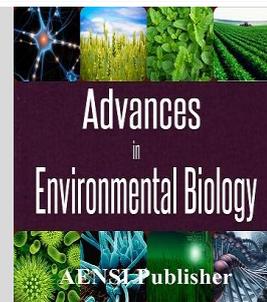




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Examining the Role of Electronic-Learning and Traditional Games Over Creativity of Female Students in Fifth Grade Primary School

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ABSTRACT

The present study aims to examine the role of electronic-learning and traditional games over creativity of female students in fifth grade primary school. The method of this research is quasi-experimental and the statistical population includes girls of fifth grade primary school in Kermanshah. Then 40 students were selected through convenience sampling. Tools for measuring included Torrance test of creative thinking and in the beginning 40 cases were taken pre-test. Which subjects are randomly assigned to two experimental and control groups. And the experimental group used 12 sessions of training method as doing an electronic game in Persian lessons and the control group were trained using traditional game. After the conducted independent variable of electronic-learning games, a test was taken of two groups, and results of the two groups were analyzed using independent t-test. The findings of this study show that teaching by using electronic learning games and plays an important role on creativity components, including (fluency, flexibility, expansion of the initiative and originality). It means, the more experienced in electronic learning games, more development in creative skills and the relationship between two variables at level 0.01 is significant.

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INTRODUCTION

Many consider that creativity (invention) is innate qualities of some that are born with this ability. While it has long been proven that this talent of the human species has commonality memory. And we can grow it by applying principles and certain techniques, by creating new attitudes, by avoiding habits and factors that strangled the talent, and apply it continuously.

Child with his exuberance Search in order to find the answer of the curiosity. The game also cause relaxation, relief, educating the ways of living, and make a way to get creativity in child [10]. And the game is a means to express emotions, makes relationships, describing experiences, aspirations and self-actualization. Due to lower cognitive and verbal expression of children to express their feelings, and can use it as a natural and tangible means of communication to cope with the world and to achieve mental relaxation [7].

Game is of necessities of child's life and the mental and has special effect on mental and physical development of child and children often spend part of their day time through games and give skill to their senses and realize their weaknesses. The purpose of playing is recreation, stroll, understanding the world and escape from their sorrows and turbidity. The game is natural means of expressing themselves [15].

Type of creation of man is such that is born questioner and his peak of questioning is in childhood and certainly the best activity that the child can do is play. . In this age his innovative and creative ideas has shaped. In this regard, "Sandras" says: children who play imaginative game in early of their life, in the next years of his/her life, has more creative thinking and problem solving. Importance of creative thinking can be found in the words of Einstein. Albert Einstein stated in his memoirs:

"my relativity theory could not be formed in my adult life because adult human has no time to think about time and atmosphere , these is somethingthatthink of them when I was a child,"[20].

Despite what is mentioned in the game, what is certain is that today, along with the rapid development of computer science, computer games is popular among young children in society and is among today's fun and

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original games of children, and easily excluded traditional and social games from the competition. In relation to this issue, this game has a set of features that can be effective to develop children's intellectual and creative work, of which we can mention the following:

The Games are very exciting for kids and juvenile, because he plays his/her game and is in the atmosphere of play, thinks himself as the hero of the story; In addition, a good computer game can enhance children's imagination, And also by these Games can easily teach some concepts of their lesson, as well as used one of the best teaching aids.

In addition to that, some good and interesting computer games can be used for children's leisure time [5]. Today, because the children and teenagers can play computer games at home and parents also tend to replace these games with popular games in the streets and alleys to have more control over their children, these games have become more common and tend to play more.

Electronic games are a window into the world of IT and certainly by use of facilities and programs and can work with the user's mind, In addition to learning skills and familiarity with fine work of PC User, cause competition and collaboration.

If this game is properly and applied to achieve the educational goals, can be very effective in educating people, because trial and error and possibility to correct, is a good strategy to acquire the skills of daily living [2].

In term of using electronic games and Woodard, and Gardenia found in a research that 76 percent of families with only one boy versus 58% of families have only one girls, use these games. It refers to the trend and desired of families to these games. Also, Funk found 90% of boys and 75 percent of teenage girls regularly engaged in computer games.

Sherry and Lucas found that boys about 11 hours and girls 25.4 hours per week play on. This study shows that trend of children and adolescents to computer and electronics games is a lot. [17]. Therefore games can play an important role in the development of creativity in children and makes them creative and researcher mind. This includes both electronic-learning games and common games because in recent decades, cultural and technological developments give rise to a variety of media, including television, in recent year's video games and electronic games.

Today using of the different Games within communities and between families and schools is common, but the main problem is the uncertainty of the impact of electronic games on a variety of skills of students and children and show the advantages and disadvantages of these media.

Then the main problem of this study was to examine that does the electronic-learning games with traditional have effects on development of fifth grade primary students' creativity?

And by effecting of them, which game has the most affection? Thus, according to mentioned topic, research want to achieve the following assumptions:

1. There is a difference in growth of student's fluency between e-learning games with traditional games.
2. There is a difference in flexibility growth rates between students in e-learning games with traditional games.
3. There is a difference in the growth rates between students in e-learning games with traditional games.
4. There is a difference in the growth rates of originality and creativity between students in e-learning games with traditional games.

Methods:

Research generally focuses on discovering general principles and generalities. Expertly, accurate and regular research in phenomenon. Definition of research is as a process of a particular form of academic knowledge and has different types that are specified with respect to the objectives and assumptions of research [9].

This research is one of the quasi-experimental designs in which has used the pretest and posttest design with two groups, the dependent variable is measured before and after the implement of independent variable.

Method of implementation:

A sample of 40 students were selected by convenience sampling of 10813 persons. The sample was divided into two equal classes. Each class consists of 20 female students. Torrance Creativity questionnaire was used for primary and secondary test. After ensuring consistency between the two groups, the researchers begin his work that content of Persian fifth grade were taught through electronic- learning games.

Electronic- learning games were purchased from Institute of ENIAC, Which is active in the field of educational multimedia production, selected games has seven main elements are: Movement, spontaneity, social integration, joint effort, discipline, ease and calm. The games duration could not be too long; so that the game should be ended after the one session and its continuous shall be followed next session.

This software is designed as a game and is designed for learning Persian lesson of fifth grade. To teach experimental group, teaching Persian lesson game that was consistent with the recent changes of textbook was used that was installed on the computer.

This learning game is as software and this software has the text of textbook, exercises in addition to exercises of textbook, audio and animation to explain the concepts at first.

Then presented simple issues and so the more difficult issues being discussed. Software has interactive and gaming aspects and feedback to students after answer the training. The study was conducted in three phases:

The first step to prevent interference and researcher's personal opinion on the results, help from a fifth grade teacher and to familiarity of teacher of testing group with the desired design, the content of textbook that was prepared Electronic as Multimedia software framework were trained to teachers and gave instructions for using the software.

In second stage, the students were familiar with computers and how to use the software. Before implementing the training, the two groups were performed students creativity pretest. Students in both groups received 8 weeks of considered training. It should be noted that at this time, three chapters of Persian book was taught for each group.

Experimental group, trained with the help of Persian electronic learning game and control groups received training with traditional method. In order to ensure the implementation of the project, in the first weeks, the researcher was present in the classroom of experimental group.

In the third stage, after the completion of training, creativity tests were conducted on the experimental and control groups. Data were analyzed by t-test.

Population and sampling method:

The statistical population: statistical population consists of all students in Kermanshah girl of fifth grade in year of 2013-2014. A total number of Kermanshah girl of fifth grade is 10,813.

Research sample: the total selected sample is 40 people. These samples were selected by convenience sampling.

Methods or instruments for data collection:

Torrance Creativity questionnaire:

Collection tools of data is a Torrance standardized questionnaire including 60 questions with three options. 16 questions for fluency thinking, 22 questions for creative thinking, 11 questions for flexibility of thinking, and 11 questions for develop designed thinking.

This questionnaire in the psychology literature is known as Torrance creativity Test and was made by his definition of Creativity. The origin of Torrance Creativity Test is very detailed and lengthy. Its implementation need to spend hours.

A test that is known as Torrance's creativity test in Iran, actually is the short and standard form of it which has been introduced By the doctor Abedi ,professor at Tehran University in 1993 and in the psychological literature of our country is known by the CT abbreviation. Doctor Abedi, is one of the experienced and interested researchers in the field of creativity and innovation in our country.

He is at the year of 1983, with the encouragement and assistance of psychology students at Tehran University, has a creativity to construct a 75-question multiple-choice test based on theory and definition of Torrance to measure and first was conducted on 650 students of third grade.

Later in scientific activities at the University of California and with the help of students, they revised and reconstructed it, and finally in 1994 with the collaboration of University Professors (O'Neill, Abedi and Spiel Berger) 60-item form has provided, standardized, normalized and presented (over 16,250 students).

This test examined four- creativity factor test, such fluency, initiative, flexibility and improvement that are 16, 22, 11 and 11 options, respectively. Questions 1 to 22 belongs to initiative factor, 23 to 38 belongs to fluency factor, 39 to 49 belongs to flexibility factor and 50 to 60 belongs to improvement factor.

Of course, each of these questions will constitute a sub-tests. Each option has three different answers such A, B and C with quality to convert tonumericalquantity values 0, 1, and 2 as well.

Suppose that in each case, the selector of an option has the least creativity and selector of C option has the maximum amount of creativity. Total scores for each subtest,represent a score of a test in that section and total scores on the four subtest indicates a person's creativity total score.

Scores obtained from the measurement of each four factor alone and total scores totally, are analyzable and interpretable. The scope of the creativity total score of each subject will be between 0 and 120. So based norm of Torrance tests, ratings of creativity amount will be as follows:

- Very high Creativity: 100 to 120 points
- High Creativity: 85to 100 points
- Average Creativity: 75 to 85 points
- Low Creativity: 50 to 75 points
- Very low Creativity: 50 points lower

The test used in this study known as a form of doctor Abedi. This questionnaire present to student, who their main goal of research is assessing the fertility of their creative powers, and wanted from them to provide appropriate options to choose.

Internal consistency coefficient using Cronbach's alpha for the fluency, initiative, flexibility and improvement subtest, is obtained 75%, 66%, 61% and 61% respectively [8].

Data analysis Methods:

Collected Data using spss common computer software analyzed as descriptive and inferential statistics. In this research to test the hypothesis, we used independent t test.

Findings:

Reviewing the first hypothesis of research: There is a difference in growth of student's fluency between e-learning games with traditional games.

To investigate this hypothesis, we used the independent t-tests for differences between two groups. This means that at first, difference between the two groups in the pretest and post-test has compared and effectiveness of two types of training will investigate.

Results of independent t-test between the experimental and control groups are reported in Table 1:

Table 1: Results of independent t-test between the fluency scale scores of students in the experimental and control groups in the pretest and posttest.

Dependent variable	group	mean	Standard deviation	Resulted T	degree of Freedom	P significance level
Pre-test	test	2.3600	1.52425	0.717	48	0.477
	control	2.0800	1.22202			
Post-test	test	4.0400	1.27410	6.617	48	0.000
	control	1.8400	1.06771			

As the result of table 1 shows, the resulted t for difference between the students in control and experimental groups in the fluency test is equal to 0.717.

The significance level equal to 0.477, which is not significant at 0.05. ($P \geq 0 / 05$). So we can conclude that there is no significant difference between pretest scores in two grope.

Resulted t obtained for difference between the students in fluency scale of post-test research is equal to 6.617, that its significant level is 0.000, which at 0.01 is significant. ($p \leq 0 / 01$).

So we can conclude that there is a significant difference between the control and experimental groups in post-test. Based on the average of both experimental and control groups that are 4.0400 and 1.8400 respectively, it can be concluded that the difference in the post-test is in favor of the experimental group.

It can be said that people who learned Persian programs with play e-learning games, compared those who have experienced it with traditional pedagogical methods, had better performance in Torrance creativity scale of fluency. As a result, research hypotheses were confirmed.

Reviewing the second hypothesis of research: There is a difference in flexibility growth rates between students in e-learning games with traditional games.

To investigate this hypothesis, we used the independent t-tests for differences between two groups. This means that at first, difference between the two groups in the pretest and post-test has compared and effectiveness of two types of training will investigate.

Results of independent t-test between the experimental and control groups are reported in Table 2:

Table 2: Results of independent t-test between the flexibility scale scores of students in the experimental and control groups in the pretest and posttest.

Dependent variable	group	mean	Standard deviation	Resulted T	degree of Freedom	P significance level
Pre-test	test	2.7600	1.92094	1.200	48	0.236
	control	2.2000	1.32288			
Post-test	test	4.0400	1.13578	7.838	48	0.000
	control	1.6800	.98826			

As the result of table 2 shows, the resulted t for difference between the students in control and experimental groups in the flexibility pre-test is equal to 1.200.

The significance level equal to 0.236, which is not significant at 0.05. ($P \geq 0 / 05$). So we can conclude that there is no significant difference between pretest scores in two grope.

Resulted t obtained for difference between the students in Identifying assumptions scale of post-test research is equal to 7.838, that its significant level is 0.000, which at 0.01 is significant. ($p \leq 0 / 01$).

So we can conclude that there is a significant difference between the control and experimental groups in post-test. Based on the average of both experimental and control groups that are 4.0400 and 1.6800 respectively, it can be concluded that the difference in the post-test is in favor of the experimental group.

It can be said that people who learned Persian programs with play e-learning games, compared those who have experienced it with traditional pedagogical methods, had better performance in Torrance creativity scale of flexibility. As a result, research hypotheses were confirmed.

Reviewing the third hypothesis of research: There is a difference in the growth rates between students in e-learning games with traditional games.

To investigate this hypothesis, we used the independent t-tests for differences between two groups. This means that at first, difference between the two groups in the pretest and post-test has compared and effectiveness of two types of training will investigate.

Results of independent t-test between the experimental and control groups are reported in Table 3:

Table 3: Results of independent t-test between the growth rates scale scores of students in the experimental and control groups in the pretest and posttest.

Dependent variable	group	mean	Standard deviation	Resulted T	degree of Freedom	P significance level
Pre-test	test	2.2800	1.54164	0.000	48	1.000
	control	2.2800	1.40000			
Post-test	test	4.1600	1.02794	7.725	48	0.000
	control	1.7600	1.16476			

As the result of table 3 shows, the resulted t for difference between the students in control and experimental groups in the growth and improvement pre-test is equal to 0.000.

The significance level equal to 1.000, which is not significant at 0.05. ($P \geq 0 / 05$). So we can conclude that there is no significant difference between pretest scores in two grope.

Resulted t obtained for difference between the students in growth and improvement scale of post-test research is equal to 7.725, that its significant level is 0.000, which at 0.01 is significant. ($p \leq 0 / 01$).

So we can conclude that there is a significant difference between the control and experimental groups in post-test. Based on the average of both experimental and control groups that are 4.160 and 1.7600 respectively, it can be concluded that the difference in the post-test is in favor of the experimental group.

It can be said that people who learned Persian programs with play e-learning games, compared those who have experienced it with traditional pedagogical methods, had better performance in Torrance creativity scale of growth and improvement. As a result, research hypotheses were confirmed.

Reviewing the fourth hypothesis of research: There is a difference in the growth rates of originality and creativity between students in e-learning games with traditional games.

To investigate this hypothesis, we used the independent t-tests for differences between two groups. This means that at first, difference between the two groups in the pretest and post-test has compared and effectiveness of two types of training will investigate.

Results of independent t-test between the experimental and control groups are reported in Table 4:

Table 4: Results of independent t-test between the originality and creativity rates scale scores of students in the experimental and control groups in the pretest and posttest.

Dependent variable	group	mean	Standard deviation	Resulted T	degree of Freedom	P significance level
Pre-test	test	2.2000	1.29099	0.252	48	0.802
	control	2.1200	.92736			
Post-test	test	3.4400	1.08321	5.168	48	0.000
	control	1.8400	1.10604			

As the result of table 4 shows, the resulted t for difference between the students in control and experimental groups in the originality and creativity pre-test is equal to 0.252.

The significance level equal to 0.802, which is not significant at 0.05. ($P \geq 0 / 05$). So we can conclude that there is no significant difference between pretest scores in two grope.

Resulted t obtained for difference between the students in originality and creativity scale of post-test research is equal to 5.168, that its significant level is 0.000, which at 0.01 is significant. ($p \leq 0 / 01$).

So we can conclude that there is a significant difference between the control and experimental groups in post-test. Based on the average of both experimental and control groups that are 3.440 and 1.8400 respectively, it can be concluded that the difference in the post-test is in favor of the experimental group. It can be said that people who learned Persian programs with play e-learning games, compared those who have experienced it with traditional pedagogical methods, had better performance in Torrance creativity scale of originality and creativity. As a result, research hypotheses were confirmed.

Conclusion:

According to the results of the study hypotheses there is difference between fluency growth rate, flexibility, originality and creativity of students in electronic-learning with common games in the level of ($p \leq 0 / 0$).

According to these results, it can be noted that the ability to play games is an important characteristic of the human, and behaviorists and biologists have found that game due to close linked with motivation of exploration and satisfy the curiosity of a person, have an important role in education and exploration.

However, if this games being as electronic and multi-sensory games as a teaching tool, help students solve problems, and playing them give them a chance to challenge the issues and formulate strategies to solve problems in an atmosphere free of intimidation, and the select by optimum use of the students' interests, and to propel them to choose educational goals, it can be a valuable aid in teaching and student enhancement.

In today's complex world, many changes are taking place in human life and we see intensive competition to achieve superior technology in the communities. Educational Issue isn't in exception of this. Students in the twenty first century cannot be a spontaneous element, even that how to learn be removed from his possession.

Pre-set programs and unquestionably, are not respond to his/her questions [18]. In this era which student experience rapid and continuous innovation, ultimate goals of general education inevitably should be changed.

And pay more attention to foster critical thinking in people as one of the main goals of education. in the educational process, the criticism spirit of teachers should be strengthen, and provide the spirit of criticism and field of investigation in students [19] in past, it has been emphasis on knowledge transfer, but today, with the development of new theoretical approaches and the nature of science, new approach in determining educational and training process goals have been proposed.

One of the most prominent approaches focus on strengthening basic skills such as critical thinking, problem solving skills, creative thinking, probe, and is one of the key skills of argument power. How can treat students to reason their expression and claims in an acceptable manner, firm their opinions based on empirical and theoretical frameworks.

Unfortunately, today's schools mainly on developments in science and technology, and due to some psychological approaches, pay more attention to the transfer of information and facts and have away from training people with creative thinker [12].

There is no need that training centers act as a reservoir of knowledge, and teachers serve as a transmitter of information [19] And equip students into small libraries and obligate them just to store and retrieve information, [12]. It is very important that students increase their skills in thinking and reasoning, process the available information and apply them [19]. Since the success of each system depends on the ability of the analysis and thoughtful decision, it appears that one of the goals of education should pay, fostering children's thinking ability, it is necessary that the curricula in education, grow critical thinking skills.

Games fill considerable leisure time daily of children and teenagers. New developments in various fields including the use of new technologies such as computer in games materials, has caused significant changes in the ways kids play them.

Complex and new capabilities that these games have, are the way that they cannot be considered among other games. Due to the characteristics of educational games, children need to use their life experiences in order to discover or create meaning and action. They want the power of a good argument, or at least correct reasoning about the important things in their life. They want to have good thoughts and experience and accurate experience confirm their thoughts. In recent decades, many countries have concluded that children's reasoning power and strength of their ethical judgments should be to strengthen.

Many educational experts believe that poverty of thinking in students is the result of governing the traditional ways in schools.

Beside the interesting nature, welcome children and teenagers to these computer games, made a significant position among other means of games. And this effect is an incentive factor for several studies and surveys from different angles in this case. During the decade (1980), many researchers have studied and analyzed using games in the classroom and stated who games are powerful to transfer concepts in learning environments.

And the collaborative learning elements such as competition, excitement, curiosity, creativity and experience should place in an experimental games to produce a different learning environment [1]. The results hypotheses of this study are consistent with research results of Abdolrezaei [14], poorshakorisharmi [4], Farhoudi [16], S. Amery [11], Pourhassan [4], arni [21], Jachin Batch 23, Jackson, Cropley and Anderson and banoski. In all these studies, electronic games, which are used as learning, cause creativity, enhancement, emotional intelligence development, social development, performance and flexibility of the students.

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