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A Study on the Effects of Creative Drama Education Given to Children Attending Nursery Class on Their Auditory Reasoning and Processing Skills*

Anasınıfına Devam Eden Çocuklara Verilen Yaratıcı Drama Eğitiminin Çocukların İşitsel Muhakeme ve İşlem Becerilerine Etkisinin İncelenmesi

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Abstract

This study aims at investigating the effects of creative drama education on auditory reasoning and processing skills of children attending nursery classes. Pretest-posttest control group experimental design was used in the study. The research sample consisted of a total of 30 children, of whom 15 were in the experimental group and 15 were in the control group. After the administration of the pretest, the children in the experimental group were given Creative Drama education for 12 weeks in sessions of 45 minutes twice a week. "Auditory Reasoning and Processing Skills Test", which was developed by Gardner (1993) and adapted by Erbay (2009) to Turkish children aged 6, was used as the data collection tool. The data obtained were analyzed by using SPSS 15.00. Research findings indicated that creative drama education improved children's auditory reasoning and processing skills and that this improvement was permanent. Although improvement was also observed in the skills of the control group children, it was concluded that this improvement was statistically insignificant.

Keywords: Creative drama, reasoning skills, cognitive development, preschool education

Öz

Bu araştırma, anasınıfına devam eden çocukların işitsel muhakeme ve işlem becerilerine yaratıcı drama eğitiminin etkisini incelemek amacıyla yapılmıştır. Araştırmada öntest-sontest kontrol gruplu deneysel desen kullanılmıştır. Araştırmanın örneklemini 15 deneme ve 15 kontrol grubu olmak üzere toplam 30 çocuk oluşturmuştur. Deneme grubundaki çocuklara öntest uygulamalarından sonra 12 hafta boyunca ve haftada 2 gün 45'er dakikalık etkinlikler halinde yaratıcı drama eğitimi verilmiştir. Veri toplama aracı olarak Gardner (1993) tarafından geliştirilen, Erbay (2009) tarafından 6 yaş Türk çocuklarına uyarlaması yapılan "İşitsel Muhakeme ve İşlem Becerileri Testi" kullanılmıştır. Elde edilen veriler SPSS 15.00 kullanılarak analiz edilmiştir. Araştırma bulguları, yaratıcı drama eğitiminin çocukların işitsel muhakeme ve işlem becerilerini geliştirdiğini ve bu gelişimin kalıcı olduğunu göstermiştir. Kontrol grubundaki çocukların becerilerinde de gelişme gözlenirken, bu gelişmenin istatistiksel olarak anlamlı olmadığı sonucu ortaya çıkmıştır.

Anahtar Sözcükler: Yaratıcı drama, muhakeme becerileri, bilişsel gelişim, okul öncesi eğitim.

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Introduction

Reasoning skills are skills that help people reach the truth and the meaning of the truth. Humans reach the truth either by adopting others' truths or by making inferences from things whose accuracy can be proved clearly and beyond doubt, circumstances, reasonings and truths or by reasoning about them (Altıparmak & Öziş, 2005; Criner, 1992). One of the reasoning skills that need to be encouraged especially in preschool education and onwards concerns auditory reasoning and processing skills. Auditory reasoning and processing skills are cognitive skills that are concerned with how children perceive what they hear, and how they interpret, list, understand and relate them. The skills involve general information, comprehension, similarities, analogical completions, arithmetical reasoning, verbal absurdities and directional orientation skills (Gardner, 1993). All these skills provide opportunities for children to solve problems that they encounter by thinking, establishing cause and effect relationships and deriving new meanings, develop a creative and productive personality and acquire the knowledge and experience that they need (Erbay, 2009).

Lipman (1988) emphasises that development of reasoning skills is not an easy and rapid process. He points out that in order to encourage these skills; educators must develop and implement programmes by taking into consideration appropriate educational models and methods (cited by Criner, 1992). One of the important activities in the development of children's thinking and reasoning skills is creative drama. Children directly participate in the activities in this method. They express their views and feelings without constraint in activities. They access information themselves by making observations and experimenting. Children find answers to their questions concerning the world in creative drama processes, test new ideas and concepts and put their reasoning skills into practice. Drama activities performed with younger children are intended to stimulate experiences based on what one has lived through, for these experiences are real, concrete and specific to the person for children. Many issues belonging to various subjects and descriptive and explanatory information about these concepts can be learned more easily and permanently through drama. In this reason drama can be described as practice of life. Children become more aware of the problems that have encountered or may encounter through problematic situations in creative drama (Adıgüzel, 2009; Andersen, 2004; Akman, 2002; Güngör et al., 2004; Kandır, 2003; Önder, 2002; Sungurtekin & et al., 2009; Şahin & Genç, 2001; Tuğrul, 2006; cited by Yassa, 1997).

Studies that have been conducted indicate that regardless of their age group, children who participate in creative drama processes make progress in their skills of understanding complex relationships by finding deeper and new meanings through envisaging them, reading, creative writing and mathematics, acquiring creative and critical thinking skills, developing skills of explaining their views, problem solving, questioning and discussing while their level of general information increases and they can transfer this information to their daily lives (Cockett, 1999; Danner, 2003; Fleming, Merrell, & Tymms, 2004; Innes, Moss, & Smigel, 2001; Nunez, 2003; Önal Çalışkan & Üstündağ, 2010; Tulgay, 1997; Wee, 2009).

These skills must be encouraged especially from the preschool period onwards. It is believed that all of these skills will be supported through creative drama skills which will enable children to participate actively and prepare the best environment for children to learn by experimenting.

Therefore, the main purpose of the study is to seek answers to the question "does creative drama education influence 6-year-old children's auditory reasoning and processing skills? (general information, arithmetic reasoning, finding reasons, analogical completions, verbal absurdities, comprehension and similarities).

Hypotheses

1. There is not a significant difference between auditory reasoning and processing skills pretest mean scores of children in the experimental and control groups.

2. Auditory reasoning and processing skills posttest mean scores of children in the experimental group are significantly higher than auditory reasoning and processing skills posttest mean scores of children in the control group.

3. Auditory reasoning and processing skills posttest mean scores of experimental group children who participated in the creative drama education programme are significantly higher than their pretest mean scores.

4. There is no significant difference between auditory reasoning and processing skills posttest mean scores and their pretest mean scores of children in the control group.

5. The average of the auditory reasoning and processing skills pretest-posttest score differences of the experimental group children who participated in the creative drama education programme is significantly higher than the average of the pretest-posttest score differences of the control group.

6. There is not significant difference between auditory reasoning and processing skills posttest mean scores and follow-up 1 and follow-up 2 mean scores.

Method

Research Model

The independent variable of this study is the creative drama education given to nursery class students. Its dependent variable, on the other hand, is auditory reasoning and processing skills. The study was designed in such a way as to reveal whether the independent variable influences the dependent variables group or not. Therefore, pretest-posttest control group and experimental group model was used in this study. Experimental and control groups were administered TARPS as pretest prior to education. Then, children in the experimental group were given education for 12 weeks twice a week. The activity lasted 40 to 45 minutes in one day. In the meantime, the children in the control group were left to their usual course of activities and the programme that was prepared was not administered to this group. When the implementation of the educational programme was completed, the experimental and control groups were administered the posttest. In order to evaluate the permanence of education given to children in the experimental group, follow-up test 1 was administered four weeks after the posttest whereas follow-up 2 was administered fourteen weeks after the posttest.

"Creative Drama Education Programme" was used for the experimental group in the study. Creative drama education programme focuses on having preschool children of age 6 acquire auditory reasoning and processing skills. First, relevant literature on auditory reasoning and processing skills was reviewed in order to prepare the creative drama education programme. Then, the goals and target behaviours to be attained were determined by the researcher in parallel to the development of children aged 6 on the basis of auditory reasoning and processing skills such as general information, arithmetic reasoning, finding reasons, analogical completions, verbal absurdities, comprehension and similarities. An educational programme of 12 weeks and 24 educational situations was prepared in accordance with the goals and target behavious that were determined. During the preparation of the activities, children's interests and needs, duration of their attention, life experiences, and the properties of the environment where the implementation would take place were taken into consideration and pains were taken to include activities that would stimulate their five senses in order to enable children to express their feelings and ideas easily and reveal and discuss their experiences freely. The activities were enriched with concrete visual materials such as puppets, costumes, pictures, photographs and various other objects so that the programme could attain its goal. Care was taken to make sure that the questions prepared for the evaluation stage were simple, easy to understand and open-ended. Thus, it became possible for children to express, without constraint, their ideas and feelings during the

activities and their views about the activities. The educational programme that was prepared was sent to two experts to receive their views about it and the programme was given its final form after alterations were made to it in accordance with the expert views. The creative drama education programme activities that consisted of motion study, pantomime, role-playing, improvisation and creating games from stories.

Participants

The participants of this research were selected from among the students in the four nursery classes in one Primary School affiliated to Konya Provincial Directorate of National Education. Therefore, the participants of the research consisted of 30 children, of whom 15 were in the experimental group and 15 in the control group, who were selected randomly. It was made sure that the children who formed the participants had not received creative drama education previously, and that they were between the ages of 6.0 and 6.11 months and exhibited normal development. It was also arranged that children in the experimental group attended nursery class in the morning and children in the control group attended nursery class in the afternoon in order to prevent interaction between children.

Instruments

TARPS (Test of Auditory Reasoning and Processing Skills (TARPS) was used as the data collection tool in the study. Test of Auditory Reasoning and Processing Skills (TARPS), which was developed by Gardner (1993), provides information about issues such as how children think, comprehend, generate ideas, draw inferences, solve problems obtain information, about how they list, comprehend, interpret and relate what they have perceived aurally. TARPS measures a the quality and amount of a subject's auditory thinking and reasoning and children's skills to draw inferences and implement and use the ideas developed from what they have perceived aurally. The test assesses auditory reasoning and processing skills of children aged 5 to 14 such as General Information, Arithmetical Reasoning, Verbal Absurdities, Finding Reasoning, Analogical Completions, Comprehension, Directional Orientation and Similarities. It consists of 90 open-ended questions. The alpha value of the test was calculated to be 0.79 for age 5 and 0.87 for age 6. When children gave five wrong answers consecutively, the implementation of the test was quit. They were given 1 point for each correct answer and 0 point for incorrect answer.

The adaptation of the test to Turkish for 6-year-old-children was conducted by Erbay (2009). Views of nine field experts were received for content validity of the test and in line with these views 55 items were made ready to be used for children aged 6. The test was administered to a total of 120 children in the city of Konya. Item analysis was made for the data that were obtained, and the 31-item test was given its final form after item difficulty, item discrimination, item total correlations and the t test results of the top and bottom 27 % groups were evaluated. Internal consistency coefficient, KR-20 value and the two half-test correlation value for Auditory Reasoning and Processing Skills Test were calculated to be .86, .87 and . 83 respectively. The test involves items that measures skills of general information, comprehension, similarities, analogical completion, finding reasons, arithmetical reasoning and verbal absurdities but they are evaluated on a single dimension as auditory reasoning and processing skills (Erbay, 2009).

Data Analysis

Non-parametric tests were preferred in data analysis because comparison groups included less than 15 children. For independent group comparison, Mann Witney U analysis was employed and for dependent grup comparisons, Wilcoxon Signed Rank Test was used in the analysis of data obtained from Auditory Reasoning and Processing Skills. Analysis were conducted using 15.00 SPSS and a significance level of 0.05 was sought in the comparisons.

Results

Table 1.

Mann Witney U Test Results of Children in the Experimental and Control Groups According to their Pretest Scores from Auditory Reasoning and Processing Skills Test

Group	n	Rank Mean	Rank Total	z	p
Experiment	15	14, 50	217, 50	-, 626	, 531
Control	15	16,50	247,50		

According to Table 1, no significant statistical difference was found between auditory reasoning and processing skills pretest scores of the experimental and control groups (z=-,626, p>,05). When rank means and rank totals are taken into consideration, these figures indicate that auditory reasoning and processing skills pretest scores of children who participated or did not participate in the creative drama education are similar. These results are in support of hypothesis 1.

Table 2.

Mann Witney U Test Results of Children in the Experimental and Control Groups According to Their Auditory Reasoning and Processing Skills Posttest Scores

Group	n	Rank Mean	Rank Total	z	p
Experiment	15	23, 00	345, 00	-4, 68	, 001*
Control	15	8, 00	120, 00		

p<0.05

When Table 2 is examined, it is observed that auditory reasoning and processing skills posttest scores of experimental and control groups do not exhibit a statistically significant difference (z=-4,68, p<,05). When rank means and rank totals are taken into consideration, it is understood that TARPS posttest score means of experimental group children who participated in the creative drama education are higher than TARPS posttest score means of control group children who did not participate in the creative drama education. This result is in support of hypothesis 2.

Table 3.

Wilcoxon Signed Rank Test Results of Children in the Experimental Group from Auditory Reasoning and Processing Skills Pretest-Posttest Scores

Posttest- Pretest	n	Rank Mean	Rank Total	z	p
Negative Rank	0	,00	,00		
Positive Rank	15	8, 00	120, 00	-3, 41	, 001*
Equal	0				

**p<0.05*

Based on negative ranks

As can be seen in Table 3, a statistically significant difference was found between the auditory reasoning and processing skills pretest-posttest scores of the children in the experimental group (z=-3,41, p<,05). When the rank means and totals of the differential scores are taken

into consideration, it can be said that creative drama education has an important influence on developing auditory reasoning and processing skills of the children in the experimental group. This finding is in support of hypothesis 3.

Table 4.

Wilcoxon Signed Rank Test Results of Children in the Control Group from Auditory Reasoning and Processing Skills Pretest-Posttest Scores

Posttest-pretest	n	Mean	Rank	Rank Total	z	p
Negative Rank	2	4,50	9, 00			
Positive Rank	7	5, 14	36, 00	1, 73	, 083	
Equal	6					

**p>0.05*

Based on negative ranks

As shown in Table 4, no statistically significant difference was found between the auditory reasoning and processing skills pretest-posttest scores of children in the control group (z=1,73, p>,05). When the range means and totals of differential scores are taken into account, no progress is observed in the auditory reasoning and processing skills of children in the control group. The result that was obtained is in support of hypothesis 4.

Table 5.

Mann Witney U Test Results of Children in the Experimental and Control Groups According to Their Auditory Reasoning and Processing Skills Difference Scores

Group	n	Rank Means	Rank Total	z	p
Experiment	15	22, 83	342, 50		
				-4, 56	, 001*
Control	15	8, 17	122, 50		

**p<0.05*

As can be seen in Table 5, a statistically significant difference was found between the auditory reasoning and processing skills scale total differential scores of children in the experimental and control groups (z=-4,56, p<,05). When the rank means and totals of the difference scores are taken into consideration, a progress is observed in the auditory reasoning and processing skills of the children in the experimental group. This result is in support of hypothesis 5.

Table 6.

Wilcoxon Signed Rank Test Results of the Auditory Reasoning and Processing Skills Posttest-Follow-up Test 1 Scores of Children in the Experimental Group

Posttest-Follow-up 1	n	Rank Mean	Rank Total	z	p
Negative Rank	12	7, 00	84, 00		
Positive Rank	1	7	7	3,05	,002*
Equal	2	------	------		

**p<0.05*

Based on negative ranks

As can be seen in Table 6, there is a statistically significant difference between the auditory reasoning and processing skills posttest-Follow-up test 1 mean scores of the children in the experimental group (z=3,05, p<,05). When the mean ranks and totals of differential scores are taken into consideration, a regression is observed in the auditory reasoning and processing skills of the children in the experimental group. Hypothesis 6 has been rejected in accordance with this result.

Table 7.

Results of Wilcoxon Signed Ranks Test of the Auditory Reasoning and Processing Skills Posttest-Follow-up Test 2 Scores of Children in the Experimental Group

Posttest-follow-up 2	n	Rank Mean	Rank Total	z	p
Negative Rank	9	8, 28	74, 50		
Positive Rank	4	4, 12	16, 50	-2,046	, 041*
Equal	2	------	------		

*$p<0.05$

Based on negative ranks

As can be seen in Table 7, there is a statistically significant difference between the auditory reasoning and processing skills scale posttest-follow-up 2 test mean scores of the children in the experimental group (z=-2,046, p<,05). When the rank means and totals of the difference scores are taken into consideration, a regression is observed in the auditory reasoning and processing skills of the children in the experimental group. According to this result, hypothesis 6 is rejected.

Table 8.

Wilcoxon Signed Rank Test Results of the Auditory Reasoning and Processing Skills Follow-up Test 1-Follow-up Test 2 Scores of the Children in the Experimental Group

Follow-up 1– Follow-up 2	n	Rank Mean	Rank Total	z	p
Negative Rank	7	8, 00	56, 00		
Positive Rank	6	5, 83	35, 00	-, 749	, 454
Equal	2	------	------		

*$p>0.05$

Based on negative ranks

As can be seen in Table 8, No statistically significant difference was found between the auditory reasoning and processing skills test follow-up test 1-follow-up test 2 mean scores of the children in the experimental group (z=-749, p<,05). When the rank means and totals of the difference scores are taken into consideration, no decreases is observed in the auditory reasoning and processing skills of the children in the experimental group after follow-up test 1.

Discussion

The implemented creative drama education programme was prepared for the purpose of developing children's auditory reasoning and processing skills such as general information, comprehension, verbal absurdities, similarities, finding reasons, arithmetic reasoning and analogical completion skills. These skills are those that are at the base of the creative drama

activities. Children who participate in this process continuously renew their general information levels in activities such as pantomime, role playing and improvisation in accordance with the targets and behaviours and the issues that are dealt with. Children may benefit from their peers' background information in the drama activities based on group interaction and this information becomes more permanent and significant as this information is obtained on the basis of experiences. Children's playing different roles, forming dialogues concerning these dialogues, establishing their own stories and making improvisations support their skills based on comprehension and cause and effect. Similar and different characteristics of objects, phenomena and pictures are benefited by in the creative drama processes. This also reinforces their skills of classifying, ordering and matching, which constitute the basis of their reasoning skills. Children need to understand teacher instructions accurately in order to perform all of these. The evaluation stage, which takes place after the studies, is conducted in the form of questions and answers. Through these questions, children's views concerning what they have experienced, their feelings and thoughts and dreams are obtained. Children are asked to evaluate all of these within the framework of cause and effect. They are expected to draw new conclusions from the views that have been stated. In short, creative drama activities improve children's reasoning skills as stated in the conclusions of the study (Erbay, 2009).

A review of the relevant literature reveals existence of similar findings in studies on creative drama. Omniewski (1999) stated that artistic activities such as music and dance including drama developed arithmetic skills of children attending the second grade. Yazkan (2000) reported that creative drama method was more successful than the reading method in the acquisition of listening comprehension behaviour and reduced the amount of forgetting (cited by Sözer, 2006). Akın and Önder (2003) found that educational drama programme was effective on children's skills in making them gain perceptive and cognitive points of view. Erdoğan (2006) reported that these activities improved mathematical skills (cited by Duatepe Paksu & Ubuz, 2007). Aykaç (2007) stated that children learned concepts more effectively through the creative drama method in the preschool level and were satisfied with the learning process. Finally, Arielli (2007) found that children who attended the sixth grade and received drama education understood scientific concepts better than those who did not receive this education.

These findings seem to be in support of the findings in this study suggesting that the auditory reasoning and processing skills scores of children in the experimental group exhibit positive changes after the training in comparison to before the training. Ebrahim (2006) compared creative thinking and reasoning skills of children with and without hearing impairment in his study concerning. He pointed out, on the basis of the results he obtained, that there was a significant relationship between children's reasoning skills and their creative thinking. Creative drama is one of the activities where children's creativity is at its height. The most important goal of creative drama is to improve children's inherent creativity (Ceylan et al., 2010). Results of the study conducted by Ebrahim (2006) coincide with the finding that drama activities where children use their creativity intensively improve their reasoning skills and therefore support the findings of this study.

Hayran (2010) pointed out in his study that multi stimuli educational environment has an impact on concept development of students. Drama activities activate all of the five senses of children by giving them the opportunity to use rich materials. Therefore, the findings of the study of Hayran (2010) support findings of this research.

Conclusion and Suggestions

The overall conclusion that has been drawn as a result of the findings that have been obtained is that creative drama education supports development of children's auditory reasoning and processing skills. While a development is observed in children who have not received this education, it has been found that this development is not statistically significant.

The following suggestions can be made in accordance with this result:

- Seminars, conferences and other information giving activities can be organized for relevant parents and teachers concerning reasoning skills so that they can be informed about the subject and acquire an awareness about reasoning skills.
- Activities aimed at improving children's reasoning skills in pre-school education programmes can be highlighted using different methods and techniques.
- Educators' setting a good model for children in the classroom environment concerning issues such as establishing cause and effect relationships, asking questions to give meaning to a phenomenon, solving problems within the framework of cause and effect relationship, and establishing a relationship of similarity and difference between phenomena may make positive contributions to the development of such skills in children.
- Educators may include family participation activities in order to support children's reasoning skills and thus ensure continuation of the education, which they gave in the school, at home, too.
- Educators may enable children to have gains in different fields by organising creative drama activities not only in the classroom environment but also in museums, libraries, parks and factories and thus raise the level of their general information.
- Theoretical books and practical books that involve creative drama applications intended for pre-school education can be prepared. If these books are accompanied by music, material and application CDs, educators can allocate more space for these activities.

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