The effects of animation on preschool children’s creativity and learning the natural science concepts in the 2012-2013 academic year in Boushehr

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\[ \text{Article Info} \]
\[ \text{Received 8 September 2013} \]
\[ \text{Received in revised form 17 October 2013} \]
\[ \text{Accepted 18 October 2013} \]
\[ \text{Available online 23 November 2013} \]

\[ \text{Key words: Animation, Creativity, Learning Science Concepts} \]

\[ \text{Abstract} \]

The present study investigated the effects of animation on Preschoolers creativity and learning science concepts in Boushehr 91-92. Hypothesis states that using Animation affects Preschoolers’ creativity and learning science concepts. To investigate this hypothesis among a total of 62 preschool children in Boushehr, preschoolers who participated in these clusters were randomly selected from the 31 subjects in the experimental group and 31 were in the control group. To ensure that the groups were homogenous under studying, teacher-made pre-test were given to all groups. The animation was used in the experimental group, but Control group by conventional methods are excluded from trained animation. The period was six weeks. To determine the effect of animation on learning science preschoolers, a test consist of 20 questions was used, and to examine the validity of the teacher-made test, opinions of Expert in the field of science was expressed. Torrance Visual Creativity test for assessing children's creativity was used. The two-stage (pre-test and post-test) of both groups was done, and Research data using descriptive statistics which indices the mean and standard deviation, and analysis research using Hypotheses Kovaryans were considered. To compare the test scores of the experimental groups T-test ,Levene and Spss software were analyzed. The results of this study showed that preschool children through animation which are trained learn more than children who were in traditional training.

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Introduction

Today, the world is going through rapid and significant progresses so technology plays an important role in this regard. Technology is important in all aspects of human life including education especially preschool education as children need the motivation and an exciting environment in order to learn. The use of technology can contribute much in the creation of such environment.(Khoshbakht, 2008) From a long time ago, technology has had a special place in the educational and pedagogical processes and today the necessity of employing it is indisputable. Educational Medias as one of important elements of education is just one of the topics that will be addressed in the field educational technology. Accordingly, educational medias must be considered as one of the educational requirements (Razavi, 2011). One of the educational medias is animation as the results of many studies indicates that animation and its capabilities are more effective than other methods for the children's narration and learning (Gharipoor, 1998). The animation industry once used for telling children stories and legends is today one of the most widely used areas in terms of both production technology and the audience and is amazingly making progress to produce childish legends that sometimes adults are more interested in watching them. One of the applications of these moving pictures that some people assert to call it "twenty four lies per second" is the communication of specific combined and educational concepts and ideas. Given the significance of the visual sense in learning and its effects on unconsciousness paved the way for the application of the animating pictures for the communication of specific mixed and educational concepts and ideas (Hamzeh Beigi and Homa, 2006). The aim of teaching sciences to children is to create a sense of curiosity and creation and encouraging them to acquire scientific knowledge. The use of educational films in the form of animation for children can help us to achieve this goal. Today, great developments have been made in the field of education especially in the field of preschool education throughout the world. But unfortunately traditional methods are still being used in the field of education. Teacher-centered and student-verted methods are considered as a great weakness to our educational system which is resulting from different factors such as the use of incorrect and traditional methods in classrooms, the lack of appropriate equipment and software and more importantly the teachers’ emphasis on the use of traditional methods in classrooms, and their inflexibility to adopt new teaching methods and technologies. The use of new technology and animation and the application of extracurricular...
equipment have a positive effect on the development of creativity and the retention of learning materials and the reinforcement of the students' learning (Alizadeh, 2000). Educational animations help students to create links between words and images in multimedia learning.

The significance of the study:
The use of traditional and formal methods in the field of education especially preschool educations is boring and negatively affects students' learning. As a result, practitioners are always seeking new ways in educating preschool children to make the learning materials more understandable and attractive for them and to increase the speed and the accuracy of education and learning. Children at the preschool age tend to learn through real objects and first-hand experience as their ability for abstract thinking and argument has not developed yet and they have a short-term meditation. In other words, they are not able to concentrate on activities for a long term as their concentration span is approximately 7-15 minutes. Children are very interested in watching different types of animations and cartoons and spend lots of hours watching them without feeling tiredness and dislike. So this feature (children's interest in watching animations) can be employed to teach different concepts to children (Mayer and Roxana , 2002).

Research Methodology:
Given the objectives of the study and research hypotheses, an experimental method (pre-tests and post-tests with experimental and control groups) was used to evaluate the effects of the independent variable (animation) on the dependent variable (preschool children's creativity and learning the natural science concepts). Besides, the present study is considered as an applied research. The population under study was preschool children in Boushehr of whom a sample of 62 children were selected as the sample including two experimental and control groups. To ensure that the both groups are identical, a teacher made pretest was administered on them. A comparison of the mean scores for both groups indicated that they are identical. Then the preschool teachers were asked to teach a number of given concepts to the children in both groups for a few weeks. However, animation movies prepared on these concepts were also used in addition to the traditional classroom method to instruct the participants in the experimental group. After the end of the treatment, both groups were post-tested by administering a teacher made test. (Hamzeh Beigi and Homa. 2006).

Research Population:
The population under study included all 3145 pre-school children in Bushehr in the 2012-2013 academic year.

Research Sample and Sampling Method:
The sample under study was selected through random cluster sampling method. To do so, of the two educational districts, the Educational District No. 2 of Bousheher Department of Education was selected. District 2 that the first stage of the two regions, Region 2 Education Bushehr selected, then the preschool centers includes 3 independent preschool centers and 4 nonprofit preschool centers with a total number of 21 classes, of which 4 classes in the nonprofit centers were selected as the sample. Two classes with 31 students were selected as the control group and similarly the two remaining classes with the same number of students were selected as the experimental group.

Results:
Table 1 shows that of 62 participants, 31 (50%) participants were in the control group and 31 (50%) participants were in the experimental group:

Table 1: Frequency and percentage of the participants in both groups.

<table>
<thead>
<tr>
<th>Groups</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>31</td>
<td>50%</td>
</tr>
<tr>
<td>Control</td>
<td>31</td>
<td>50%</td>
</tr>
<tr>
<td>Total</td>
<td>62</td>
<td>100%</td>
</tr>
</tbody>
</table>

Description of the participants' scores based on variables under study:
Table 2 presents the data on the participants' total scores of creativity in the pre-test and post-test. As seen in the table, the participants' minimum, maximum, and mean scores on the pre-test are 27, 146, and 80.74, respectively. Accordingly, the minimum, maximum, and mean scores on the post-test are 31, 190, and 117.31, respectively.
According to Table 3, the results of the t-test suggested that there is no significant difference between the scores of natural science concepts for the participants in both experimental and control groups on pre-test ($t = 0.74$). However, as shown in Table 7-4, the mean score of natural science concepts for the participants in experimental group is higher than the control group in the post-test. The results of the t-test suggested that there is a significant difference between the scores of natural science concepts for the participants in experimental and control groups on post-test ($t = 13.79, P <0.001$). The implication is that the participants in the experimental group had a higher score on natural science concepts after the treatment than the participants in the control group who had no treatment.

**Summary:**

Today the use of information and communication technology (ICT) in the educational system in order to improve the quality of teaching-learning methods has received special attention in many countries because the employment of such technologies will create a structure that promotes the quality of education and increase students’ motivation for learning. One of the technologies used widely in the field of education is educational animations that can provide learning opportunities through the presentation of explicit, clear, and dynamic information, make the educational process more effective, and create the conditions needed for the development of creativity. Many studies, in general, demonstrated the utility and the efficiency of new and active teaching methods that the old and passive ones. The results of such studies indicate that the higher learning quality of methods that require more activities on the part of learners will result in the higher growth of creativity. It should be noted that active learning creates more associations in learners than passive learning. Besides, active classrooms will facilitate the development of creativity than conventional restrictive learning environments (Cole, 1995).

The results of studies in the field indicate that the use of multimedia technologies in schools can create new contexts for learners and facilitate and speed up the learning process. Opportunities that result in creative thinking and more profound learning in schools have a wide range from changes made in attitudes to teaching methods. Consequently, practitioners and educators must pay attention to the provision of conditions that lead to creative thinking and high quality learning.

**Discussion and conclusions:**

The aim of the present study was to examine the effects of using animation on preschool children's creativity and learning the natural science concepts. The results of the data analysis suggested that the use of animation has a positive effect on the growth of creativity and the reinforcement of learning in preschool children as the participants in the experimental group in this study had a better performance than the participants in the control group. The findings of the present study confirm those of the previous studies and are in line with the results of other studies such as Jackson and Edward (2011), Elliott (2010), Beternkort (2003), Harrison et al., (2002), Meyer and Moreno (2002), Yang (2002), Colak (2001), Ghasemi (2011), Yaghubi et al., (2011), Heydari et al., (2010), and Alizadeh (2010). Generally, the results of the present study indicate that animation can create an attractive environment for children’s learning and also the growth of their creativity. However, since the use of the animation industry has not been utilized well yet and is still in its infancy, the development and the use of this educational technology requires the assistance and cooperation of concerned authorities.

**Acknowledgment**

This article is extracted from my thesis under the title of “The effects of animation on preschool children's creativity and learning the natural science concepts in the 2012-2013 academic year in Boushehr”. Hereby, I extend my sincere appreciation to Islamic Azad university of Arsanjan for the efforts and supports they provided to me.
References