



Comparing the Descriptive Assessment in terms of Critical and Creative Thinking among the Sixth Grade Students in the Public and Private Schools

Parisa IranNejad^{1*} and Samira Talebi²

¹Faculty Member of Department of Primary Education, Karaj Branch, Islamic Azad University, Karaj, Iran.

²M.Sc. Student, Educational Planning, Department of Primary Education, Karaj Branch, Islamic Azad University, Karaj, Iran.

Original Article:

Received 20 March. 2016 Accepted 20 April. 2016 Published 30 June. 2016

ABSTRACT

This study aimed at comparing the descriptive assessment in terms of critical and creative thinking of sixth grade students in the public and private schools of district four in Karaj. This is a descriptive research which is done in a causal-comparative method. The population consisted of all sixth grade students (girls and boys) in the public and private primary schools. According to the information, the total number of students was 8529 people, which 7788 of them were selected among public school students and 741 of them were selected among private school students. The sample size of 368 was determined by using Morgan table, in which 330 of the samples were belonged to the public schools and 38 of the samples were students of the private schools. Stratified random sampling method was used as the sampling method. This research was employed Critical Thinking Dispositions Questionnaire (Ricketts, 2003) with the reliability of sub-scales of creativity= 0.75 and commitment=0.86; and Torrance Test of Creative Thinking (TTCT) (Figural form B) (1998) with reliability between 0.80 to 0.90; and descriptive Transcript of Records (ToR) 2014-2015. SPSS software is used to show the results in both descriptive and inferential statistics (T-test). Results showed that there is a difference between descriptive assessment in terms of creative thinking among sixth grade students in the public and private school district four in Karaj; but, the difference was not observed the critical thinking. Among all the variables of creative thinking and its dimensions (invention, extension, fluidity, flexibility, and creativity), descriptive assessment of the majority of students in the public and private schools was greatly good; however, it was better in the public schools than the private. Among all variables of creativity, commitment and critical thinking, descriptive assessment of the majority of students in the public and private schools was acceptable.

Keyword:

Private Schools, Public Schools, Critical Thinking, Creative Thinking, Descriptive Assessment

* Corresponding author: IranNejad
parisairannejad@yahoo.com

INTRODUCTION

Descriptive assessment is a new model that attempts to provide a context, in which students can participate in the classroom more refreshed and learn lessons more deeply. So, it takes to the score of the process of teaching-learning during the school year into consideration, instead of excessive attention to the final exam. And regarding this focus, it pays attention to the emotional, social and even growth of the student, as well. Therefore, this project has proposed fundamental changes to the current assessment system through its aim, which is improving the quality of teaching-learning and enhancing the mental health of the teaching-learning environment. A glimpse of the credible resources about the creativity, innovation and critical thinking shows that all of these terms are rooted in the human's intellectual method. In fact, the creative person is who enjoys an explorer and creator mind. Thinker is who sees things that ordinary people do not see by looking at the phenomena and the current affairs of life, and finally, makes a combination of new resources and facilities that it would not be possible for others. Thus, creativity is defined as using mental abilities to create a new idea or concept (Zera'ati Matin, year:134). Awareness of behavior and enjoyment of brain power is considered as one of the essential characteristics of human. In other words, human can be aware of their behavior and use the brain power in dealing with various affairs and issues (Shari'atmadari, 2000:3). Intellectualizing and recognizing the current errors are features of thinking; interestingly, thinking improves oneself while self-destructing (Neshat, 2008). Critical thinking is one of the basic dimensions of human beings and foresting it will lead to the growth of humanity (Hashemian Nezhad, 2001:18). Critical thinking almost means intellectual and logical thinking, which focuses on the decision making to do something or believe it (Annis, 2002).

Every normal human can do something creative in any field. It should be paid attention to the creative children to have creative adults. For this reason, developing the skills and motivating the creativity should be taken into consideration. Environments in which children develop their creativity and the amount of creativity they exhibit depend on their training, experience and level of physical and intellectual development. In our country, there have been raised little discussions on the critical and creative thinking for many years. Also, one of the main objectives of our education system is flourishing the creativity of students. Now the question arises that how can descriptive assessment be effective in the growth of critical and creative thinking among the students? The main objective of this study is a comparison of descriptive assessment in terms of critical and creative thinking among the sixth grade students in the public and private schools of district four in Karaj.

Statement of the Problem

Using and applying new methods of assessment has led to a more efficiency and effectiveness of the teaching-learning process. In this regard, it has paid more attention to the functions of the public and private schools to meet the objectives of education. In the traditional approach to the assessment, teachers mainly were trying to assess the results of students' learning and report it as a score. It was given less attention to the way of learning and its improvement. In

the traditional assessment system, making a decision on the promotion depends on the scores of student's final exam. According to the present conditions and the obtained scores, it will be determined whether the student can be promoted to the higher grade or the grade must be repeated (Mohammad Hassani, 2006). In the traditional method, is based on the learning contents without thinking and considering its meaning, students are trained in such a way that they learn them to get good scores regardless of content's relevance and without thinking. But, this kind of teaching and learning to do something creative is really useless. Traditional methods have rigid structure and restricted students; also they deprive students from any intellectual development, innovation and exploration by relying on the memorizing and transferring information. In descriptive assessment model, teachers apply assessment for better learning. For this purpose, the weakness of students' performance and their strengths are evaluated to find a way to resolve or improve them, not merely reflect the weakness. Also, this assessment model cause teachers considers themselves as the students' learning companion and accompany them on the path; not standing at the end of the path and waiting to see who gets the end (learning) sooner. Imagine of eliminating the score feedback is impossible for many teachers; according to them, the score is a strong motivational lever and it is one of the authority tools of the teacher so that eliminating it makes a huge void in the process of learning. But the fact is that removal of score and any non-descriptive feedback does not cause a problem, even as it also leads to improvement of learning conditions, since the children are no longer worry about the scores. They seek to recognize their mistake in the learning activities. Parents also do not expect the child to get score; but, they ask their children that "what did you learn today?". One of the stressors factors is the elimination of the score. So, the class should provide a condition for the little passenger to follow his/her score of learning journey with peace of mind. In the educational achievement report, parents clearly realize that the child may have problems in which part of the educational expectations and they receive some recommendations for improving the educational performance of their child with regard to the problems (Mohammad Hasani, 2006). Xosh Xolq and Sharifi (2006) in a research entitled "Assessing the Experimental Implementation of Qualitative-Descriptive Assessment in the Primary Schools" have considered the problems of qualitative-descriptive assessment as follows:

Inconsistency in the implementation of qualitative-descriptive assessment at the level of included schools

Failure to provide proper conditions for giving process feedbacks in relation to the development of students' learning

The descriptive assessment requires a certain level of professional growth

Writing and recording activities is a difficult task for teachers

Lack of time during the week to engage in assessment activities

Uncertainty about the identity of qualitative-descriptive assessment concept for teachers, parents, and students

Given that descriptive assessment is one of the most influential assessments, there is a critical question that what

is the impact of descriptive assessment of the students in terms of critical and creative thinking? Most often, people consider the word "creative" as a synonym for the words "smart" and "talented"; and they thought that a talented and smart child is creative, as well or the creative child is very smart. Although, smart children have more potential talents, which use in creative ways, creativity is not same as the talent and smart. Creativity is a process, which is based on talent, teaching, and thinking. "Creativity encompasses a wide range of small daily issues to important historical developments in science, literature, and art; and unlike the public opinions, any person can be creative with normal cognitive abilities and some efforts. Children of various ages show different types of creative behavior." (Hoseini, 2002:62). Every normal human can do something creative in any field. In order to have creative adults should pay attention to the creative children. That's why flourishing the skills and motivation for creativity should be taken into consideration. Environments in which children flourish their creativity and the amount of creativity they exhibit depends on their training, experience and level of physical and intellectual development. In our country, there have been raised little discussions on creativity for many years. Also, one of the main objectives of our education system is flourishing the creativity of students. Despite the importance of this issue, it has been conducted less the fundamental researches and planning to flourish the students' creativity for various reasons, while there is a desperate need to a creative and innovative generation (Soleimani, 2002:11). In order to have a relatively adequate assess of children's creativity, you should place creativity in your mind's agenda whenever you are with your child; however, judgment on creativity is not an easy task, and it is not recognizable that the things child utter or the act s/he does are really for him new or have a concept. Also, some tests are performed to determine the creativity, which usually raise some questions; in these tests, students have to write one or more hypothetical answers for the questions. Creativity tests will be likely associated with anxiety since are usually done in conditions such as exams conditions in schools. Perhaps, students cannot easily answer them and have flexible thoughts; therefore, in addition to test, child's behavior should be observed accurately and knowingly. After recognizing the creativity of children, the most important issues is the way of maintaining and fostering it. The internal motivation for creativity should be fostered. The best way to maintain the children's creativity is that helps them to link their interests, talents, and skills together. Understanding the internal motivation for creativity is a crucial stage to encourage creativity in children. The ground for creativity i.e. the pleasure and satisfaction in children should be provided. Reminding competencies and independent decision-making will lead to creativity in children. Activities that children are dominated are more enjoyable for them; and if they feel that the work belongs to them; then, they spend more time on it. Researches have shown that students who are more independent in decision-making and are given the right to choose to have more internal motivation to do their work and have a more impressive development in their creativity. "Studying the components of creativity determines that creativity is not a constant characteristic feature that lies in human being

without any change, but it is the item that is completely strengthened or weakens and even destroyed by some factors or obstacles. Some conditions provide grounds for the emergence and spread of creativity while some situations dry out the roots of creativity in human beings." (Hoseini, 2002:63).

Amabile et al (1988) in a research interviewed 120 scientists in various fields of study. They concluded that environmental factors are superior in the development of creativity (Hoseini, 2002).

Passion and love is not immune from vulnerabilities, even children who have a very strong incentive, may get extremely weak as a result of the disincentive environment; therefore, their creativity will wipe out. Where there is such an environment? Do the common systems of the traditional strict schools and conservative home environment responsible for? Even those who have quite good intentions can unintentionally create a situation that is harmful for the health of children's creativity (Amabile, Trans by Qasem Zade and Azimi, 1996:85).

In many families, parents force their children to learn. Unfortunately, this matter is quite true not only in the family, but also in the educational environment namely schools. Sometimes, the school's conditions are in a way that not only does not help to foster creativity, but also it is suppressed this God's blessing (Karimi, 2005:26).

Our teachers and administrators with the good intention that are supposed to discover the potential talents of students have forced students to learn materials that the student does not the purpose of learning it, as well. But punishment and threats do not always take place through compulsion; sometimes, unwarranted rewards are considered as punishment and compulsion. Assessment of creativity is the biggest obstacle to its development. This assessment can lead the children to the less creativity either positive or negative. Tests have shown that even feeling being observed during work can have a negative impact on the creativity.

Rewarding is another factor to destroy creativity. Most people thought that the rewarding will cause to improve the performance but it is not always so. Use of external incentives causes the internal desire and motivations that lead to creativity and self-confidence be eliminated. "Scholars believe that rewards, especially when are not used at the proper time will destroy individuals' internal motivations, especially in doing innovative and creative activities." (Karimi, 2005:30).

Frequent use of rewards causes children; for example, do not enjoy the sports that have not accompanied by victory or they will not be satisfied by studying that have not led to getting a good grade; and in general, they will not be satisfied by doing what is not acclaimed by others. Love for learning and motivation for creativity will be destroyed by giving external rewards. On the other hand, cutting rewards may create a sense of punishment in the child. Also, limitations on choosing will lead to destroy the creativity. As mentioned, the freedom to choose will promote the development of creativity and the reverse is also true. It means that limitations on choosing and pressures of learning will destroy the creativity. Pressures that families and schools impose to the child for memorizing materials and learning them, which these children do not have a high level of internal motivations, will have devastating effects and its

negative effects will emerge in the form of escaping from school, drop out and unwillingness to study, and even suicide. The worst factors in suppression of creativity are the external pressures.

A large number of parents lead their children toward a path that they think the children will success in that field. Although, it is not the child's favorite, –the child maybe success- s/he will not be satisfied and really creative. Also, teachers and educators will cause reduced the motivation by the permanent assessment; since, the scoring system in the schools has caused children to greed for gaining score rather paying attention to increasing knowledge and improving skills. A common misunderstanding in this regard is that creativity has no relationship with critical thinking. The division of thinking into two entirely separate categories is an extreme simplification about thinking. In fact, dividing the thinking into two categories of critical and creative reflects the conceptual difference between the analysis of problem's factors in a logical manner (the critical approach) and increasing those factors, combining them again or looking at them from a new perspective (the creative approach). Most problems require both types of thinking. Creativity is not only providing new solutions to solve problems, but it also offers better solutions and requires critical judgment. The education that focuses just on one kind of thinking would be incomplete and unbalanced (Fisher, 2006). Thus, the mentioned skills should be considered together when talking about thinking and its training. Maya Rona (1993) says that the critical thinking aims to understand the issues, evaluate ideas, and solve problems. Asking questions is common in all three aspects. So, it can be said that the critical thinking is a question or search for understanding, evaluating and problem solving (Fowler, quoted from Qarib, 2006). Critical thinking skill includes the ability of objective analysis of the available information based on the personal experiences and identifying the influential effects of social values, peers and the media on the individual behavior (Fathi et al., 2006). An individual uses a set of cognitive skills to judge or evaluate and improve the quality of judgment, which these skills are known as critical thinking skills; these skills include analysis, interpretation, inference, explanation, assessment and self-regulation (Fasion et al., 1995). Regarding the above items, researcher is intended to compare descriptive assessment in terms of creative thinking in the dimensions of invention, extension, fluidity, and flexibility according to theory of Guilford (1987) and in terms of critical thinking in the dimensions of creativity, commitment, maturity according to theory of Richetts (2003), and it also will answer the following question:

Is there a difference between descriptive assessment in terms of critical and creative thinking of sixth grade students in the public and private schools of district four in Karaj?

The Main Objective

*Comparison of descriptive assessment in terms of critical and creative thinking of sixth grade students in the public and private schools of district four in Karaj

Secondary Objectives

*Comparison of descriptive assessment in terms of creative thinking in the invention dimension of sixth grade students in the public and private schools of district four in Karaj

*Comparison of descriptive assessment in terms of creative thinking in the extension dimension of sixth grade students in the public and private schools of district four in Karaj

*Comparison of descriptive assessment in terms of creative thinking in the fluidity dimension of sixth grade students in the public and private schools of district four in Karaj

*Comparison of descriptive assessment in terms of creative thinking in the flexibility dimension of sixth grade students in the public and private schools of district four in Karaj

*Comparison of descriptive assessment in terms of critical thinking in the creativity dimension of sixth grade students in the public and private schools of district four in Karaj

*Comparison of descriptive assessment in terms of critical thinking in the maturity dimension of sixth grade students in the public and private schools of district four in Karaj

*Comparison of descriptive assessment in terms of critical thinking in the commitment dimension of sixth grade students in the public and private schools of district four in Karaj

Research Questions:

This study will answer the following questions:

The Main Question

Is there a difference between descriptive assessment in terms of critical and creative thinking of sixth grade students in the public and private schools of district four in Karaj?

Secondary Questions

*Is there a difference between descriptive assessment in terms of creative thinking in the invention dimension of sixth grade students in the public and private schools of district four in Karaj?

*Is there a difference between descriptive assessment in terms of creative thinking in the extension dimension of sixth grade students in the public and private schools of district four in Karaj?

*Is there a difference between descriptive assessment in terms of creative thinking in the fluidity dimension of sixth grade students in the public and private schools of district four in Karaj?

*Is there a difference between descriptive assessment in terms of creative thinking in the flexibility dimension of sixth grade students in the public and private schools of district four in Karaj?

*Is there a difference between descriptive assessment in terms of critical thinking in the creativity dimension of sixth grade students in the public and private schools of district four in Karaj?

*Is there a difference between descriptive assessment in terms of critical thinking in the maturity dimension of sixth grade students in the public and private schools of district four in Karaj?

*Is there a difference between descriptive assessment in terms of critical thinking in the commitment dimension of sixth grade students in the public and private schools of district four in Karaj?

Methodology

This is a descriptive research which is done in a causal-comparative method. The population consisted of all sixth grade students (girls and boys) in the public and private primary schools. According to the information, the total number of students was 8529 people, which 7788 of them were selected among public school students and 741 of them were selected among private school students. Stratified

random sampling method was used as the sampling method. The sample size of 368 was determined by using Kerjcie & Morgan table, in which 330 of the samples were belonged to the public schools and 38 of the samples were students of the private schools.

Data Collection Method

The following methods were used to collect the data:

1. Studying the latest scientific achievements in the field of educational assessment using the Internet and library research
2. Completing descriptive assessment tool such as a descriptive assessment transcript of records
3. Due to the comprehensiveness and classification of selected parameter and the total scores that subjects obtained in answering each question, the questionnaire comprises the total score of the test.

This research was employed Critical Thinking Dispositions Questionnaire (Ricketts, 2003), Torrance Test of Creative Thinking (TTCT) (Figural form B) (1998), and descriptive Transcript of Records (ToR).

Measurement Tool

Scoring Descriptive Assessment Method

Descriptive transcript of records 2014-2015 was used to convert the descriptive assessment of the numerical scale.

Very Good: Scores between 18 and 20

Good: Scores between 15 and 17

Acceptable: Scores between 12 and 14

Requires more efforts: Scores between 9 and 11

Introducing the Critical Thinking Dispositions Questionnaire (Ricketts, 2003)

The critical thinking dispositions questionnaire is a self-report tool that measures the tendency level of critical thinking. Critical thinking is thought, which raises the likelihood of achieving the optimal yields by using the cognitive skills and strategies. The questionnaire contains 33 items and 3 sub-scales as follows: creativity (11 items), mature (9 items), and commitment (13 items). The scale was designed after Moor, Rood, and Penfield (2003) had found different and significant results on the CCTDI*. The subjects should specify their level of opposition to each of the items (from strongly disagree=1 to strongly agree=5).

Scoring method

Scoring the items of critical thinking dispositions questionnaire is as follows:

Strongly Disagree:5, Disagree: 4, I do not know: 3, Agree: 2, Totally Disagree: 1

Questionnaire Validity

For standardizing the critical thinking dispositions questionnaire, Ricketts (2003) carried out it on 60 junior students of agriculture. The reliability coefficient of sub-scales are reported as follows:

Sub-scales of creativity= 0.75, maturity=0.57, and commitment= 0.86

Introducing Torrance Test of Creative Thinking (Figural form B)

Torrance tests that are the result of 9 years efforts of Torrance and his colleagues (1998) on the creative behavior and its manifestations have been used in many studies as a criterion for assessing creativity. These tests are developed based on the Torrance theory and his definition of creativity, and they measure for factors of invention, extension, fluidity, and flexibility, which are somewhat influenced by Guilford's structure of intellect (SI) theory; so that Torrance (1989), according to the results, is cited the reliability coefficient between 0.080 and 90.0 and the validity coefficient equal to 0.63 for this test and other creativity tests. Torrance tests have had the highest use o measuring creativity, and they are used more than any other test in most educational researches that their results are published in the scientific journals. Haqiqat (1998) (quoted from Kefaiat, 1994) suggests the validity coefficient of 0.27 by using Abedi test. Haqiqat (1998) (quoted from Kefaiat, 1994) by using a Cronbach Alpha method suggests the reliability coefficients of 0.50, 0.68, 0.73, 0.62, and 0.86 for the invention, extension, fluidity, flexibility, and creativity, respectively, which were significant at the level of 0.001, as well (ibid).

Table 1: Reliability Coefficient of Creativity Test using Cronbach Alpha Method

Different parts of creativity test	Invention	Extension	Fluidity	Flexibility	Total creativity
Validity Coefficients	0.89	0.91	0.82	0.87	0.84

As it can be seen in the above table, validity coefficients of different parts of creativity test are more than 0.7 and the validity coefficients of the total creativity is equal to 0.84. So, the results indicate that the creativity test is valid and reliable.

Information Analysis Method

By necessity, descriptive and inferential statistics are used to analyze the data. Tables and diagrams were drawn to show the descriptive statistics and independent T-test is applied to analyze the inferential statistics by using SPSS software.

Statistical Inference

In this section, research questions are analyzed by using the Independent T-test.

The Main Question: Is there a difference between descriptive assessment in terms of critical and creative thinking of sixth grade students in the public and private schools of district four in Karaj?

Table 4-5: MBOX Test, Pillai's Trace Test, Levene's Test

	F	df ₁	df ₂	Sig
MBOX Test	11.713	3	50796.809	0.65
Pillai's Trace	17.558	2	365	0.0001
Levene's Test				
Creative Thinking	43.672	1	366	0.0001
Critical Thinking	0.405	1	366	0.525

According to the data in the above table:

*Considering that the significance level of MBOX test is more than 0.05; thus, the assumption of homogeneity of variance-covariance matrices have not been violated.

*Pillai's trace test with significant level of less than 0.05 showed that there is a statistically significant difference

*. California Critical Thinking Dispositions Inventory

between the groups in the linear combination of dependent variables.

*In the Levene's test, the variable of creative thinking is at the significant level of less than 0.05; therefore, it has not

met the assumption of equality of variances. As a result, if the significance level is more difficult; then, it would be accepted at other stages.

Table 4-6: The Effects Tests between Subjects

		Mean	Df1	Df2	Mean Squares	F	Sig
Creative Thinking	Public	177.815	1	366	31807.448	33.346	0.0001
	Private	147.26					
Critical Thinking	Public	68.527	1	366	154.968	1.094	0.296
	Private	66.395					

According to the values of $p < 0.001$, $F(1,366) = 33.346$, the descriptive assessment of creative thinking variable indicated that public school students (177.815) have a higher mean (in the range 154-201 scores= at the very good level) than private school students (147.26) (in the range of 106-153 scores= at the good level). But, regarding the $P > 0.05$, $F(1,366)$, the descriptive assessment of creative

thinking variable showed that there is no significant difference between the public school students (68.527) and private school student (66.395) in terms of score means.

Secondary Questions

Secondary Question one: Is there a difference between descriptive assessment in terms of creative thinking in the invention dimension of sixth grade students in the public and private schools of district four in Karaj?

Table 4-7: Independent T-test of Creative Thinking in the Invention Dimension

Group	Descriptive Statistics		Levene Test		Statistics T		
	Mean	Standard Deviation	F	Sig	T	df	Sig
Public	102.4	16.47	44.34	0.0001	3.612	39.575	0.001
Private	84.42	84.42					

According to the above table,

*Levin test with a significance level of less than or equal to 0.05 represents the unequal variance; thus, the unequal variance was used for interpretation in the next stage.

* $P < 0.05$, $T(39.575) = 3.612$, descriptive assessment of creative thinking in the invention dimension showed that public school students (Mean=102.4) have a higher mean

(in the range of 100-116 scores=at the very good level) than private school students (Mean=30.42) (in the range of 80-100 scores = at the good level).

Secondary Question Two: Is there a difference between descriptive assessment in terms of creative thinking in the extension dimension of sixth grade students in the public and private schools of district four in Karaj?

Table 4-8: Independent T-test of Creative Thinking in the Extension Dimension

Group	Descriptive Statistics		Levene Test		Statistics T		
	Mean	Standard Deviation	F	Sig	T	df	Sig
Public	24.78	5.197	42.358	0.0001	3.17	39.822	0.003
Private	20	9.106					

According to the above table,

*Levin test with a significance level of less than or equal to 0.05 represents the unequal variance; thus, the unequal variance was used for interpretation in the next stage.

* $P < 0.05$, $T(39.822) = 3.174$, descriptive assessment of creative thinking in the extension dimension showed that public school students (Mean=24.78) have a higher mean (in the range of 18-24 scores=at the good level) than private

school students (Mean=20) (in the range of 18-24 scores = at the good level).

Secondary Question Three: Is there a difference between descriptive assessment in terms of creative thinking in the fluidity dimension of sixth grade students in the public and private schools of district four in Karaj?

Table 4-9: Independent T-test of Creative Thinking in the fluidity Dimension

Group	Descriptive Statistics		Levene Test		Statistics T		
	Mean	Standard Deviation	F	Sig	T	df	Sig
Public	26	3.629	36.783	0.0001	2.97	39.295	0.005
Private	22.55	7.039					

According to the above table,

*Levin test with a significance level of less than or equal to 0.05 represents the unequal variance; thus, the unequal variance was used for interpretation in the next stage.

* $P < 0.05$, $T(39.295) = 2.97$, descriptive assessment of creative thinking in the fluidity dimension showed that public school students (Mean=26) have a higher mean (in

the range of 23-28 scores=at the very good level) than private school students (Mean=22.5) (in the range of 17-24 scores = at the good level).

Secondary Question Four: Is there a difference between descriptive assessment in terms of creative thinking in the flexibility dimension of sixth grade students in the public and private schools of district four in Karaj?

Table 4-10: Independent T-test of Creative Thinking in the Flexibility Dimension

Group	Descriptive Statistics		Levene Test		Statistics T		
	Mean	Standard Deviation	F	Sig	T	df	Sig
Public	24.65	3.925	38.467	0.0001	3.61	39.483	0.001
Private	20.29	7.322					

According to the above table,

*Levin test with a significance level of less than or equal to 0.05 represents the unequal variance; thus, the unequal variance was used for interpretation in the next stage.

*P<0.05, T (39.483) = 3.61, descriptive assessment of creative thinking in the flexibility dimension showed that public school students (Mean=24.65) have a higher mean

(in the range of 23-28 scores=at the very good level) than private school students (Mean=20.29) (in the range of 17-24 scores = at the good level).

Secondary Question Five: Is there a difference between descriptive assessment in terms of critical thinking in the creativity dimension of sixth grade students in the public and private schools of district four in Karaj?

Table 4-11: Independent T-test of Critical Thinking in the Creativity Dimension

Group	Descriptive Statistics		Levene Test		Statistics T		
	Mean	Standard Deviation	F	Sig	T	df	Sig
Public	19.98	4.38	0.906	0.342	0.928	365	0.354
Private	19.26	5.26					

According to the above table,

*Levin test with a significance level of more than or equal to 0.05 shows that the assumption of homogeneity of variances is met.

*P<0.05, T (365) = 0.928 indicated that there is no significant difference between the descriptive assessment of creative thinking in the extension dimension of public

school students (Mean=19.98) and private school students (Mean=19.26) (in the range of 17-24 scores = at the acceptable level).

Secondary Question Six: Is there a difference between descriptive assessment in terms of critical thinking in the maturity dimension of sixth grade students in the public and private schools of district four in Karaj?

Table 4-12: Independent T-test of Critical Thinking in the Maturity Dimension

Group	Descriptive Statistics		Levene Test		Statistics T		
	Mean	Standard Deviation	F	Sig	T	df	Sig
Public	26.77	5.54	3.7	0.055	1.712	366	0.088
Private	25.11	6.69					

According to the above table,

*Levin test with a significance level of more than or equal to 0.05 shows that the assumption of homogeneity of variances is met.

*P>0.05, T (365) = 1.712 indicated that there is no significant difference between the descriptive assessment of creative thinking in the maturity dimension of public school

students (Mean=26.77) and private school students (Mean=25.11) (in the range of 25-32 scores = at the good level).

Secondary Question Seven: Is there a difference between descriptive assessment in terms of critical thinking in the commitment dimension of sixth grade students in the public and private schools of district four in Karaj?

Table 4-13: Independent T-test of Critical Thinking in the Commitment Dimension

Group	Descriptive Statistics		Levene Test		Statistics T		
	Mean	Standard Deviation	F	Sig	T	df	Sig
Public	21.79	5.488	2.37	0.125	-0.248	366	-0.235
Private	22.03	5.966					

According to the above table,

*Levin test with a significance level of more than or equal to 0.05 shows that the assumption of homogeneity of variances is met.

*P>0.05, T (365) = -0.248 indicated that there is no significant difference between the descriptive assessment of critical thinking in the commitment dimension of public school students (Mean=21.79) and private school students (Mean=22.03) (in the range of 17-24 scores = at the acceptable level).

Suggestions

Every research report presents for the researcher communities with a hope of continuing its way and writing about its subject. So, there is an essential need for some suggestions that would pave the way for the future researches. Suggestions of this research are as follows:

Suggestions based on the findings

According to the results of research based on the lack of critical thinking in the public and private schools, it is recommended that:

- *Challenging questions of students be answered,
- *Problem solving method seriously be used in teaching,
- *Creativity be educated in the schools,

- *Brainstorming method be used in teaching,
- *Teachers should valorize the creative thinking,
- *Constructive criticism be developed, not just criticism,
- *Heuristic method be used in teaching,
- *Tolerance for accepting new ideas be developed,
- *Students be informed about the process of creativity,
- *Students be encouraged to acquire knowledge in various fields.

Research Suggestions

Considering that sixth grade students of district four in Karaj were studied in this research, it is suggested to conduct some research on other districts for achieving a homogeneous result with a high generalizability.

It is recommended that this research conducted in other districts of Karaj and at the broader level, in the country; so that, it will clear that implementing the descriptive assessment system in primary schools has been successful in developing the creative and critical thinking in students. It is better that it be comparable with the traditional education system in this regard.

It is suggested that future researches consider the factors such as education level of parents, family income level and other factors.

References

- Sborn, L. F. (1963). *Fostering the Universal Talent of Innovation and Creativity*, (H. Qasem Zade, Trans.), Tehran: Niloofar Publications.
- Eslami, M. (2003). *Presenting a Model for the Design and Implementation of Critical Reading Program and its Effects on the Critical Thinking and Analytical Writing*", Ph.D. Thesis, Teacher Training University.
- Alborzi, M. (2007). *Explaining the Intermediation of Motivational Beliefs in the Children's Creativity Model with Approach to Variables of Household, School, and Documents Beliefs in the Elementary School Students*, Ph.D. Thesis, Faculty of Education and Psychology, Shiraz University.
- Amabile, T. (1996). *Flourishing Children's Creativity*, (Qasem Zade and Azimi, Trans.), 1st Ed. Tehran: New World Publishing.
- The First Conference on the Educational Assessment, 1st Ed. Tehran: Tazkie Publication.
- Pazadgadi, M.; Shahabi, M.; Mohaje, T.; Mahdavi, Z.; Yaqmaee, F. (2002). *Critical Thinking in Medical Sciences Education*, Journal of Nursery and Midwifery Faculty, Shahid Beheshti University, Vol. 12, N. 380: 36-45.
- Pishegar, A. (2004). *The Relationship between Learning Skills and Critical Thinking in the Students of Humanities, Technical-Engineering at Tehran University*, M.A. Thesis, Allameh Tabatabaei University.
- Jahani, J. (2002). *A Review on the Philosophical Foundations of Mathew Lemene Educational Model for Critical Thinking*, Quarterly Journal of Humanities Scientific-Research, Alzahra University, Summer.
- Hasani, M. (2003). *A Guide for Descriptive Assessment*, the Office of Academic and Educational Assessment.
- Hasani, M. (2006). *Descriptive Assessment: A Response to the Shortcomings of the Current Educational Assessment System*.
- Hoseini, A.A. (1969). *Creative Thinking: The Ultimate Goal of Education*, [Tehran], February.
- Hesarbani, Z. (2007). *Descriptive Assessment of New Model in Educational Assessment*.
- Zareei, R. (2003). *The Relationship between Critical Thinking Ability and Intelligence and Creativity in Students of the Secondary Schools for Girls of District 4 in Shiraz*, M.A. Thesis, Central Branch of Islamic Azad University.
- Zangane, H. (2007). *Impact of Using ICT in Developing Creative Thinking of Middle School Students in the Third-grade in Tehran*. M.A. Thesis, Allameh Tabatabaei University.
- Shareiat Madarai, A. (2011). *Criticism and Creativity in Thinking*, Tehran: Institute of Islamic Thoughts and Culture Publications.
- Sha'bani, H. (2000). *The Impact of Teamwork Problem Solving on the Critical Thinking and Educational Achievement of Primary School Students in the Fourth-grade in Tehran*, Ph.D. Thesis, Teacher Training University.
- Freire, P. (1990). *Teaching Critical Recognition*, (M. Kaviani, Trans.), Tehran: Agah.
- Kazemi, Y. (2003). *A Guide for Descriptive Assessment*, the Office of Academic and Educational Assessment.
- Kazemi, Y.; Hasani, M. (2003). *A Guide for Formative-Descriptive Assessment*, the Office of Academic and Educational Assessment.
- Taleb Zade, A. (2007). *Creativity and Innovation in Individuals and Organizations*, Scientific Journal of Policy Education, Vol. 15, No. 152.
- Mohaqq Moen, M.H. (2004). *Assessment of the Implementation of Pre-trial Descriptive Assessment Plan*, the Office of Academic and Educational Assessment.
- Mehrabi, M.; Alipour, A.; Saeed, S. (2012). *Evaluation of Critical Thinking in Mashhad PNU Students*, Original Article, No. 4.
- Meyers, CH. (1996). *Critical Thinking Training*, (X. Abili, Trans.), Tehran: SAMT.