to learn science. The problem solving strategy contributes (65%) Encouraging student motivation to learn science, and recommended the researcher to work to mainstream the problem-solving strategy in all regions of the Hashemite Kingdom of Jordan because of its many benefits stimulate the motivation of students to learn.*

KEYWORDS: Problem Solving, Science, Motivation.

INTRODUCTION

The overall goal of education is to help the learner to grow comprehensively to the maximum of his abilities and preparations. Therefore, the educational objectives must be carefully and clearly formulated in order to select the content in light of this. In addition, the teaching methods and methods appropriate to the teaching and learning process With the aim of delivering knowledge to the student and the experience that enables him to keep up with life and face the social variables and problems that may arise before him.

Mara'i and Al-Thaila (2014) explained that the traditional curriculum neglected the students' tendencies, their values and their readiness, and overlooked individual differences. The teacher became a communicator, a communicator and a student. The scientific and technological progress and progress have changed the objectives of education. Education and psychology changed much of what was prevalent about the nature of the learner and his psychology and revealed a lot about the characteristics of his growth and needs and tendencies in addition to his abilities and skills and preparations, all contributed effectively to the shift to the view that good education is based on motivation Learner to achieve his goals and build his own experiences through experimentation and problem solving.

The use of modern teaching methods gives joy to both the teacher and the learner and kills their boredom, and opens the doors to freeing their creative energies, especially if the best method is used in the appropriate place of the subject of the lesson (Ibrahim, 2004).

One of the most important ways to stimulate the learner's motivation and keep him away from the traditional reality of education in the form of memorization and remembering, as mentioned

by Obaidat and Abu Al-Sameed (2007) is the method of solving problems. The learner's situation in front of real problems felt and lived gives him opportunities to understand, use and apply in similar situations, You encountered him in his life. In this regard, Al-Azzawi (2009) argues that the problem requires a thinking that challenges the individual to reach a solution. Hence, it is important to have a clear goal for the individual who seeks to achieve it. In the view of Marei and walhila (2013) that the skill to face problems is one of the basic skills that a person should learn and master in the present era characterized by many variables interlocking.

Problem of The Studying:

The researcher noted through his practical experience as a teacher of the science of weakness in the direction of students towards the study of this article, and perhaps one of the most important reasons for this is the use of teachers often to traditional methods and strategies in teaching based on indoctrination does not contribute to stimulate the motivation of students to learn science.

The problem of studying the impact of problem solving strategy has been to stimulate students' motivation to learn science.

Questions of The Study:

1. The impact of the problem-solving strategy in stimulating the motivation of students to learn science.

Objectives of the study:

1. Learn about problem solving strategy.
2. Identify the impact of problem solving strategy in stimulating students' motivation to learn science.

Study Hypotheses:

H₀: There is no statistically significant effect at the level of significance ($\alpha=0.05$) of the problem-solving strategy in stimulating motivation of students to learn science.

Importance of The Study:

The study derives its importance from being an attempt to find out the effect of using problem solving strategy in stimulating students' motivation to learn science.

1. Add new generalizations and ideas about problem solving strategies, especially how to plan lessons in this strategy in science education.
2. Provide an instructional guide using a problem-solving strategy that may help address the student's low motivation to learn science.

Terminology of The Study:

Problem Solving Strategy: Problem Solving is a process of thinking in which an individual uses his acquired knowledge, previous experience and skills to respond to the requirements of an unfamiliar situation. (Ahmadi, 2008)

Motivation: An internal process that directs an individual's activity towards a goal in his or her environment. It is an internal state that moves and directs the behavior, and that any activity by the individual does not begin or does not continue without motivation (Ibrahim, 2004)

Limitations of The Study:

1. Human Limit: Eighth grade students in the public schools in Jerash Governorate.
2. The time limit: the second semester of the academic year (2017/2018).

The Theoretical Framework of The Study:

The contemporary world is witnessing an explosion of knowledge, and the development of increasing and accelerating in all areas, which generated more attention by researchers and specialists in the field of education to find methods, methods and strategies of education in line with those variables. There have been many researches and studies that pay attention to the student's tendencies and preparations and aim to stimulate his motivation to learn.

Problem Solving Strategy:

The problem is when the individual has a goal and has not yet identified ways to achieve that goal, while solving the problem is the ability to identify and use knowledge and skills to achieve the goal.

The problem-solving strategy is defined as an educational activity in which the student faces a problem (a question or a question) and seeks to find solutions to it. He has to take steps in a style similar to the steps of the scientific method of research and thinking. (Abu Jado, 2004)

And defined by Swanson and Eitel - as a kind of mental activity based on mental challenge and mental competition, the individual in this situation must be ready for what exists and inventory in the working memory and the processing and preparation and processing of this content to solve the problem. (Abu Shahada, 2013)

Establish and principles of problem solving strategy:

1. Identify the problem.
2. Gather data and information related to the problem.
3. Proposing temporary solutions to the problem (imposing hypotheses).
4. Choose between temporary solutions to the problem and choose the appropriate solution / solutions.
5. Planning to implement the solution and experiment.
6. Evaluate the solution. (Abu Awad, 2011)

Steps To Resolve The Problem:

Educators and psychologists concerned with problem solving education have developed a number of guiding lines that guide the teaching of problem solving and can be expressed in the following steps:

1. Identify & Understand The Problem:

By helping the student to identify the nature of the problem expressed in light of what he will be able to do when the problem is solved. To understand the problem, the teacher asks several questions such as:

- a. Can you explain the problem in your own way?
- B. What is required to solve the problem?
- C. What data are given?
- D. Are there any data we do not need in the problem?
- E. Are there data decreases and will you need to reach the solution?

And. Can you find a relationship between the desired solution and the data in the problem? Is the problem still as it initially appeared to you or has it become more familiar to you?

2. Call Concepts Related To The Problem:

Make sure that students have all the concepts and principles associated with the problem needed and can then help them analyze and see the links that may lead to the solution, by giving them instructions to the aspects of the problem, and remind them of the characteristics of some aspects.

3. Proposing the solution plan (or developing it). In order to do so, the teacher raises some questions such as:

- a. Have you seen a similar or similar problem before related to this problem?

And what was solved?

- B. Can you use this solution to resolve the current problem?
- C. Can you try to simplify the current problem by solving a simpler problem?

4. Implementation of the solution plan:

And the use of a variety of problems to reach the final product as a solution to the problem with questions such as:

- a. Have you used all the information given to you in the solution plan?
- B. Did you observe all the conditions and understand all the relationships?

5. Achieving the solution (evaluation):

In order to ascertain what reached the student as a solution to the problem and review, by asking some questions such as:

- a. Does the solution reached achieve all the conditions mentioned in the problem?
- B. Are there solutions other than the solution I reached? (Khatib and Ababneh, 2001)

Motivation to learn

The motivation is one of the most important pillars that contribute to increasing the student's ability to learn and achieve the desired objectives of the subject. It also works to integrate the student in the educational process, and increase discipline in the classroom, it raises thinking and distancing students from different dispersions within the classroom.

Types of Motivation

A. Primary motivations: They are called innate or genetic, and the primary motivation is due to genetics that are directly related to human life and its basic physiological needs. The most important of these motivations is hunger, thirst, motherhood and sexual motivation.

B. Secondary motives: They are called acquired, social or learned motives, and arise as a result of the individual's interaction with the environment and the different social conditions in which he lives. Each of these motives has an impact on the human being and cannot be underestimated the impact of any of these motives at the expense of other motives. (Zahrani, 2014)

Motivation and its Relationship to Learning:

If motivation is a means to achieve educational goals, it is one of the most important factors that helps to acquire the knowledge, understanding, skills and other goals that we seek to achieve, such as intelligence and past experience. Learners who are highly motivated are more effectively studied while learners Those who do not have high motivation may become rude and cynical within the classroom. (Metropolitans, 2013)

Basic needs are strong motivations in man and represent the energy that directs behavior towards a particular purpose. The complex behavior does not usually emanate from one need. In other words, the student does not have a single need. For example, a student who edits a school journal may spend a lot of time reading newspapers and writing articles and spending hours after school. This activity may be related to satisfaction of several needs such as the need for success and appreciation and the need to feel the importance and the need for independence and the need for achievement. (Abu Allam, 2001)

Therefore, the teacher (as a result of his important role in the educational process) plays the role of mediator in the process of saturation and motivation (motivation) of students.

METHOD AND PROCEDURES

The population of the study:

The study population consists of all the students of the eighth grade in Jerash governorate (1681). The sample of the study consisted of students of the eighth grade in Al-Fadl ibn Abbas elementary school for boys by (30) students randomly selected.

Study Tool:

The researcher developed one main research tool, a questionnaire consisting of (20) paragraphs to measure the impact of problem solving strategy in stimulating students' motivation to learn science.

Statistical processing:

The data of this study were processed according to the following methods:

1. Use the Chronbach's Alpha parameter to determine the stability of the tool.
2. Mathematical averages and standard deviations.
3. Simple linear regression analysis.

Reliability of the Study Tool:

The researcher applied the tool on a survey sample of the study population of (15) student to calculate the Reliability of the study tool through the equation of the consistency of internal consistency (Split – half) and corrected by the equation of Spearman Brown, and the following table indicates the value of stability and corrected stability value.

The reliability coefficient was (0.68) in this study, while the corrected reliability coefficient (0.80) was acceptable in this type of humanitarian studies. See Table (1).

Table (1) The study tool reliability coefficient

Corrected reliability coefficient	Split – half reliability coefficient
0.80	0.68

$$\text{Corrected reliability equation} = 2 \times \text{split – half reliability coefficient} / 1 + \text{split – half reliability coefficient}$$

Data Analysis and Testing of Study Hypotheses:

HO: There is no statistically significant effect at the level of significance ($\alpha = 0.05$) of the problem-solving strategy in stimulating motivation of students to learn science.

To answer this hypothesis and determine its validity, the researcher sought to analyze the simple linear regression as follows:

Table (2) Simple linear regression analysis

Problem Solving Strategy	T	sig	F	DF	sig	Prediction coefficient
	5.69	0.000	16.25	1 28 29	0.000	0.650

By looking at the previous table, we find that there is a statistically significant effect at the level of ($\alpha = 0.05$) of the problem solving strategy in stimulating students' motivation to learn science. The calculated value of (F=16.25) is greater than the value of (F) Worth (4.20).

And thus accept the alternative hypothesis and reject zero, as shown in the previous table that the problem-solving strategy contribute (65%) in stimulating the motivation of students to learn science, that it has the greatest impact on the other variables and factors that can contribute to stimulate student motivation to learn, With a science teacher, or other variables.

The researcher explains the previous outcome of the strategy of solving problems by activating mental work and stimulating thinking, which makes the student to make the best effort to learn this article, especially if the teacher followed with some moral support, to ensure continuity of the student in the effort and solve the problems that may face.

Results

1. There is a statistically significant impact of problem solving strategy in stimulating student motivation to learn science.
2. Problem solving strategy contributes 65% to stimulate students' motivation to learn science.
3. The students of the basic stage tend to learn through modern teaching methods.

Recommendations

1. Work on mainstreaming problem solving strategy in all regions of the Hashemite Kingdom of Jordan because of its many benefits to stimulate students' motivation to learn.
2. Conducting workshops and training courses for science teachers to illustrate the importance of such strategies in stimulating students' motivation to learn.
3. Integrate such strategies into the student curriculum to become a general approach to all educational materials.

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