



**THE SURVEY OF THE PRESCHOOL CENTERS AND CREATIVITY MODERN
TEACHING EFFECTS ON THE MATH PERFORMANCE OF THE SECOND GRADE
STUDENTS**

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ABSTRACT

The present study with the objective of the survey of the preschool centers and creativity novel teaching effect on the math performance of the second grade students in Khoy County has been undertaken by taking advantage of the pseudo-empirical study method. The present study population includes all of the second grade boy and girl students from Khoy County in the curriculum year of 2014-2015. 240 students were selected as the study sample by making use of multistage cluster sampling. Data collection tool in the present study are the achievement test and the second graders' math scores averages. The data was analyzed in two descriptive (demographical tables and diagrams) and inferential (one sample t-test) levels, and the obtained results indicate that the novel creativity teaching methods and the preschool centers positively influence the math performance of the second grade primary students.

Keywords: Creativity, mathematics, preschool, novel teaching methodologies.

INTRODUCTION:

The early years of the child life is thought of as one of the most critical periods of his or her life and what happens in this period radically influences the child's later growth. Because the individual's personality

foundation is laid in preschool period, the researchers and the experts have found that offering effective teachings in this period is of a vital importance for the child's later growth. The preschool centers have

shouldered the childhood period of the children and this is considered as the most significant responsibility from shaping the children personality point of view. This period can be a good introduction for teaching simple skills. Because the children show the greatest interest in playing in this period teaching such new-learners in a play-like manner can be of the highest significance. Also, because novel creativity teaching methods have been provisioned along with playing for the children and they are presented in the plays this method drastically influences the children creativity.

Problem statement:

The knowledge, skills and attitudes bases are formed from the preschool period and their importance has been accepted by everyone. Therefore, it is necessary to begin and pay attention to any sort of change and creativity from the early childhood period and the childhood programming and planning should be based on a strong foundation. The successful planning and programming is the one which considers the maximum number of the effective components and uses these components capabilities for nurturing the most possible aspects of the human beings existence. A type of planning which thinks about the human personality growth in any direction according to making the most out of

the available facilities and conditions and takes the future, present and past perspectives of the human communities into consideration (Bazargan, 2007). Nowadays, psychologists have a broader perspective of the children's world and what is happening therein and they specially emphasize childhood period education and culture and the role it plays in the future. Scientific findings indicate that about 50% of the child forms from the birth time to 4 years of age and about 30% of it is formed from 4 to 8 years of age and the remaining 20% matures in the distance from 8 to 18 years of age (Mahjoor, 1991, cited from Seneh et al, 2008). The preschool centers are among the most suitable places which can contribute, both to the child parents and the educators as well, to the proper education for the resolution of the problems. The children in kindergartens are more flexible than the primary school children and they are more receptive and offering proper teachings can be effective on their school achievements in the primary schools (Mofidi, 2002).

Creativity is the ability to think about the novel and unusual ways regarding the affairs and reaching to unique solutions for the problems. Creativity in science, art, literature and other aspects of the culture has always been respected by the people and due to the

same reason nurturing creative talents is considered as equal to nurturing problem-solving ability and it is enumerated as an important objective of education (Seyf, 2008). Teaching math is of a great importance and it is very simply can be claimed that the reason behind this significance is that learning math helps to the individual's life and via him or her it is transferred to the immediate society in which the individual is living. Therefore, in order to compensate for the mentioned downfall also the diversification of the math teaching methods and setting the circumstances to facilitate learning, the use of the instructional material and tools and on top of it video can play a very valuable role (Ahadyan, 1998). In the present study it is tried to survey the effect of the preschool centers and the novel creativity teaching methods on the second grade primary school students' math performance. To reach this goal two groups of the preschool students have been evaluated according to their math performance one of which had only been studying in the preschool centers and the other one besides passing the preschool had received creativity novel teachings and was now studying in the second grade primary school. Creativity modern teaching methods include various sorts of plays designed in

such a manner to increase students' creativity. According to a history of 37-year scientific and professional experience of the researcher in the metropolitans of the country such as Tehran, Tabriz, Shiraz and Orumieh and Khoy County itself for about 8 years we objectively figured out that if the children are worked with creativity modern teaching and memory enhancement and concentration methods and exclusive schemata this will not only influence their math lesson learning but it will also affect other lessons such as Farsi, art etc. and all of the life skills such as the biological, psychological and social health enhancement and the augmentation of their moral awareness and they will become more considerate of the religious values of their talents upbringing in various aspects such as cooperation, altruism, forgiveness, sacrifice etc. and they will become creative and innovative. In the present study, the subject matter which is of a high value is that whether the preschool centers have an influence on the second grade students' math performances? Whether modern creativity teaching methods have an effect on the second grade students' math performances? These questions are answered within the study.

Study background:

National researches:

Shohoodi et al (2013) in a study entitled “the comparison of the writing skill among the first grade primary school students with and without preschool experience obtained the following results: in all of the study hypotheses there is a significant difference between the students with preschool experience respective to the students without preschool experience from the perspective of spelling and writing skills. The writing skill in two subject matters of spelling and writing is better in the students with preschool experience than the students without this experience and the gender factor has been effective in such differences. Based on this, the role of the preschool experience has been highlighted in the writing skills.

Qasemtabar et al (2013) in a study entitled “the effect of creative presentation on preschool children’s social evolution” came to the following conclusion that: creative presentation significantly increases the children’s social evolution. Also, t-test results indicated that the intervening effect did not last until the pursuance stage. The quality of the creative presentation activities effects on the children’s social evolution has been discussed.

Teymoori (2010) performed an study entitled “the survey of the instructional software effects on learning the concepts before

learning the mathematical numbers in preschool children in Tabriz”, the objective of this study was the determination of the educational software effect on learning the concepts before learning the mathematical numbers which include: more, less-broad, narrow-short, long-far, near-heavy, light-big, small in Tabriz preschool centers children during the years from 2010 to 2011. To do so, by making use of the randomized multistage sampling method it was dealt with the selection of 50 individuals of the preschool students. To gather the information the researcher-made tool was applied and the test reliability was also obtained by making use of Cronbach Alpha of 94%. This study was implemented in three stages, in the first stage the pretest was performed by using the researcher-made tool, in the second stage by making use of instructional software the concepts before teaching the numbers were taught, and in the third stage the post-test was done in order to determine the effect of using instructional software on the above concepts learning. The study results after the comparison by dependent t-test from the pretest and posttest indicated that there is a significant difference between learning these concepts in pretest and posttest and the education status of the students taught by the

use of instructional software outperforms the other group.

Solbi (2009) in a study entitled “the survey of the computer games effect on the practical intelligence and vision-motor coordination of the preschool children in Behshahr County” stated that: computer games have a positive influence on the practical intelligence of the preschool children and this has been confirmed.

Senesh et al (2008) performed a research entitled “the physical activities and games effect on the mental faculties’ growth in preschool boys”: this study surveys the physical activities and games effect on the growth of the mental faculties of the preschool boys. The participants in this study include 60 kindergarten children and preschool students who were taken care of during the curriculum years from 2006 to 2007 and in the education district 2 of the city of Tehran.

The study participants are divided into two groups of 4 years and 3 months and 4 years and 9 months and 5 years and 3 months to 5 years and 9 months based on their ages. At first, all of the participants were tested based on the pretest criteria. Then the participants were randomly divided to separate kindergartens with two control (N=30) and test (N=30) groups based on the predefined

age. The test group underwent an organized 2-month period of physical activity and instructional game in order to find an answer to this question that whether the physical activities and games can influence the mental faculties (space perception and physical pattern) of the preschool boys. After passing this educational period, both of the control and test group underwent the posttest. The participants were studied by taking advantage of 3 tests including drawing a figure, collective shapes from a pattern and collective shapes by heart. The study results are indicative of the test group children mental faculties’ meaningful and significant growth in relation to their controls. It can be deduced from the study findings that the physical activities and games cause an acceleration of the children’s mental faculties’ growth.

Ghorbani (2001) in the survey of various aspects of the children use of computer and interview with Dr. Amir Hhoushang Mehryar has stated that: in the today’s world computers have become an integral part of the infants’ lives, computers can be used from the very beginning of childhood but provided that “this application of computers should be informed and programmed.” Regarding the humans studies have indicated that in children deprived of the relationship

with the others talent is less developed than the other children and this is why Amir houshang Mehryar states that because computers can incite several senses simultaneously, they can present information in a form that the nervous centers related to the affections and feelings can be influenced and this activity will surely contribute to the children's incitement and intelligence enhancement. Mehryar also expresses that like the past that the children before entering the primary school got familiar with the drawing and instructional tools, now they are to acquaint with computer and they have to play games and draw shapes by making use of computer.

Namdar (2000) in the survey of the revised two-dimensional games states that computer games are the programs which are used for recreation and amusement and of course the cause an increase in the problem-solving skill and hand-eye etc. coordination.

Rasekhi Azmi Sabet (1999) in the survey of the manual drawing and computer drawing effects on preschool children's creativity rate of the western district of the city of Tehran in 1999 came to this conclusion that the creativity rate of the children who have been trained to draw both by hand and computer is higher than the children who have not been taught how to draw. Also there is no

significant difference between the creativity rates in children who have been trained to draw by hand in comparison with the children who have been taught to draw by computer.

Foreign researches:

Alan et al (2013) performed a study entitled "the instructional technology tools effect on moderating the math accomplishments. Despite the previous studies, this study provides the fixed standards for concentration on the studies requiring methodological high level standards. Altogether, the studies' basic and methodological features have been evaluated in order to test the relationship between the instructional technological tools and the studied features. Generally 74 confirmed studies which included 56886 students were embedded in the final analysis: 45 preliminary studies and 29 secondary studies in relation to the recent studies, the findings suggest that the instructional technological tools generally have a positive and soft effect in comparison with the traditional methods. However, the effects may change by the type of the instructional technology. From among three types of the instructional technological tools the supplementary tools exerted the largest effect by the effect size of +18%. Two other technological tools, computer-managed

learning and the comprehension increasing programs had a very smaller effect of +0.08, and +0.07, respectively. Also, other distinct effects by other various studies and methodological features have been taken into consideration.

The correspondence and cooperation between the hands and the eyes is higher in them. They are of a very high speed and reaction and their cognitive power can be improved via playing video games and these games can improve mental faculties, visual and spatial memory and accuracy in performing tasks requiring a special and particular attention.

Heli (2003) in a study entitled “how does computer influence our child’s mind” on the 3 years old and younger children expresses that “the mental ability can be increased during this years of age via manual skills and 3D world.”

Study objectives:

- The survey of the preschool centers and creativity modern teaching methodologies effects on the math performance of the second grade primary school students
- The survey of the effect of the preschool centers effect on the math performance of the second grade primary school students

- The survey of the creativity modern teaching methodology effect on the math performance of the second grade primary school students

Study hypotheses:

- The preschool centers and the creativity modern teaching methods have a positive effect on the mathematical performance of the second grade primary school students.
- The preschool centers positively influence the math performance of the second grade primary school students
- The creativity modern teaching methodology positively influences math performance of the second grade primary school students

Study methodology:

The study methodology according to the subject matter nature is of pseudo-empirical type with a control group and an experimental group. The study population includes all of the boy and girl students of the second grade primary school in Khoy County during the curriculum year of 2014-2015. In the present study there has been made use of the multistage cluster sampling. At first, the city schools were randomly divided into several sections and in each school, 60 students 30 of whom had underwent the creativity modern teaching methods courses

in preschool centers and 30 of whom had not been subjected to that course were chosen randomly. Data collection tool in the present study are the achievement tests and the second graders score averages in math which is an indicator of their performance in math.

Study findings:

The preschool centers and the creativity modern teaching methods have a positive effect on the mathematical performance of the second grade primary school students.

Table 4.4: the preschool centers and creativity modern teaching methods variables descriptive statistics indices

variable	number	average	Standard deviation	Standard error
Preschool centers and creativity modern teaching methods	240	4.1417	0.97497	0.06293

Table 4.5: One-sample t-test for the comparison of the sample average and population average of the preschool centers and creativity modern teaching method variable

variable	The test amount=3					
	t	Degree of freedom	Significance level (two domains)	Difference from the average	Confidence discrepancy of 95% Difference from the average	
					maximum	minimum
preschool centers and creativity modern teaching	18.141	239	0.000	1.14167	1.0177	1.2656

Because the calculated t (18.141) for the preschool centers and creativity modern teaching method variable with the degree of freedom of 239 for the two-domain tests in the confidence level of 0.05 is bigger than the t critical value of (1.96) and also because the significance level is lower than 0.05 therefore the null hypothesis in this test implying the indifference existing between the sample average and population average (theoretical:3) is rejected and with the

significance level of 95% and based on the observed data it can be said that the sample average has a significant difference with the society average. And because the sample average is larger than the theoretical average, therefore: The preschool centers and the creativity modern teaching methods have a positive effect on the mathematical performance of the second grade primary school students.

- The survey of the preschool centers effect on the math performance of the second grade students of the primary school in both of the groups with and without creativity modern teaching methodologies

Table 4.6: methods variables descriptive statistics indices the preschool centers in both of the groups with and without creativity modern teaching methodologies

variable	creativity	number	average	Standard deviation	Standard error
Preschool centers	With	120	4.9667	0.18026	0.01646
	without	120	3.3167	0.70987	0.06480

Table 4.7: One-sample t-test for the comparison of the sample average and population average of the preschool centers in both of the groups with and without creativity modern teaching methodologies

Variable	Variances uniformity presupposition	Variances equality Lewen test		two-sample t-value test for means comparison						
		f	sig	t	Degree of freedom	Significance level (two domains)	Difference from the average	Difference from Standard error	Confidence discrepancy of 95% Difference from the average	
									maximum	maximum
Preschool centers	With variances uniformity presupposition	277.47	0.00	24.67	238	0.000	1.650	0.0668	1.51	1.78
	Without variances uniformity presupposition			24.67	134.28	0.000	1.650	0.0668	1.517	1.782

The preschool centers variable descriptive statistic indices in both of the groups with and without creative modern teaching methods are given in table 4.6. Based on the table information it is observed that the math performance of the 120 students with creativity modern teaching methods has an average of 4.9667 with a standard deviation of 0.18.26 and the math performance of 120 students without creativity modern teaching methodologies is of an average of 3.3167 with a standard deviation of 0.70987.

Two-sample t-test for the comparison of the preschool centers variable averages in two

groups of with and without creativity modern teaching methods has been presented in table 4.7. The test information and values are offered in two statuses of variances equality presupposition and without variances equality presupposition. Lewen test is to examine the variances uniformity presupposition in t-test. If the significance level becomes more than 0.05 the variances can be supposed as uniform and the test values which are offered in variances equality presupposition line can be applied. In this test, Lewen significance level is equal to 0.000 which is lower than

0.05 and the variances equality presupposition cannot be accepted therefore the calculated t-value is appropriate without variances equality presupposition.

Because calculated t-value without the variances equality presupposition (24.679) for the preschool centers variable with the degree of freedom equal to 134.283 for the two-domain tests is more than the absolute critical t-value (1.96) in the 0.05 level and the significance level is also lower than 0.05 therefore the null hypothesis implying the indifference in the students math performance in the two groups of with and without creativity modern teaching method

is rejected and with the confidence level of 95% based on the observed data it can be said that the students math performance in both of the groups with and without creativity modern teaching methods differ significantly and meaningfully from one another. And the students' math performance in the preschool centers with creativity modern teaching methodology is better and more optimized than the students without creativity modern teaching methodology.

The preschool centers positively influence the math performance of the second grade primary school students

Table 4.8: preschool centers variable descriptive statistics indices

Variable	number	average	Standard deviation	Standard error
Preschool centers	120	3/3167	0/70987	0/06480

Table 4.9: One-sample t-test for the comparison of the sample average and population average of the preschool centers and creativity modern teaching method variable

variable	t	Degree of freedom	Significance level (two domains)	Difference from the average	Confidence discrepancy of 95% Difference from the average	
					minimum	maximum
					The test value=3	
Preschool centers	4/887	119	0.000	0/31667	0/1884	0/4450

Because the calculated t (4.88) for the preschool centers and creativity modern teaching method variable with the degree of freedom of 119 for the two-domain tests in the confidence level of 0.05 is bigger than the t critical value of (1.96) and also because the significance level is lower than 0.05 therefore the null hypothesis in this test

implying the indifference existing between the sample average and population average is rejected and with the significance level of 95% and based on the observed data it can be said that the sample average has a significant difference with the society average. And because the sample average is larger than the theoretical average, therefore:

The preschool centers positively influence the math performance of the second grade primary school students.

The creativity modern teaching methodology positively influences math performance of the second grade primary school students

Table 4.10: creativity modern teaching methods variable descriptive statistics indices

Variable	number	average	Standard deviation	Standard error
Creativity modern teaching methods	120	4/9667	0/18026	0/01646

Table 4.11: One-sample t-test for the comparison of the sample average and population average of the preschool centers and creativity modern teaching method variable

variable	t	Degree of freedom	Significance level (two domains)	Difference from the average	Confidence discrepancy of 95% Difference from the average	
					minimum	maximum
					The test value=3	
Creativity modern teaching methods	119/516	119	0.000	1/96667	1/9341	1/9992

Because the calculated t (119.51) for the preschool centers and creativity modern teaching method variable with the degree of freedom of 119 for the two-domain tests in the confidence level of 0.05 is bigger than the t critical value of (1.96) and also because the significance level is lower than 0.05 therefore the null hypothesis in this test implying the indifference existing between the sample average and population average is rejected and with the significance level of 95% and based on the observed data it can be said that the sample average has a significant difference with the society average. And because the sample average is larger than the theoretical average, therefore: The creativity modern teaching methodology positively influences math performance of the second grade primary school students.

CONCLUSIONS AND DISCUSSIONS:

The evaluation of the present study hypotheses indicated that the preschool centers students and especially those centers in which there exists creativity modern teaching methodologies enjoy a better performance in math lesson. The instructions and teachings offered to the children in preschool centers sets the ground for their growth, math concepts learning, deduction, reading and writing and language learning in an indirect manner. The main pivot in this type of education is playing games. And all of the instructions are designed in the format of games for the children. Playing games is the child’s task, therefore it should be considered as valuable, positive and worthy for the children. Through providing the proper conditions it becomes possible for the

children to receive all of the necessary and required instructions with interest and seriousness, the instructions which will be useful and advantageous for them in future and will play a fundamental role in their achievements. The creativity modern instructional methods are the type of instructions which has been begun in some of the preschool centers and they are taught to some of the newcomers. The objective of such games is the beginners' creativity growth and development. And this growth and nourishing of the creativity will be useful and applicable for learning the lessons including the math lesson for the preschool students in primary school period in the future. Because this study is the first of its type with such a title the survey of the similar performed studies regarding the theme of this study indicates that the results obtained by Shohoodi et al (2013) entitled as "the comparison of the writing skill among the first grade primary school students with and without preschool experiences, Qasemtabar et al (2013) with the title of "the effect of creative presentation on the preschool children's social evolution", Teymoori (2010) entitled "the survey of the instructional software effect on learning mathematical concepts before learning the numbers in Tabriz's preschool children",

Solbi (2009) entitled "the survey of the computer games effect on the practical intelligence and vision-motor coordination in preschool children of Behshahr County", Seneh et al (2008) entitled "the effect of physical exercises and playing games on the mental faculties ability enhancement in preschool boys", Ghorbani (2001) entitled "various aspects of the child's use of computer", Namdar (2000) entitled "the survey of the revised 2D games" and Rasekhi Azmi Sabet (1999) entitled "the effect of painting and drawing with hand and with computer on the preschool children's creativity rate in western section of the city of Tehran" are conform with the results obtained from the present study and confirm the results of the current study.

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