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The Effect of TRIZ (OTSM) Training on Preschoolers' Creativity and Philosophy of Use in Beh- Bahan

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ABSTRACT

This study aimed to analyze the effect of TRIZ training on preschoolers' creativity and philosophy of use in Beh-Bahan, Iran. The correspondents of the study included sixty (60) boy and girl Preschoolers that were randomly selected from different kindergarten schools in Beh-Bahan, Iran. The research instrument included Ravens, progressive mattris test, Torrance's picture creativity question air; Alhen's reasoning skill question air and TRIZ (OTSM) training method of inventive problem solving. The preschoolers were assimilated with Raven's progressive matris test. The selected sixty (60) correspondents were then divided in to two groups of control and experimental groups. Both control and experimental groups were pre- tested with respect to creativity and philosophy of use, and then the experimental groups were trained by TRIZ training method for eight (8) weeks. Both control and experimental groups were post tested. After the training period, the gathered data was further examined by t- test, and analyzed by SPSS statistical tools. The findings of the study showed that: The posttest mean score and t-test value of both preschoolers' creativity and philosophy of use differed significantly from those of pre- test. This indicated that TRIZ (OTSM) training of inventive problem solving had significant effect on both preschoolers' creativity and philosophy of use.

Keywords. TRIZ (OTSM), training method, preschoolers, creativity and philosophy of use.

INTRODUCTION

In today's society everything changes rapidly. People are facing much social problems and there are limited sources to solve these problems. According to [peH, A.v. and Hey,j 2011]. Creativity is an important factor to cope with these social problems. The importance and vital needs of creativity are increasing and governing all aspects of human life. [Fisher, R, 2000].TRIZ is a Russian word that refers to the theory of solving problems creatively. It is the acronym of Teariya Resheniya Lzobrototelshikh Zadateh that is a Russian phrase and equivalent to theory of inventive problem solving. On the other hand OTSM and TIPS are their respective training methods. TRIZ (OTSM) was first introduced by [Altshuller, 1946]. He wished to accelerate the problem solving methods, and carry them to others. Finally his wish came true and he created TRIZ (OTSM) as on inventive problem solving methods (TIPS). He also believed that's creativity is not just instinct and it can be acquired too. Furthermore, it can be transmitted to others. TRIZ (OTSM) is also parallel to systematic innovation, inventive creativity, and methodology of creativity [Marsh, D; Walter, F., & Mann, D, 2002].

OTSM games are indirect methods for systematic thinking, perception and recognition of objects, and mean for using minds and thoughts in order to increase the children's mental

abilities [Kharmankoo, 2006]. Effective education systems aim to nurture individuals who are capable of doing new things and not to repeat things done by others [Jean Piaget, 1950]. This means that good individuals should be creative, inventive, and discoverer. In addition, they should not easily accept everything presented to them. Instead they should be able to criticize and examine their accuracy and reliability.

If we involve the children in philosophical discussion, we can develop their thinking means that yields to philosophy for children. Philosophy for children was first introduced by a contemporary philosopher Lipmann [Mar-Ashi, Rahimi Nassab & Lasani, 2008]. Lipmann believes that, if children's natural curiosity is related to philosophy of use they can be changed to critic, fixable and effective individuals [Lipmann M; 2003]

Thus, based on the importance of creativity and philosophy of use on one hand, and the effect of TRIZ (OTSM) method on these parameters on the other hand, the researcher conducted this study.

METHOD OF RESEARCH

This study was a semi-experimental type of study. The correspondents of this study included sixty (60) boy and girl preschoolers who were assimilated by Raven's aptitude test. They were randomly selected and divided into two thirty (30) control and experimental groups. Both groups were pre-tested by different question naives with respect to preschoolers' creativity and philosophy of use. Then the experimental group was trained by TRIZ (OTSM) method for eight (8) weeks. Both groups were post tested again with respect to preschoolers' creativity and philosophy of use. The gathered data was then statistically measured by t-test and further analyzed by S.P.S.S statistical tool.

RESEARCH INSTRUMENTS

Research instruments included. Raven's progressive mattris test, Terrance's picture creativity questionnaire Allen's reasoning skill questionnaire, and TRIZ (OTSM) training method of inventive problem solving.

Reven's progressive mattris test is one of the non-verbal general inelligence test published by Raven the British psychologist in 1936. This test was used to assimilate the respondents. Torrance's picture creativity questionnaire composed of three parts to measure the preschoolers' creativity, Allen's reasoning skill questionnaire. This questionnaire included fifty nine (59) multiple choice question to evaluate the preschoolers' philosophy of use.

DISCUSSION AND FINDINGS

In order to analyze the effect of TRIZ (OTSM) training method on preschoolers' creativity and philosophy of use, the researcher hypothesized the two following hypothesis:

1. TRIZ (OTSM) training method has a significant effect on preschoolers' creativity.
2. TRIZ (OTSM) training method has a significant effect on preschoolers' philosophy of use.

In order to verify the two hypotheses the researcher divided the assimilated preschoolers' into two thirty (30) boy and girl control and experimental groups. Both control experimental groups were pre- tested with creativity and reasoning skill questionnaires. Then the experimental group preschoolers took the TRIZ (OTSM) training method for eight (8) weeks. After the training both control and experimental groups were post tested with the same questionnaires with respect to preschoolers' creativity and philosophy of use. The descriptive

statistical findings of both pre-test and post test with respect to pre-scholars' creativity for each groups are shown in table 4.1.

Table 4.1: the descriptive statistical Findings with respect to creativity

	Experimental	Group	control	Group
Variables	Pre- test	Pre- test	Pre- test	Po-T
Lowest score	21	21	21	21
Highest score	27	28	27	27
Mean score	21.73	25.53	21.39	21.44
Standard Deviation	1.41	1.08	1.17	1.15

As it is shown in table-I the post test mean score of experimental group is significantly greater than the pre-test mean score ($\overline{X}_{PO\ T} = 25.53 > \overline{X}_{Pre\ T} = 21.39$). This indicated that TRIZ (OTSM) training method had significant effect on preschoolers' creativity.

The posttest descriptive statistical findings of both groups with respect to preschoolers' philosophy of use are shown in table 4.2.

Table 4.2: the Descriptive statistical Findings with Respect to preschoolers' philosophy of use.

	Experimental Group		Control Group	
Variables	Pre- test	Post- test	Pre- test	Post- test
Lowest score	18	18	18	18
Highest score	25	25	25	25
Mean score	19.66	24.05	19.86	20.00
Standard Deviation	1.75	1.24	1.33	1.27

As it is shown in table-II the post test mean score of experimental Group is significantly greater than the pre-test mean score ($\overline{X}_{PO\ T} = 24.05 > \overline{X}_{Pre\ T} = 19.66$). This indicated that TRIZ (OTSM) training method had significant effect on preschoolers' philosophy of use.
The posttest analytical findings of both groups with respect to preschoolers' creativity are shown in table 4.3.

Table 4.3: the post analytical Findings with Respect to creativity

Variable	Mean Difference	t- Value	Deyree of Freedom (DF)	Level of significant
Experimental and control groups post test	6.22	13.89	58	8.001

As it is shown in table-III t=13.89 and θ=0.001 since θ=001 < 0.05, it is concluded that there is significant different between of experimental group and control group with respect to preschoolers' creativity. This further indicates the TRIZ (OTSM) training had significant effect on preschoolers' creativity.

The posttest analytical findings of both groups with respect to preschoolers' philosophy of use are shown in table 4.4.

Table 4.4: the posttest analytical Findings with Respect to preschoolers' philosophy of use.

Variable	Mean Difference	t- Value	Deyree of Freedom (DF)	Level of significant
Experimental and control groups post test	4.20	11.75	58	0.04

As it is shown in table-IV t=11.75 and θ=0.04 since θ=0.04 < 0.05.

It is concluded that there is significant different between of experimental group and control group with respect to preschoolers' philosophy of use.
This further indicates the TRIZ (OTSM) training method had significant effect on preschoolers' philosophy of use.

CONCLUSION

Based on the descriptive statistical findings presented in table-I and table-II, and likewise the analytical findings presented in table-III and table-IV, the post test of experimental group significantly differed from the control group with respect to both aspects of preschoolers' creativity and philosophy of use. This meant that TRIZ (OTSM) training method had significant effect on preschoolers' creativity and philosophy of use in Beh-Bahan, Iran. This result cited with the study of Barak and Mesika conducted on some intermediate pupils. They concluded that TRIZ training significantly affected the pupils' creative thinking (Barak, Moshe; & Mesika, penina, 2007).

parnes, s.J.(1961), Kiely, Thomas(1993), pestel, Bevery c. (1997), Rawlinson J Geoffrey. (1998) and Ugur, s. & Ozge, O. (2009) conducted similar studies and concluded that TRIZ training has significant effect on children's creativity.

If we have to find new solution to our problems, creativity should be trained in schools is so that our children learn who they are what they think and what they do (Afrooz, 2008).

Children, who are trained by TRIZ training methods, are more successful to find answer or solution to their problems (kannensiesser, Udo, William. Christopher, 2012)

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