



# Effectiveness of “Mantle of the Expert” In Creative Thinking Skills

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**Abstract-** This study aimed at investigating the Effectiveness of Mantle of the Expert in creative thinking Skills among the 7<sup>th</sup> Graders. The study conducted on a sample of 7<sup>th</sup> Graders at Kober Secondary Boys School and Upper Kober Elementary Girls School. The study sample consisted of (100) students split into two groups (experimental and control). The researcher adopting the Torrance test for creative thinking the verbal image "A", and designing a teacher book for the (Engineering and Measurement) unit according to the mantle of the expert strategy.

This study adopted quasi-experimental design. It included two groups (experimental and controlled) in two branches (males and females) for each group. The controlled group was taught by using the traditional method whereas the experimental group by the mantle of the expert. The data analyzed using (ANCOVA) test to measure the differences in the development of creative thinking between the control and experimental groups.

The Conclusions showed that there are statistically significant differences in the mean scores of the creative thinking test due to the way, gender and interaction between them.

Based on the Conclusions of the study, the researcher recommends the need to use the mantles of the expert in the teaching of mathematics.

**Keywords-** *Mantle of the Expert Strategy, Creative Thinking, ANCOVA*

## I. INTRODUCTION

The Twenty-First Century is witnessing great scientific and technological developments in all fields. This development has been greatly reflected in the learning process. It includes curricula and teaching methods. In order for the curricula to cope with this rapid development and to cope with the age of cognitive explosion and the tremendous technological revolution, Students' learning is the most important product through the search for their needs and tendencies and their strengths and weaknesses. Therefore, it has become an urgent need to diversify the methods to achieve the desired goals and

to use more interesting and exciting methods, and directing their energies towards the achievement of these goals, which are the basis for many of the goals in the process of life.

Mathematics is one of the subjects that aims to develop creativity and creative thinking. It also reveals the abilities of creative thinking and its development among the learners at all levels. Mathematics is primarily a way of thinking and a way to deal with mental problems. Therefore, successful teaching of mathematics provides learners with the abilities and methods of thinking. Creative [1].

A number of educational theories emerged in the history of education based on a number of methods and strategies used in teaching which have a great advantage in the development of skills, the most important of which is structural theory, which calls on the learner to build his own knowledge through his analysis of new educational attitudes and linking them to his knowledge and information. The teacher was a mentor. There were many teaching strategies that started from constructivism. My strategies were the mantle of the expert and the role played by the strategies that translated the ideas of social structure.

The expert mantle devised by British expert [2] is based on the involvement of students in group work as teams working in collaborative environments that anticipate challenges in the real world. Instead of futile competition, each individual achieves achievement. The mantle of the expert is a cooperative, interactive and capable group. Meditation through a model relationships and network tasks are integrated into a flexible context, All students are asked to ask questions, negotiate, settle, take responsibility, cooperate and work together to serve something outside themselves. Their energies are focused on these interactions and thus develop awareness of their own knowledge and competence. They are effective in learning not only cognitively, but socially. They also reflect the level of their understanding and awareness in responding to the various tasks required of them, thinking of their perceptions from within and outside the context. The mantle consists of four elements: the responsible team, the client, the delegation and the mission [3].

This study came to reveal the effect of the strategy of the mantle of the expert in the development of creative thinking skills among 7<sup>th</sup> Graders.

## II. METHODOLOGY

### A. Problem of The Study

The problem of the study is to reveal the Effectiveness of the strategy of the Mantle of the expert in the development of creative thinking among 7<sup>th</sup> Graders.

### B. Objectives of the Study

The aim of this study was to investigate the Effectiveness of teaching using the strategy of the mantle of the expert in the development of creative thinking skills among 7<sup>th</sup> Graders

### C. Importance of the Study

The importance of this study is that it may contribute to the development of creative thinking skills among 7<sup>th</sup> Graders.

### D. Questions of the Study

The study attempted to answer the following Question:

What is the Effectiveness of using the strategy of the mantle of the expert in the development of creative thinking skills among 7<sup>th</sup> Graders? Is this Effectiveness different depending on the method of teaching and Gender and interaction between them?

### E. Hypotheses of the study

The study question was converted to a Null hypothesis:

The Null hypothesis, which states: "There are no statistically significant differences at the level of statistical significance ( $\alpha \leq 0.05$ ) in the Arithmetical Means of the Grades of Creative thinking among 7<sup>th</sup> Graders due to the method of teaching, Gender and Interaction between them"

### F. Limitations of the Study

Objective: This study was applied to the unit of engineering and measurement from the book of mathematics for the 7<sup>th</sup> grade approved by the Palestinian Ministry of Education according to the Palestinian Curriculum.

Human Boundaries: This study was limited to 7<sup>th</sup> Graders in public schools.

Time Limits: This study was applied during the first semester of the academic year 2019/2018.

Conceptual Boundaries: The study was conducted in terms of the terms used in the research, and within the nature of the concepts used.

### G. Terminology of Study

Strategy: the teacher's plans to help the learner gain experience in a particular subject, in a planned, organized and sequential manner so that the ultimate goal of learning [4].

Strategy of the Mantle of the Expert is a strategy based on the drama that is exciting in the process of teaching and learning. The basic idea is that the students learn the curriculum as if they are a group of imaginary experts, that they discover their learning and learn through special responsibilities and that this approach has learning outcomes that result from it A relationship to cognitive and social development, as well as their relationship to life skills [2].

Creative thinking: The process of sensing problems, recognizing gaps and lack of information, searching for predictable solutions, and re-formulating hypotheses in the light of their testing to generate new solutions by using the available data and then disseminating the Conclusions and presenting them to others [5].

### H. Theoretical framework

#### 1) Strategy of the Mantle Expert

This strategy aims to move the learner from his place to the neighboring growth zone. This strategy is an integrated approach that provides the students with the skill of knowledge. The student sees any event in front of him in many ways.

[2] Describes this educational approach as a flowing river provided by many of its feeding tributaries, as opposed to traditional education that resembles a monolithic road leading to a linear path, which is difficult to achieve integration and interconnection in the knowledge and development of the necessary skills at the end.

[6] Emphasizes that the expert Mantle approach has the power to bring about a change in the learning process, where a community is first built within the classroom and second, an environment for self-employed learners is provided, and it is noteworthy that the mantle approach provides teachers with the opportunity to apply a new and useful method of education. It also allows opportunities to understand the real world and how to operate under a formula as if through their role in working with a real sense.

#### 2) Creative thinking

One type of thinking, seen as the ability to form new combinations of ideas, also leads to creative Conclusions and thus the absolute criterion of creativity is the Conclusions reached [7].

[8] Defines it as: the cross-thinking that involves breaking down and dividing old ideas, forging new links and expanding the limits of knowledge, and introducing the most amazing and amazing ideas, i.e. generating new ideas and products through mental interaction, and increasing the conceptual distance between the individual and his experiences.

### I. Previous studies

Study [9] which aimed to know the effect of the teaching of the engineering unit according to the strategy of the mantle of the expert in the achievement and motivation towards learning mathematics in the sixth grade students in the schools of Jenin governorate, where the sample reached (50) students of the sixth grade, Two of the 6<sup>th</sup> grade students, one as an officer group and the number of its members (24) students and the other experimental and the number of its members (26) students.

The researcher applied a post-achievement test to measure students achievement after completing the teaching of the engineering unit and a measure of motivation towards learning mathematics to measure students' motivation to learn mathematics before using the expert's mantle strategy. The Conclusions of the study showed that there were statistically

significant differences between the Means marks of students who studied using the strategy of the mantle of the expert and the students of the group For the experimental group. The Conclusions also showed statistically significant differences between motivation Means towards learning mathematics and for the experimental group.

Study [10] aimed to reveal the effect of employing the strategy of the expert Mantle in developing the contemplative practices of the female students at Al-Azhar University in Palestine. The sample of the study was 24 female students from the Faculty of Education at Al-Azhar University. To achieve the objectives of the study, , And prepared a performance note card for female teachers to identify the degree of practice of the contemplative practice, and confirmed the Conclusions of the study to achieve the proposed program based on the strategy Mantle of the expert very effective in the development of reflective practices among female students.

In Study [11] aimed to find out the effect of the strategy of the expert's Mantle on the development of problem solving skills among sixth Graders in Gaza Governorate. In order to achieve the objectives of the study, the researcher prepared an educational program based on the strategy of the mantle of the expert based on the literature and the relevant studies. The Conclusions of the study revealed that there are differences Statistical significance between the Means scores of students in the total degree to solve the problems between the tribal and remote applications in favor of the post-application.

Study [12] aimed to find out the Effectiveness of the educational and training program on the creative thinking of the students of the primary stage in Borgala, Algeria. The study sample was in the fourth grade pupils of the Mohamed Anwa Borgala School in the experimental group (25) and controlled group (25) students, and to achieve the objectives of the study used the test of creative thinking of Torrance.

The Conclusions of the study showed that there were statistically significant differences between the experimental group and the control groups in the post-application to test the creative thinking of fourth grade students in mathematics and for the experimental group. This confirms that the educational program applied in mathematics has influenced the development of creative thinking among the learners.

*J. Sample of the Study*

The sample of the study consisted of (100) students from the Upper Kober Elementary Girls School and the Kober Secondary School. The students of the two schools were deliberately selected. Table (1) shows the distribution of the study sample according to the school and the groups.

TABLE I. DISTRIBUTION OF THE STUDY SAMPLE ACCORDING TO THE SCHOOL AND THE GROUP

School	Experimental	Controlled	Total
Kober for Male	20	21	41
Kober for Female	30	29	59
Total	50	50	100

*K. Tools of the Study*

The Torrance test for creative thinking was used as a verbal image "A"

Validity of the Tool: The test was presented to a group of experienced in the field of teaching methods.

Reliability of the Tool: The Reliability coefficient was calculated to test creative thinking (0.97).

*L. Variables of the Study*

Independent variables:

The method of teaching with two levels: (Strategy Mantle expert, Controlled).

Dependent variables:

Developing Creative Thinking Skills among 7<sup>th</sup> grade students.

*M. Study Design:*

EG:  $O_1 \times O_2$   
 CG:  $O_1 \quad O_2$  , where  
 EG: Experimental Group  
 CG: Control Group  
 O<sub>1</sub>: Pre-test  
 O<sub>2</sub>:Post-test  
 X: Strategy Mantle expert

*N. Statistical Processing*

The mean, Standard Deviations, test-retest and ANCOVA by using SPSS.

III. CONCLUSIONS AND DISCUSSION OF THE STUDY

What is the Effectiveness of using the strategy of the mantle of the expert in the development of creative thinking skills among 7<sup>th</sup> Graders? Is this Effectiveness different depending on the method of teaching and Gender and interaction between them?

Mathematical Means and Standard Deviations were found for groups and Gender; Table (2) showed that:

TABLE II. MATHEMATICAL MEANS AND STANDARD DEVIATIONS

Variable	Pre-test		Post-test	
	Means	Standard Deviation	Means	Standard Deviation
Controlled	39.4	20.88	44.90	20.18
Experiment	44.58	22.05	64.40	22.79
Female	49.22	20.84	62.81	21.64
Male	31.58	18.13	42.90	21.32

Table (2) showed that there are apparent differences in the arithmetical Means and Standard Deviations of students' scores in the test of developing creative thinking. There were also differences between the arithmetical Means and the Standard Deviations of the students 'grades in the creative thinking skills

of fluency, flexibility and originality among the 7th grade students between the two groups of study (control and experimental). To find out if the apparent differences in the statistical Means of the students' grades were statistically significant, ANCOVA, and the Conclusions were as in Table (3).

TABLE III. ANCOVA ANALYSIS FOR GENDER, METHODS AND INTERACTION BETWEEN THEM

Source	sum of squares	d <sub>f</sub>	mean squares	f-value	sig.	Eta-square
pre-test	33150.4	1	33150.4	1147.49	0.001	0.92
method	4705.23	1	4705.23	162.87	0.001	0.63
gender	168.04	1	168.04	5.81	0.018	0.05
method*gender	123.87	1	123.87	4.28	0.041	0.04
error	2744.48	95	28.88			
total	54948.70	99	555.03			

Conclusions related to the method:

It is clear from Table (3) that the level of significance and its value (0.001) is less than the statistical significance level ( $\alpha \leq 0.05$ ) in the test of the development of creative thinking. Therefore, the null hypothesis is rejected.

Conclusions related to the Gender:

Table (3) shows that the level of significance of the test as a whole and its value is (0.018). Therefore, the null hypothesis is rejected.

Conclusions in the Interaction between Method and Gender:

It is clear from Table (3) that the level of significance and its value (0.041) is less than the statistical significance level ( $\alpha \leq 0.05$ ) in the test of the development of creative thinking.

In order to determine the source of the differences, the Marginal Estimated Means and standard deviation errors were calculated as in Table (4).

TABLE IV. MARGINAL ESTIMATED MEANS AND STANDARD DEVIATIONS ERROR FOR METHOD, GENDER AND INTERACTION BETWEEN THEM

variable	Marginal Estimated Mean	Standard Deviation Error
controlled	47.31	0.78
experiment	41.79	0.12
male	52.92	0.88
female	55.81	0.72
Controlled male	47.01	1.26
Controlled female	47.60	1.02
Experiment male	58.83	1.20
Experiment female	64.01	1.00

Conclusions for method:

As shown in Table (4), the mean Means of the total creative thinking test for the control group studied in the normal manner

is 47.31, which is lower than the experimental group Means of 61.423, indicating that the differences between the two groups were in favor of the experimental group.

To find out the magnitude of the Effectiveness, it is found that the value of the value is 0.63.

Conclusions for Gender:

The Means male rate in the creative thinking development test is (52.922), which is lower than the Means rate of females (55.812), indicating that the differences between the modified Means of creative thinking of the gender variable were in favor of females.

To find out the magnitude of the Effectiveness, the researcher calculated it at a value of (0.058) and a weak degree.

Conclusions on the Interaction between Method and Gender:

The Means age of males in the experimental group (58.83) was lower than the Means age of females in the experimental group (64.01), indicating that the differences in the interaction variable between method and Gender were in favor of the females of the experimental group.

To find out the magnitude of the effect, the researcher calculated it at a value of (0.043) and a weak degree.

#### IV. DISCUSSION OF THE NULL HYPOTHESIS

Null Hypothesis which is "There are no statistically significant differences at the level of statistical significance at ( $\alpha \leq 0.05$ ) in the Means of the grades of creative thinking among 7th Graders due to the teaching method and Gender and interaction between them."

The Conclusions of the study showed that there were statistically significant differences at the level of ( $\alpha \leq 0.05$ ) between the mean scores of the control group and the experimental group on the test of creative thinking. The differences were in favor of the experimental group. In the experimental group is higher than in the control group.

This is a positive indicator of the effectiveness of the integration between the strategies of the mantle of the expert and play roles in the development of creative thinking skills in teaching the unit of engineering and measurement in mathematics.

The Conclusions showed the effectiveness of the strategy of the mantle of the expert and its Effectiveness on the development of creative thinking, because it is working to put students in the face of real problems find solutions through discussion with colleagues, and ask questions that seek realistic solutions and convincing them through experimentation using organized steps, Think about them and help them solve problems.

The Conclusions also showed that there were statistically significant differences between the scores of the creative thinking test scores among the 7th grade students due to the interaction between the method and gender and the females

who studied in the experimental method due to the interest of the students in the implementation of the activities, as well as the diversity of solutions and the search for additional solutions and their inefficiency. One solution and the activities of the lesson, but they were looking for examples related to the subject of the lesson and develop different solutions to them, and took the debate seriously, which helped the experimental group of females to excel in the experimental group. For males in the test of developing creative thinking. Based on the Conclusions of the creative thinking test, it was concluded that using the strategy of the mantle of the expert had a clear Effectiveness on the development of creative thinking skills.

## V. RECOMMENDATIONS

Based on the Conclusions of the study the mantle of the expert strategy had an obvious effect on the development of creative thinking and the researcher recommend to employ it in different subjects.

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### How to Cite this Article:

Arman, I. M. (2019). Effectiveness of "Mantle of the Expert" In Creative Thinking Skills. International Journal of Science and Engineering Investigations (IJSEI), 8(86), 101-105. <http://www.ijsei.com/papers/ijsei-88619-15.pdf>

