



## THE RELATIONSHIP BETWEEN CREATIVE THINKING AND MOTIVATION TO LEARN CREATIVE THINKING AMONG PRE-SCHOOLERS IN JORDAN

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### Abstract:

The investigation of the level of creative thinking and motivation to learn creative thinking, and the relationship between both of them, in Jordan is still insufficient due to lack of interest and research among researchers and scholars. Therefore, this study examines the relationship between creative thinking and motivation to learn creative thinking among pre-school children in Jordan. A total of 102 students from one kindergarten was examined. Parental consent was obtained before the study was conducted. The result from the analysis posited that there is a medium level of motivation to learn creative thinking (64.7%). The means of TCAM scores and its dimensions were: TCAM overall score (M= 68.24, SD= 14.615), Fluency (M= 17.53, SD= 4.776), Originality (M= 25.7, SD= 8.264), and Imagination (M= 25.01, SD= 3.793). In addition, there is a positive statistically significant correlation (0.573) among the total of creative thinking scores and the total of motivation to learn creative thinking. Spearman correlation was used to evaluate the overall relationship between creative thinking and motivation to learn creative thinking. A strong positive correlation was found between creative thinking and motivation to learn creative thinking scores of pre-school children. The present study has also discussed the findings, the limitations and the recommendations.

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## 1. Introduction

It is accepted that the pre-school stage is indeed very important in promoting creative thinking (Isenberg and Jalongo, 2014), though it is recommended that further studies are needed on creative thinking at the preschool stage. (Garaigordobil and Berrueco, 2011).

There are many studies (e.g. Balhan, 2005; Garaigordobil and Berrueco, 2011; Shawareb, 2011) which have shown the effectiveness of training on creative thinking for pre-school children. This confirms that programs of creative thinking are indeed useful for children at preschool stage.

A measure of creative thinking shown as a score, and which included pre-school stage, was built by Torrance (1981). This measure was very useful as it was considered very important to know the level of creative thinking among children, which in turn contributed to the development of the main aspects of cognitive and thinking process. Many studies have also found a relationship between children's motivation at preschool age and early elementary school success, controlling for children's initial cognitive abilities (Mokrova, O'Brien, M., Calkins, Leerkes, and Marcovitch, 2013). This study found that math and language skills of children at kindergarten and next stages could be positively predicted from a child's motivation at preschool, controlling for initial cognitive-linguistic skills. Additionally, Mokrova et. al. (2013) indicated that higher levels of academic success in first grade could be related to children with higher levels of motivation at preschool age.

Hence, it is established that motivation to learn and creative thinking as outcomes of the educational process are important for subsequent educational stages. Better academic performance and success at the next stages has been shown by students with higher level of learning motivation and creative thinking.

While motivation to learn and creative thinking have been separately studied, there is a dearth of studies that address the relationship between motivation to learn and creative thinking. Therefore, the present study aims to investigate the relationship between motivation to learn creative thinking and creative thinking among preschoolers in Jordan.

## 2. Creative thinking

Creative Thinking has drawn multiple understanding amongst researchers. According to Guilford (1950), creative thinking is *"the process of using both convergent and divergent cognitive skills, for the purposes of evaluating an existing, or creating a new, idea or product"*.

Torrance (1965, 1974) viewed creative thinking as *"the process of sensing difficulties, problems, gaps in information, missing elements, something askew; making guesses and formulating hypotheses about these deficiencies"*. He said that sensing difficulties is essential for creativity to be applied to formulate hypotheses and arrive at solutions. A solution needs to be tested and re-tested before it can be accepted and communicated.

Creative thinking uses imagination and intellect to move from an existing knowledge base to new ideas and new thought. As Olsn (1999) pointed out, it is the realization of the intellectual personality of an individual in situations of everyday occurrence. Breckenridge & Murphy (1963) have found many aspects of creative thinking in preschoolers. Reading heightens their relationship between imagination and creativity. Children draw ideas from the environment and adapt them to their own use.

Many studies of creativity have looked at different age-bands of children at preschool. It is observed that creative thinking with greater freedom is more prevalent in children between the age of five and six as compared to older children. The peak period of cultivating creativity seems to be in the age-group up to five years. With creativity flourishing at about four and half years (Dacey, 1989; Ford & Harris, 1992; Khatena, 1971; Meador, 1992).

Several studies focus on how creativity can be taught in school and how opportunities can be provided for the same. Some suggestions for developing creativity include providing the right and positive environment, and using well-organized materials and techniques. This brings out suppressed personalities and lets them thrive in an atmosphere of freedom and institutional support. The ideal climate for creativity is to let the student work independently. (Slabbert, 1994; Torrance, 1964; Suwantra, 1994).

## 3. Motivation to Learn

"Learning Motivation" or "Motivation to Learn" are used synonymously. Researchers who use Learning Motivation include Dörnyei, (1996); Ehrman, (1996); and Gardner, (1985). Researchers who use Motivation to Learn include DeBacker and Nelson, (2000); Glynn Aultman, and Owens, (2005); Froiland, Oros, Smith, and Hirchert, (2012). Learning motivation refers to a classroom attitude to education. According to Qotami

(1989), the school has an important role in providing classroom attitudes and experiences on which learning motivation depends. Low learning motivation has led to school problems like dropouts, low achievement, and problematic educational behaviour. Schools which continue providing learning motivation to students help in high achievement. Brophy (1988) supposed that the learning motivation is a student's trend to find educational and academic activities have more interest and saturation their academic needs. According to Woolfolk (1990) learning motivation helps the student achieve the learning goals, and understanding and improving the learning experience.

Literature is increasingly focusing on children's academic achievement and the role of motivation in the same. Students' interest in various school subjects, tasks, or activities is the focus of one of the frameworks of motivation in school. Student interests is described through task value (Eccles et al. 1983), task motivation (Aunola, Leskinen, & Nurmi, 2006; Nurmi & Aunola 2005), intrinsic motivation (Deci et al. 1991; Gottfried 1990), and interest (Renninger 1992; Schiefele 1996). Motivation and motivated behavior is central to the student's interest in activities (Deci & Ryan 1985; Schiefele 1991). Pakarinen, et al. (2010) looked at preschool children and found that learning motivation is used to refer to task values, intrinsic motivation, and interest. In particular, it refers to learning activities typical in kindergarten. For example, activities related to letters, rhyming, mathematics, listening to storybook reading, music, outdoor play, nature, creativity, and art and crafts. In addition, they also investigated wider range of activities, systematic teaching of reading and mathematics.

#### **4. Motivation and Creativity**

Motivation and creativity are closely related, as seen in literature and previous studies. Of the six elements of creativity as seen by Perkins (1985), four are closely related to motivation: creating order out of chaos, risk taking, willingness to ask unexpected questions, and being challenged by an area. Thus, motivation is important for achieving creativity.

The three main aspects of the creativity model by Torrance and Safter (1999) included creative abilities, creative skills, and creative motivations. High levels of creative achievements arise from a combination of creative motivations (example, some type of commitment) and the skills of creative abilities. Inherent creative abilities, acquired creative skills and enhanced creative motivation are seen in high creative achievers.

**Objective:** The present study is a cross-sectional study aimed at investigating the relationship between motivation to learn creative thinking and creative thinking among preschoolers in Jordan.

## 5. Research Methodology

### 5.1 The Population and Sampling of the Study

The population of the present study was all preschoolers in Jordan. A sample of 102 preschoolers of age 5 years were selected randomly from one kindergarten in Amman City. The sampling was done randomly for the survey.

### 5.2 Instrumentation

For the purposes of the present study, two instruments were used: Motivation to Learn Creative Thinking Scale (MLCT-Scale) and Thinking Creatively in Action and Movement.

*MLCT-Scale:* for purpose of the present study, the researcher adapted Motivation to Learn Creative Thinking Scale (MLCT-Scale) from two scales: Intrinsic Motivation Inventory IMI (Ryan, 1982; Ryan, Mims & Koestner, 1983; Ryan, Koestner, and Deci, 1991) and Learning Motivation Scale (Stephanou, 2014). This was used to investigate preschool children's motivation for learning creative thinking.

The IMI scale has 45 items with 7 subscales: interest/enjoyment, perceived competence, effort/ importance, pressure/ tension, perceived choice, value / usefulness, and relatedness.

The Learning Motivation Scale was developed by Stephanou (2014) from earlier work by other researchers (Eccles 1993; Nurmi and Aunola 1999, 2005; Spinath and Spinath 2005). This contained from 4 items classed in 2 dimensions: intrinsic interest (2 items) and learning goals (2 items).

The researcher used the items of IMI and changed the language style to suit teacher observations of the kid (e.g. the original item from IMI "I would describe this activity as very interesting" was changed to "the student finds creativity class very interesting"). In addition, the word "activity" in the original scale was changed to "creativity class" (e.g. the original item at IMI "I am satisfied with my performance at this task" was changed to "this student is satisfied with his performance in the creativity class").

Similarly, the researcher used the items of the Learning Motivation Scale with change the language style to suitable teacher observes the kid (e.g. the original item "you can use these bars to show me how important is it for you to learn new things

about letter” was changed to “learning new things about creativity are important for this student”). Moreover, the words “letter” and “number” were changed to “creativity” (e.g. the original item “you can use these bars to show me, in school, how much you want to really understand new things about numbers” was changed to “this students wants to understand new things about creativity”).

The first version of the MLCT-Scale was 23 items on five points likert scale from 1= not all true to 5= very true, the researcher provided the MLCT-Scale to five professors at educational psychology, and childhood psychology; to extract the content validity of scale (see appendix).

Furthermore, the researcher provided the scale to 110 students (KG2) at one kindergarten (Alnnajum Assatea kindergarten) and the Exploratory Factor Analyses EFA was used at data analysis. Based on exploratory factor analysis (EFA), principle axis factoring method was used to explore the loadings of active factors of creative thinking questionnaire. For sample size assumption, Kaiser-Meyer-Olkin showed high value (0.894) with significant Bartlett's Test of Sphericity (<0.001). Initial analysis showed five factors which related with most of results outcomes which achieved cumulative eigenvalues with 72.756%.

In addition, the researcher extracted the reliability of MLCT-Scale, where the Reliability of each new component and overall reliability was counted based on Cronbach’s alpha. The selection of final factors was dependent on the acceptable values of Cronbach’s alpha.

For purposes of the current study, the researcher extracted the reliability to MLCT-Scale, and determined the reliability of the scale using Cronbach’s alpha. 110 students received the scale in the same kindergarten. In the table below, Cronbach’s alpha is seen at an acceptable value (0.79). This means the questionnaire was ready to be used for data collection.

**Table 1:** The Cronbach’s Alpha for the MLCT-Scale

	Factor					No. of Items
	Interest of learning	Perceived Competence of learning	Pressure and Tension of learning	Effort of learning	Enjoyment of learning	
Cronbach’s alpha	0.902	0.916	0.843	0.911	0.869	21
Overall Cronbach’s alpha						0.939

TCAM: The existence of creativity among preschool children (kindergartens) was first tested by Torrance (1981) using Thinking Creatively in Action and Movement (TCAM). His observations on the ways in which kids express creativity in pre-school and in child-care centers led to this test. Additionally, creativity tests in performance and movement were also added by Torrance. This development was deemed appropriate for pre-school children. Four activities make up the test: Activity 1 - How Many Ways? Fluency and originality in seeking alternate ways across the floor is assessed; Activity 2 - Can You Move Like? This looks at the child's imagination to move like animals or a tree; Activity 3 - What Other Ways? What is the fluency and originality in placing a paper cup in a waste basket; and finally Activity 4 - What Might It Be? How fluently with originality can alternate uses for a paper cup be found. Materials required are paper cups, a wastebasket, pencils, and red and yellow tapes.

In this study, the researcher extracted the reliability to TCAM, and determined the reliability for the test through using Cronbach's alpha. 110-students were administered the test in the same kindergarten. In table (2), Cronbach's alpha shows an acceptable value (0.84). This means the questionnaire was ready to be used for data collection.

**Table 2:** The Cronbach's Alpha for TCAM

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	Nu. of Items
0.84	0.78	12

All the 12 items in the table above showed an acceptable range of Cronbach's alpha, Hence there was no need for readjustment and retest of the pilot study.

### 5.3 Procedure

The researcher has chosen one kindergarten on random basis in Amman city to participate in the present study. Then, the researcher obtained the approval from the kindergarten to conduct the present study. Parental consent was also obtained before the study was conducted.

The researcher explained to teachers the aims of the present study, as well as gave instructions to the teachers to fill the MLCT-Scale and TCAM. The MLCT-Scale took 5-minutes to complete, while the TCAM took 10-minutes to complete.

### 5.4 Data Analysis

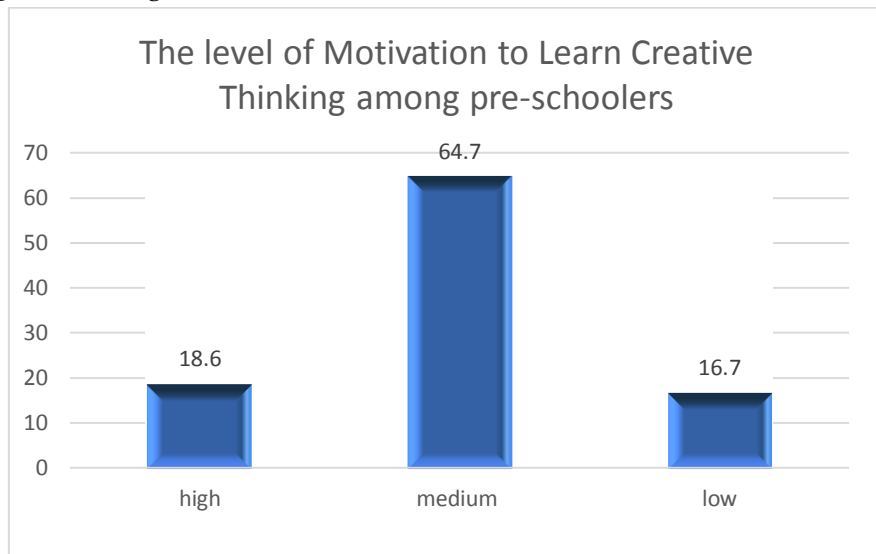
The aim of the present study is to investigate the relationship between creative thinking and the motivation to learn creative thinking among pre-schoolers in Jordan. For this purpose, the data was analyzed using percentage of answers and Spearman correlation.

## 6. Results

### 6.1 The Level of Motivation to Learn Creative Thinking and Creative Thinking

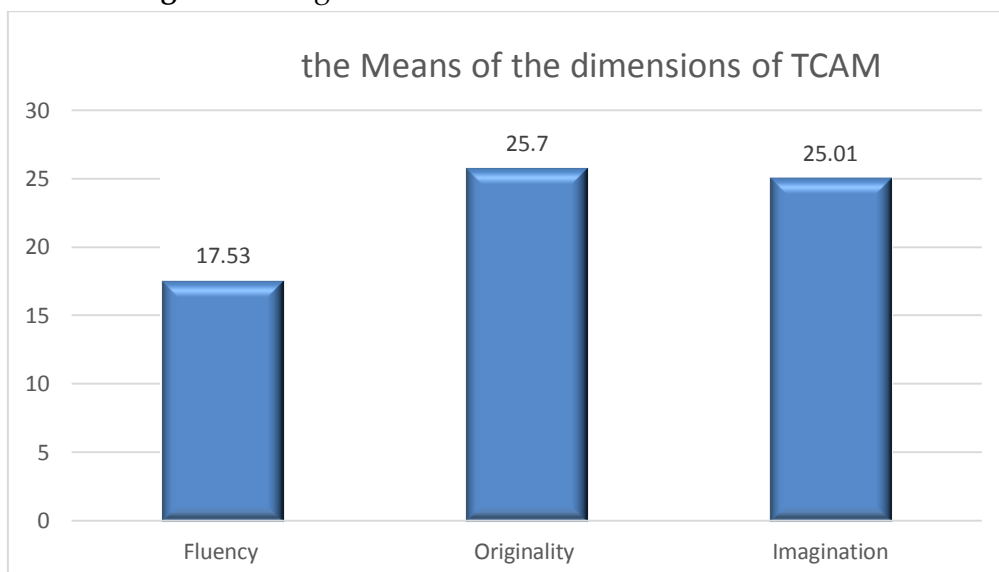
For the general evaluation of Motivation to Learn Creative Thinking, the medium level (64.7%) was the most common frequent level. High level was 18.6% and low level was 16.7), as shown in the Figure below:

**Figure 1:** The general evaluation of Motivation to Learn Creative Thinking



For the general evaluation of TCAM and its dimensions, the mean score was TCAM (M= 68.24, SD= 14.615), Fluency (M= 17.53, SD= 4.776), Originality (M= 25.7, SD= 8.264), and Imagination (M= 25.01, SD= 3.793), as shown in the Figure 2.

**Figure 2:** The general evaluation the dimensions of TCAM





## 6.2 The Comparison based on levels of Motivation to Learn Creative Thinking and Creative Thinking

Spearman test was the appropriate statistical test used to determine the correlation between motivation to learn creative thinking and creative thinking. Significant strong positive correlation was found between motivation to learn creative thinking and creative thinking ( $r = 0.573$ ,  $p \text{ value} = 0.001$ )

**Table 4:** The correlation coefficient between Creative Thinking and Motivation to Learn Creative Thinking

	Spearman's rho	Motivation to Learn Creative Thinking
creative thinking	Correlation Coefficient	.573*
	Sig. (2-tailed)	.001
	N	102

Correlation is significant at the 0.05 level (2-tailed).\*

## 7. Discussions

This section discusses the results of the present study through analyses of the results. Table (4) illustrates the percentage of Motivation to Learn Creative Thinking among preschoolers.

**Table 4:** The level of Motivation to Learn Creative Thinking

The level	High	Medium	Low
Percentage	18.6%	64.7%	16.7%

The results show that the level of Motivation to Learn Creative Thinking among preschoolers is at a Medium level (64.7%).

This result conforms to the previous studies (e.g. Ayadat and Tahat, 2009; Jarwan and Abadi, 2010; Stephanou, 2014). The results in the previous studies (e.g. Ayadat & Tahat, 2009; Jarwan & Abadi, 2010; Stephanou, 2014) had shown a medium level of learning motivation among preschool children.

Ayadat and Tahat (2009) mentioned the reasons of these results as using suitable educational tools which attract the kids, especially if the tool involved sounds and movements. Jarwan and Abadi, 2010 however identified the reasons as using multi learning styles in the classroom. According to them, using multi learning styles attracts

pre-school children. Thus, this procedure will be a positive factor in the learning process.

Stephanou (2014) focused on the nature of relationship between teacher and student. Children's competence beliefs, learning motivation, and school performance in both mathematics and literacy were significantly and positively impacted by their feeling for the perceived quality of their relationship with their teachers, and their emotions about their teachers. (Stephanou, 2014).

The Table below illustrates the percentage of TCAM and its dimensions among preschoolers.

**Table 5:** The mean of TCAM and its dimensions

The TCAM dimensions	Fluency	Originality	Imagination	TCAM overall score	SD
Mean	17.53	25.7	25.01	68.24	14.615

These results confirm the findings of the studies mentioned by Feldhusen and Clinkenbeard (1986), and Torrance (1964), that preschoolers have creative thinking and it is possible to teach them creative thinking through using instructional materials and educational procedures.

Furthermore, the results show that the mean score of TCAM and its dimensions among preschoolers is: TCAM (68.24), Fluency (17.53), Originality (25.7), and Imagination (25.01). This result conforms to previous studies (Balhan, 2005; Khadir & Bishara, 2011; Garaigordobil, & Berruenco, 2011; Suwantra, 1994).

Balhan (2005); Khadir and Bishara (2011); and Garaigordobil & Berruenco (2011). They found the reason that preschoolers have the creative thinking is because they like to explore new things and search for the relation between things. This enables them to use the creative thinking to explore new things and create relations between things, which is useful to facility the learning process (Balhan, 2005; Khadir & Bishara, 2011; and Garaigordobil & Berruenco, 2011).

As for the Comparison based on scores of Motivation to Learn Creative Thinking and creative thinking as illustrated in table (3), the results of the relationship between them shows that there are positive significant correlation of their total scores among pre-school children, with a coefficient of (0.573). The result of the present study conforms to previous studies (Lew & Cho, 2013; Radwan, 2004). Lew & Cho (2013); Shaban (2013) also found a positive significant correlation between Creativity and Motivation. Furthermore, the results of study of Radwan (2004) also affirm the positive significant correlation between cognitive motivation and creative thinking.

Both studies of Lew and Cho (2013) and Radwan (2004) confirmed that the reason for the positive relationship between Creativity and Motivation is that kids with a high level of motivation always have a desire for more understanding and to obtain more knowledge. Thus, this factor has a positive impact on the learning process.

Another reason reported by Radwan (2004) was that in kindergarten children practice exploration activities to obtain a lot of information, which helps them to solve the problems that they face. They are able to produce more solutions to the problems they face and this factor is useful in developing the learning process (Radwan, 2004).

Shaban (2013) attributed the reason for the relationship between motivation and creative thinking to the nature of activities provided to students, which develop creativity among students where the activities are applied and conducted through play and stories. This enhances the student's imagination and creates many ways to solve problems. This is a positive factor to develop their learning process and increase their academic performance.

The results of the present study about the positive relationship between creative thinking and motivation to learn creative thinking, and the results of the previous studies (e.g. Lew & Cho (2013); Radwan (2004); Shaban (2013), can lead to the summarization of the reasons of the positive relationship between creative thinking and motivation to learn creative thinking as follows: (i) the desire to understand and obtain more knowledge (ii) The practice of children in kindergarten of exploring activities to obtain a lot of information that help them solve the problems they face (iii) the nature of relation between creative thinking and motivation to learn creative thinking where the common variable between them is creative thinking..

### **7.1 Limitation**

The main problem faced in the present study is that more kindergartens could not be surveyed because of logistics limitations. Therefore, the number of kindergartens surveyed was limited to just one kindergarten in Amman City. Another study should focus on more kindergartens in order to generalize the results.

### **7.2 Suggestion and Future Investigation**

It is suggested to set up an evaluation committee in the Ministry of education in Jordan to record and evaluate the level of creative thinking and motivation to learn creative thinking among pre-school children, and to develop the level of creative thinking and motivation to learn creative thinking through educational programs and interventions.

Hence, a qualitative research and an experimental study, over a period of time, should be conducted to develop the level of creative thinking and motivation to learn

creative thinking to obtain better results. Moreover, since the technology of iPad has been greatly employed by most families nowadays, perhaps the study on how iPad influences children's creativity and motivation to learn should also be examined.

Furthermore, developing and increasing the levels of creative thinking and motivation to learn creative thinking should be addressed through conducting experimental studies which address training programs and interventions based on educational psychology theories. Additionally benefits should be drawn from other educational fields such as educational technology where there are a lot of tools that will be useful to attract pre-school children at kindergartens.

Finally, the present study addressed preschool children, whereas another study could focus on other educational stages in order to generalize the results.

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## Appendix

### Motivation to Learn Creative Thinking Scale (MLCT-Scale)

#### A. Interest of learning:

1. The student holds his attention at creativity class.
2. The student finds creativity class very interesting.
3. For this student, learning to draw is fun in this class.
4. For this student, coloring is fun in this class.
5. Learning new things about creativity are important for this student.
6. This student wants to understand new things about creativity.
7. This student felt calm at the creativity class.

#### B. Perceived Competence of learning:

8. This student is pretty good at creativity class.
9. This student did pretty well at the creativity class, compared to other students.
10. After working at the creativity class for a while, this student felt a pretty competent.
11. This student satisfied with his performance at the creativity class.
12. This student was pretty skilled at the creativity class.
13. This student couldn't do very well at the creativity class.

#### C. Pressure and Tension of learning:

14. This student felt very tense while doing the activities at the creativity class.
15. This student was anxious while working on the activities at the creativity class.
16. This student felt pressured while doing these activities at the creativity class.

#### D. Effort of learning:

17. This student puts a lot of effort in creativity class.
18. This student tries very hard to do well in creativity class.
19. It is important for this student to do well in creativity class.

#### E. Enjoyment of learning:

20. The student has fun at the creativity class.
21. The student enjoys the creativity class very much.



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