

## Level of the Pioneering Centers' Teachers' Practice of Creative Thinking Skills: (A Comparative Study: As-Salt Pioneering Center and Bani Obeid's Pioneering Center)

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### Abstract

This study aimed to investigate the level of the pioneering centers' teachers' practice of creative thinking methods in teaching their students. The sample of the study consisted of 26 male and female teachers from As-Salt Pioneering Center and Bani Obeid Pioneering Center for the academic year 2012-2013. And to achieve the objective of the study, the researcher distributed a questionnaire to the sample after its reliability and validity had been asserted. The results showed the teachers' estimations' level of As-Salt pioneering center was high while the teachers' estimations' level of Bani Obeid pioneering center in using creative thinking skills was moderate. The results also showed statistically significant differences at the level of significance ( $\alpha=0.05$ ) between means of the estimations of the teachers' practice in both pioneering centers of creative thinking methods according to the total degree and to all sub fields in favor of As-Salt pioneering center.

**Key words:** creative thinking; teachers of the pioneering centers; students of the pioneering centers.

### Back ground& importance of the study

The modern educational trends agreed that teaching creativity and its skills has become one of the objectives of the modern education in the era of globalization and knowledge explosion where the traditional education that focused on memorizing knowledge became a part of the past because the rapid increase in the amount of the knowledge imposed the movement towards teaching the students how to produce knowledge and use it so the educational process that does not achieve this aim is described as the frozen traditional education.

Melvin (1999) showed that the process of teaching modern thinking is based on an assumption that creativity could be taught and learnt and it is possible to raise the individual's level of creative performance through providing the appropriate environment to the individual as house and school and this what motivated the specialized people to prepare programs for thinking so as to teach skills of thinking in order to help the students to adapt with life's requirements which are based on information revolution and technology development. While Levine & Ornstein( 1993) assured that thinking skills remain potential capacities unless they were motivated through providing programs of teaching thinking at schools. And in this context, Robinson( 1987) stated that one of the aims of the modern education process is teaching the students the necessary skills of thinking to deal with the great amount of information and knowledge in a world changed rapidly. And De Bono(1998) mentioned that teaching thinking is considered one of duties of education in general and the school in particular by teaching it a separate subject to develop the student's mind and raise his mental skills and logic thinking so as to reach to social development.<sup>1</sup>

Al-harathi( 1999)confirmed that majority of the educationalists agreed that teaching for the sake of thinking is considered one of the aims of education and the school has to teach thinking skills and the teachers like to see their students have thinking skills but when they put their educational objectives they focused on the skills of memorization and retention more than the high thinking skills. the difference between words and action in the teachers' perspective is shown apparently in the students' skills and experience in all the different levels of the studying and in their ability to deal efficiently with life situations at present and in the future .

Diakiduy( 1999) asserted that creativity skills can be improved through training and teaching by creating the situations and the circumstances that require the students to "use his head" to understand and solve them or to create something new . While Gough(1991) assured that scientific knowledge grows rapidly so the most important is teaching the students how to deal with this knowledge mentally and get benefit of it.

And Sternberg( 1992) stated that training of teaching creativity develops individuals' level of thinking towards high levels of thinking within Bloom's pyramid and this what the educational process aims to achieve. Piggott(2007) also assured that teachers should create an interactive class environment that leads to creativity through developing problem-solving skills and using the problems to figure out the characteristics of things' identity. So the teachers have to prepare "problems" and started with their students thinking loudly and the teachers have to motivate the students' creativity in dealing with problems and raising questions especially the ones that have more than one answer.

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And to develop the students' creative thinking, the teacher has to be free in presenting the content using the method he believes to be the appropriate one and he has to take part in designing the curricula which he teaches and to construct the educational goals. The teacher has to be trusted and free in managing the class. And the idea which stated that class which is based on creativity is a class of mess and weakness and the teacher is not responsible (Anderson,2002). Marriner (2006) sees that the most important obstacles facing students' creative thinking is the teachers' tendency to apply what they learnt on their students in addition to the teachers' simulation to reality.

Turner (1994) defined creative thinking as a try to look for unfamiliar methods to solve problems which requires flexible and original thought and the ability of developing the problems' solutions. While Pono(1995) believes that creative thinking is a processes planned carefully with a specific method as using mind in the logical thinking that helps in creating ideas and the ability of creativity. And Morrisson stated that creative thinking locates within the high level of Bloom's model consisting of analysis , synthesis and evaluation which represented higher thinking levels while Liban considers the levels of analysis, synthesis and evaluation as a part of the high levels of thinking and he believes that there is a strong relation between synthesis and the creative thinking and between analysis and the critical thinking and there is also a relation between evaluation and the mental judgment. Davis(1996) sees the creative thinking is linked with the processes or the mental skills of the process of creativity and it is employed by the individual to produce varied and different ideas for solving the problem. The creative thinking consists of fluency ,flexibility and originality skills : fluency means the ability of producing a big number of ideas or alternatives for a situation ,flexibility means rapid and appropriate reconstruction of the information and the sensitivity to the problems which are linked with the ability of realizing the strong and weak points in a situation , and the originality which means coming with new and useful ideas and the details which represent the ability of expanding and developing an idea (Al-Tal,2013).

Creative thinking has many characteristics as originality , scarcity of existence ,lack of frequency ,flexibility , independency ,variety of expressing emotions , automaticity, self motivation , dependence on high mental processes and evidences and the ability of forming hypotheses(Adas&Qatami,2000).

The educational process in Jordan has faced many changes as opening the pioneering centers which were appeared for the first time at As-Salt city in 1986 when the institution of constructing As-Salt city established the first pioneering center . Later, Ministry of Education adopted the idea of pioneering centers in 1996 when three pioneering centers were opened in Irbid, Zarqa and Karak respectively till they became nineteen pioneering enters distributed in different parts in Jordan. And the pioneering centers in Jordan represented rich educational programs aiming to deepen the students' understanding of the basic knowledge ,develop their understanding of themselves and train them on effective communication skills, highlight and develop the students' talents through providing optional developed rich activities that focus on developing excellence and creative thinking , the character that can face the challenges , preparing young leaderships in different fields and developing the comprehensive image of the future and planning for it scientifically.

And these centers organized their programs in an educational environment which is rich of source of knowledge and learning and qualified teachers who worked with the talented and distinguished male and female students in the higher basic levels( eighth ,ninth and tenth) for three days weekly lasted for three hours . The male students joined the center on Sunday, Monday, and Wednesday while the female students joined the center on Sunday, Tuesday and Thursday after they all had finished their attendance of their classes in their normal schools. The subjects, which are taught at the center, are: Arabic, English, Math, Science, and the computer where six hours were allocated to them and the other three hours were allocated to the development activities as : drawing, press, cultural and musical activity ,sport and the professional works.

Every student presents a graduate project at the end of the educational level called graduation project of the pioneer center of the talented and distinguished students and this project is discussed by a committee consisted of the teachers , the administration and a representative of the directorate of education and all of this is documented officially. The student who enrolled this center is granted a certificate named a certificate of superiority and creativity in the scientific filed or the cultural one according basics and standards that were prepared for this purpose by the ministry. The pioneer center implements during the summer vocation an optional program in the center lasted for five weeks including different activities match with the students interests and desires. And the study is six days weekly. The students' absence should not exceed 5% of the working days and with an acceptable excuse and if the students absence was more than that , the director of the center forms a committee to study the student's case and estimate the absence. <http://www.moe.gov.jo>.

Because of its importance ,many studies addressed creative thinking . Meyers's study(1991)aimed to investigate the possibility of teaching creative thinking by applying two methods of teaching on a sample consisted of 80 students representing the second basic grade. And the researcher used the Torrance test - the pronounced image , then he taught the experimental and control groups using two methods ; the traditional method and the one he adopted. The results of the study showed that there were statically significant differences in favor of the experimental group which indicates the possibility of developing the students' creative

thinking skills.

And Rod( 1997) conducted a study to examine the possibility of teaching the students the creative thinking skills .the researcher selected a sample consisted of 48 students distributed into experimental and control group where each group consisted of 24 students. Then he trained the experimental group on the program of the unspecified talents according to the following skills: Divergent thinking, generalizing many different ideas and increasing the details to improve and develop the ideas and make them more enjoyable, and the verbal and non-verbal explanations to express the students' ideas, feelings and needs by asking the experimental group to predict the possible reasons of many different phenomena and their impacts. The results of the study showed that there statically significant differences in the performance of the two groups in favor of the experimental one.

And in a study by Rasres(2006)aimed to identify the degree of teachers' practices of creative skills and their impact on students' achievements in Islamic education at the basic stage in Jordan. The sample of the study consisted of 40 male and female teachers and to achieve the objective of the study, the researcher built a tool of the study which was note card. The results showed that teachers' degree of practicing creative thinking skills (fluency, flexibility, originality) in the basic stage was moderate. And the results showed that there were no statically significant differences in the degree of Islamic Education teachers' practice of the creative thinking skills attributed to gender, scientific qualification and experience variables.

Abd-Jawad (2010) conducted a study to evaluate methods of encouraging the Arabic teachers' creative thinking methods in the tenth grade and it aimed to identify the differences' significance between the teachers' estimations which are attributed to experience, gender and the supervisor authority( public or private) . The sample of the study consisted of 76 male and female teachers and a questionnaire was used as a tool of the study. The results showed the Arabic teachers' degree of encouraging creative thinking was moderate and there were no statically significant differences between the teachers' estimations of methods of encouraging creative thinking attributed to supervisor authority and gender variables

Al-Naqa's study (2011) aimed to identify the level of creative thinking among students in high school in the scientific culture and the degree of encouraging science teachers to them from their point of view. The sample of the study consisted of 48 male and female teachers and 73 students. And the researcher used two tools; A test to measure creative thinking in the Scientific culture and a questionnaire to identify to what extent the teachers encourage the creative thinking .The results showed that the degree of the teachers' encouragement of creative thinking from the teachers' perspective was very big and there were no statically significant differences in the degree of the science teachers' encouragement attributed to gender, experience and scientific qualification variables.

And Al-ata ( 2012) conducted a study to identify the degree of king Abdallah the second for excellence' teachers' practice of the skills of creative teaching. The sample of the study consisted of 30 male and female teachers. And to achieve the goals of the study , the researcher used note card including 26 items. The results revealed the degree of the teachers' practice of creative thinking skills at schools of King Abdallah for excellence was moderate and there were differences between their degree in practicing creative thinking skills attributed to scientific qualification and the teaching experience variables.

And Barbakh's study (2012)aimed at recognizing to what extent Islamic education teachers made use of creative thinking techniques in teaching UNRWA schools ninth graders in Gaza governorates. The sample of the study consisted of 199 male and female teachers and the tool of the study was a questionnaire. The results of the study showed that the degree of Islamic Education teachers' practice of the creative thinking methods was big and the results showed that there were statically significant differences in the degree of the teachers' practice of creative thinking methods attributed to the gender variable in favor of the females . The results also revealed that there were no statically significant differences in the degree of the teachers' practice of creative thinking methods attributed to experience variable.

It is clear from the previous studies that they aimed to study the possibility of teaching creative thinking. And all the results of these studies revealed the possibility of teaching creative thinking where some of these studies used training programs as Rodd's study(1997), while others used teaching methods as Meyers' study (1991) and other studies used note card as the studies of Rsras(2006)and Al-Ata(2012) whereas some other studies used the questionnaires as Barbakh's study(2012). Some of these studies addressed variables as gender, experience and the scientific qualification and the current study uses some of these variables but it differs that its members were the teachers of the pioneers centers of the talented in Jordan and it adopts comparison as its own methodology.

### **Problem of the study**

The educational practices are still humble in the field of developing the creative thinking where the teaching process is limited to the students' memorization and retention of information and knowledge or what is called the banking education although the most important function of the school is to teach the students the skills of thinking enabling them to deal with the big and renewed amount of information in this changing world through

supplying the curricula with skills of teaching thinking for all levels of school and creating situations that motivate the students to think, evaluate and produce more than just memorizing ,

The interest of developing the creative thinking and the skills of thinking was one of the most important recommendations of the educational development conferences, which Jordan witnessed in the past decades, through making a whole change in the followed educational philosophy and providing activities and means that support this attitude. And anyone who reads carefully the educational literature concerning developing the creative thinking , he will find an a great international interest in developing the creative thinking skill. And because of the importance of teaching the students the creative thinking skills , this study aims to answer the following major questions:

Does the estimation of As-Salt Pioneer's Center's teachers of their level of practicing the creative thinking methods differ from the estimation of Bani Obeid's pioneer's center's teachers of practicing the creative thinking methods?

To answer this question , there are the following sub questions :

- 1- What is the estimation of As-Salt Pioneer center's teachers of the level of their practicing of the creative thinking method in teaching their students?
- 2- What is the estimation of Bani Obeid's Pioneer center's teachers of the level of their practicing of the creative thinking method in teaching their students?
- 3- Are there any statistically significant differences at the level of significance ( $\alpha=0.05$ ) between the means of the estimation of teachers' level of practicing methods of creative thinking in teaching their students?

#### **Objectives of the study**

- 1- To identify the level of As-Salt pioneer center's teachers' practicing of the creative thinking methods in teaching their students.
- 2- To identify the level of Bani Obeid pioneer center's teachers' practicing of the creative thinking methods in teaching their students.
- 3- To identify the differences between the level of the teachers' practice in both pioneering centers ;As-Salt and Bani Obeid.
- 4- To present appropriate recommendations that increase the teachers' ability in the two pioneers centers of practicing the creative thinking methods in teaching their students.

#### **Significance of the study:**

The significance of this study is shown through the following :

- 1- Enriching the pioneering centers' teachers' knowledge of teaching the creative thinking skills .
- 2- Helping the principals in Ministry of Education in rehabilitating the teachers working in the pioneers' centers.
- 3- The tool of this study, which the researcher designed, may help in teachers' self evaluation and providing feedback to the principals of the pioneers' centers, supervisors and the principals of education .

#### **Procedural definitions**

- Level of practice of the pioneering centers' teachers : the degree which the respondent obtained by answering the items of the questionnaire.
- Teachers of pioneering centers: they are all the teachers who teach in As-Salt and Bani Obeid pioneers centers in Jordan in the second semester for the academic years 2012-2013.
- Students of pioneering centers: all the students who are enrolled in As-Salt and Bani Obeid pioneer centers in Jordan in the second semester for the academic year 2012-2013.
- Skills of creative thinking :a set of mental capabilities as: flexibility, fluency, originality, and the sensitivity of the problems.
- Pioneering centers : specialized centers that take care of the talented students in the directorates of education at As-Salt and Bani Obeid's departments .

#### **Limitations of the study**

The study is limited to the following :

- Human limitation : limited to the teachers of As-Salt and Bani Obeid pioneering centers.
- Time limitation: the study was applied in the academic year 2012-2013.
- Place limitation: the study is limited to As-Salt and Bani Obeid Pioneering centers in Jordan.

- Tool of the study: the tool of the study is limited to a questionnaire developed by the researcher and its validity and reliability were assured.

### **Method & Procedures**

Method of the study: the researcher followed the scientific comparative method in this study for its appropriateness to the subject of the study.

Members of the study: the sample of the study which consisted of all the teachers working in As-Salt pioneers center (12) male and female teachers and in Bani Obeid pioneer center (14) male and female teachers was selected purposefully to make a comparison between the teachers of As-Salt pioneer center and Bani Obeid pioneer center's teachers' practice of creative thinking methods. And these two centers were selected for having all the physical and human requirements and for their location; As-Salt Pioneering center lies in the mid of Jordan while Bani Obeid lies in the North of Jordan and As-Salt center is considered the oldest one in Jordan .

And (table 1) illustrates the characteristics of the members of the study in terms of gender, years of experience, scientific qualification, and the specialization variables.

### **Tool of the study( A questionnaire):**

The tool of the study was developed through browsing the theoretical literature and the previous studies as (Al-atal ,2013,Rasras,2006 ,Anderson,2002 & Marriner, 2005 ). The tool in its initial draft consisted of 45 items.

#### ***The questionnaire's validity***

The questionnaire's validity was assured through presenting its initial draft to a set of arbitrators of specialized Jordanian academic teachers who work in the Jordanian universities to present their views and notes about the questionnaire's items in terms of appropriateness and clarity and in light of these views some items were added and others were adjusted . The final copy of the questionnaire consisted of 47 items.

#### ***The questionnaire's reliability***

The questionnaires' reliability was asserted by applying Cronbach alpha for internal consistency on a pilot sample consisting of 10 teachers and the questionnaire internal consistency was (0.86) which is considered an acceptable consistency.

#### ***Statistical treatment***

The researcher used Statistical Package For Social Sciences (SPSS) to make the necessary analytical analysis for the data of the questionnaire depending on Five-Point Likert Scale as follows: ( strongly agree , agree, undecided , disagree, strongly disagree) and the following grades were given respectively (5,4,3,2,1). And to answer the first and the second questions of the study, the means , standard deviation, rank and the degree were used . The ranks of the respondents' mean were classified into three categories of degrees( high, moderate ,low) according to the following equation:

$$\text{Length of period} = 1.33 = 3 \div (1-5)$$

So the categories would be as follows :

- 1 - 2.33( low)
- 2.34 -3.67 (moderate)
- 3.68 -5 (high )

And to answer the third question, T test for independent samples was used.

### **Results & Discussion**

This part of the study includes a presentation of the study's results through answering its questions and discussing the results as follows:

First question : what is the estimation of the As-Salt pioneer center's teacher to their level of practicing methods of creating thinking in teaching their students?

To answer this question, the means , standard deviation ,ranks, and the degree of As-Salt pioneer center's teachers' estimation to their level of practicing methods of creating thinking and the total degree for every field of the study's fields as it illustrated in (Table 2)

It is clear from (Table 2) that the total degree of the As-Salt pioneer center's teachers' estimation of practicing methods of creative thinking was high where the mean was (4.182) with a standard deviation (0.312) and the degree of all the fields of tool was high where the means ranged between( 4.142-4.227).The field of " Methods of evaluating learning output" was in the first rank with a mean (4.227) and standard deviation (0.554) and the field of " class environment and freedom of speech" was in the second rank with a mean (4.222) and standard deviation(0.360)while the field of "motivating creativity and its acceptance" with a mean (4.160) and standard deviation (0.330). And the field of " educational activities and methods of teaching" was in the last rank with a mean (4.142) and standard deviation(0.312).



The second question: What is the estimation of the Bani Obeid pioneering center's teacher to their level of practicing methods of creative thinking?

To answer this question, the means, standard deviation, ranks, and the degree of Bani Obeid pioneer center's teachers' estimation to their level of practicing methods of creative thinking and the total degree for every field of the study's fields as it illustrated in (Table 3).

Table (3) showed that the total degree of the teachers' estimation of the level of their practice of creative thinking methods was moderate where the mean was (3.468) and standard deviation(0.179). And the degree of all the fields of the tool was moderate where the means ranged (3.381-3.538). the field of "motivating creativity" was in the first rank with a mean (3.538) and standard deviation(0.304). And in the second rank was the field of "educational activities and methods of teaching" with a mean (3.505) and standard deviation (0.340). the field of "methods of evaluating learning output" was in the third rank with a mean (3.409) and standard deviation(0.376) while the field of "classroom environment & freedom of speech" came last with a mean (3.381) and standard deviation(0.445)

The third question: Are there any statically significant differences at the level of significance between the means' estimations of the teachers of As-Salt pioneer center and Bani Obeid pioneer center of using creative thinking methods in teaching their students?

To answer this question, T test for the independent samples was used for the differences between the means of the estimation of As-Salt pioneering center's teachers' level of practicing creative thinking methods and the means of the estimation of Bani Obeid pioneer center's teachers' level of practicing creative thinking methods in teaching their students according to the total degree and all the domains. And (Table 4) illustrates T test's results.

It is noticeable from (Table 4) that there are statically significant differences between the means of the teachers' estimations in both centers of the creative thinking methods of their students to the total degree and to every field of the of the fields of the tool of the study in favor of As-Salt pioneer center and this may due to many reasons: first: the long experience of this center where it was considered the first pioneer center in Jordan and it was built by Institution of Constructing As-Salt city in 1986, second: the role of the center's administration in keeping up the distinguished level of this center as one of the most major features in As-Salt city, finally: the employees' experience in the center. So the physical capabilities with the help of human capabilities succeeded in achieving excellence in performance. The result which is also concluded from this table could be also attributed to the new establishment of Bani Obeid pioneer center in addition to lack of support and incentives presented to the teachers working in this center. This result can be also attributed to the employees' lack of experience and the training courses which are presented to the employees in Bani Obeid pioneering center and lack of equipments in Bani Obeid pioneering center is considered an obstacle facing achieving its goals because it is known that teaching gifted students needs a lot of physical resources as references, books, periodical and field visits in addition to human resources represented by the qualified teachers and the efficient administration.

### Recommendations:

Based on these results, the researcher recommended the following:

- 1- Necessity to have standards and accurate controls in selecting the principals and the teachers working in these centers.
- 2- It is necessary that Ministry of Education conducts competitions between the pioneer centers in order to create a competitive cooperative active environment between the centers.
- 3- Organizing continuous training courses to the workers in these centers and providing more incentives and support to motivate them to exert more effort.
- 4- Conducting more comparative studies between other environments.

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Tables

Table 1.

Characteristics of the members of the study

Variable	Classification of the variable	Freq.	Percent %
Years of experience	1-5 years	4	15.3%
	6-10 years	7	26.9 %
	More than 10 years	15	57.6%
Gender	Male	15	57.6%
	Female	11	42.3%
Scientific qualification	College diploma	1	3.8%
	Bachelor	16	61.5%
	High studies	9	34.6%
Teacher's specialization	Human faculties	13	%50
	Scientific faculties	13	%50

Table 2.

Means , standard deviations , rank, and the degree of the As-salt pioneering center's center's teachers' estimation to their level of practicing methods of creative thinking and the total degree of every field of the study's were arranged ascending

N	Field	Mean	Std	Degree
4	Methods of evaluating learning output	4.227	0.554	High
1	Class environment & freedom of speech	4.222	0.360	High
2	Motivating creativity & acceptance	4.160	0.330	High
3	Educational activities & methods of teaching	4.142	0.312	High
	Total degree	4.182	0.312	High

Table 3

Means , standard deviations , rank, and the degree of the Bani Obeid pioneer's center's center's teachers' estimation to their level of practicing methods of creating thinking and the total degree for every field of the study's fields arranged ascending

Field	N	Mean	Std	Rank	Degree
Motivating creativity & its acceptance	2	3.538	0.304	1	Moderate
Educational activities & methods of teaching	3	3.505	0.340	2	Moderate
Methods of evaluating learning output	4	3.409	0.376	3	Moderate
Classroom environment & freedom of speech	1	3.381	0.445	4	Moderate
Total degree		3.468	0.179		Moderate

Table 4

Results of T test for independent samples for the differences between the means of As-Salt pioneer center's teachers' estimations & Bani Obeid's pioneering center's teachers' estimations of using creative thinking methods in teaching their students of the total degree and all the domains.

As-Salt pioneer center		Bani Obeid pioneer center		D / means	Confidence interval (lowest-highest)	T value	Ssig .
Mean	Std	Mean	Std				
4.222	0.360	3.381	0.445	.841	1.173 - .509	5.227	.0001
4.160	0.330	3.538	0.304	.621	.878 - .364	4.990	.0001
4.142	0.312	3.505	0.340	.637	.903 - .371	4.948	.0001
4.227	0.554	3.409	0.376	.818	1.197 - .439	4.456	.0001
4.182	0.312	3.468	0.179	.714	.917 - .511	7.279	.0001



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