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THE EFFECT OF DRAMA EDUCATION ON PROSPECTIVE TEACHERS' CREATIVITY*

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A number of studies of the effects of drama on individuals' cognitive and affective characteristics have been carried out recently. These studies revealed that drama had positive impact on students' development of communication skills, socialization levels, development of emotional intelligence, social skills, empathic skills and empathic tendencies regardless of the grade levels of the students. In the present study, the effect of drama education on creativity of prospective classroom teachers was examined. As the method of this study, experimental design, which is based on pre-test and post-test, was used. In the research the study group consisted of 78 the 4th grade students (50 females and 28 males) who attended the Primary School Teacher Education Program at Elementary Education Department of Faculty of Education, Kırıkkale University in fall semester of 2006-2007 academic year. The data in this study was gathered through "Torrance Test of Creative Thinking-Figural Form A". "TTCT-Figural, Form A" was applied on the participants before and after Drama Course, and their pre-test and post-test scores were compared accordingly. Results of the study showed that at the end of the Drama Course, the scores of creativity test the students took increased to some extent in all of the dimensions of creativity test, which are "fluency", "originality", "elaboration", "resistance to premature closure" and "abstractness of titles". It was also found out that participants' pre-test and post-test creativity scores did not make a significant difference according to gender variable. Recommendations of the study include that drama should be an essential part of all teacher education programs, and more research should be performed focusing on the effects of drama on students' various intellectual skills and attitudes.

Key Words: Drama, creativity, prospective classroom teachers, Torrance Test of Creative Thinking (TTCT)

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INTRODUCTION

Creativity that is crucial for the improvement of society and mankind and that is an important skill of man can be considered as an innate potential energy. Creativity is a process that includes such characteristics as flexibility, multidimensional thinking, sensibility, being alert to and interested in environment and people, fluency, being able to think and act easily, quickly and independently, originality, and being able to reach various and different solutions (Aral 1990; Tuna 2000; Çakmak 2005). Isenberg and Jalongo (1997) define creativity as doing or creating something that has never been done before and responding objects, symbols, ideas, and situations by relating them to previous experiences. According to Gartenhaus (1997), creativity is not a mystery, but a concept known by everybody; however, a few people can improve and enhance it. Creativity is not a divine inspiration or a special instinct that can be obtained by chance by a few people; but it is a skill and behavior, which can be improved by practices.

Drama activities provide lots of opportunities for revealing, supporting and developing creativity. Drama is to perform a word, concept, behavior, sentence, idea, experience or event by utilizing theater techniques and developing a game or games (San, 1996; Aral et al, 2000). Drama is an instructional method, which helps individuals develop themselves in multi dimensions by empathizing with others, be active in educational and instructional processes, be able to express themselves, be creative, perceive life from many perspectives, be keen on research and on learning as opposed to the fact of education's getting dull and non-productive.

Drama offers participants the opportunity to practice constructive behavior and provides a medium through which students learn to cooperate and collaborate (Sternberg, 1998) and it develops self-confidence and self-esteem as well as providing learning and socialization. It emphasizes social potential energy that is thanks to being a member of a group, and it develops problem solving skills and communication skills. Drama also provides active participation rather than being passive, being independent rather than dependency and making independent decisions, becoming democratic, and noticing one's own skills. One of the most important characteristics of drama processes is to give the individuals the opportunity for self-actualization, group work and sharing responsibilities (Tahta, 1999). Drama also provides individuals with an opportunity to get encouraged, to have new experiences, to be at peace with themselves and with the others, and to be tolerant towards others since every member of the group has the opportunity to participate in the process. Group members examine a particular topic, analyze, play, revise, synthesize, apply the

knowledge obtained to real life, take lessons from their experiences, and reflect these lessons into real life. Through drama individuals can recognize themselves better, develop a creative personality, and realize their skills (Morgül, 1999). Drama activities are now done in all stages of education, ranging from pre-school education to university and graduate education. In addition, creative drama is considered important not only in education but also in many other fields. While school teachers, students, and other personnel in education are attending courses for self-development and to use creative drama in their classes, those out of the field join creative drama activities (Köksal, 2003).

When the studies on the effect of drama on creativity are examined, it can be realized that they focus especially on the researches about children's creativity. At the end of his study in which he analyzed the effect of drama on development of 5-6 year-old children's oral creativity, Ömeroğlu (1990) realized that the children in the experimental group, who took creative drama education, were more successful in the post-test than the children, who were in the control group and that it was the result of creative drama education. Akın (1993) examined the effect of drama education on the socialization level of children with different socio-economic backgrounds. At the end of the research, it was found out that there occurred a reasonable increase in the socialization levels of the subjects, who took drama education.

In the study carried out by Tulgay (1997), Torrance Test of Creative Thinking-Figural, Form A (TTCT-Figural, Form A) was applied to 100 adults, 50 of whom attended National Theatre, Opera and Ballet Staff Charity, and 50 of whom attended Mehmet Akif Ersoy Comprehensive School and Aydınlikevler High School in order to determine their creativity levels. At the end of the research, it was understood that age variable made a significant difference in creativity levels of the adults and that the duration of drama education caused a reasonable difference in terms of creativity dimensions. However, it was found out that taking drama education did not make any difference in the dimensions of creativity.

Another study about this subject was carried out by Akoğuz (2002). In his study Akoğuz examined the effect of drama on developing communication skills. This study was carried out with voluntary students, who participated in the creative drama workshop in educational parks of Turkey Association of Education Volunteers. The sample of the study involved the first group of 22 students, who were aged 9-10-11 and the second group, who were aged 11-12-13. Throughout the creative drama workshop of 12 weeks, the development in the students' communication skills was observed, and these observations were registered regularly on the observation forms, and the video records were

checked to prove their accuracy. The research results showed that compared to the observations made about each subject at the beginning of the experiment, creative drama caused a remarkable difference in development of communication skills at the end of the experiment. It was found out that especially the female students aged 9-10-11 used exaggerated sentences at “frequently” level much more than the boys did in the following weeks; that they were more interested in their environment than the boys were at “usually” level and that they listened to the others silently and by demonstrating that they were listening.

As mentioned in the studies above, it is noticeable that the studies about the prospective teachers’ creativity are limited while there are lots of studies in literature about creativity of the students at different grades. One of the creative drama studies on prospective teachers was carried out by Özdemir (2003). In the study in which he examined the effect of creative drama course on emotional intelligence of the third grade university students at the Department of Classroom Teacher Education Program, Özdemir (2003) found out that there was a meaningful difference between pre-test scores and post-test scores of the students in the experimental group and that there was a remarkable increase in the students’ EQ scores summary and in the sub-scores of self-consciousness, empathy and social skills.

In her study Okvuran (2000) examined the effect of creative drama education on empathic skill and empathic tendency. In the study conducted on the students, who took creative drama education at Educational Sciences Faculty in Ankara University, Empathic Skill and Empathic Tendency Scales, which were developed by Dökmen (1988) were used. At the end of the study it was found out that drama had a remarkable effect on the students’ level of empathic skills and empathic tendency. A similar study on this subject was designed by Bertiz (2005). In this study, the attitudes of prospective science teachers towards creative drama and their opinions about narratives were investigated. To better understand the attitudes of prospective science teachers towards creative drama and also to determine whether their attitudes change in accordance with gender variable as well as to capture their opinions about the use of narrative, which is a sub-technique of creative drama, in science education, Bertiz (2005) found that creative drama and narratives were very effective when learners attempt to acquire abstract concepts.

Purpose of the Study

The purpose of this study was to determine the effect of drama education on prospective teachers' creativity. For this purpose, researchers sought answers to the following questions;

1. What are the pre-test scores of the prospective classroom teachers in Torrance Test of Creative Thinking-Figural, Form A?
2. What are the post-test scores of prospective classroom teachers in TTCT-Figural, Form A?
3. Is there any significant difference between pre-test and post-test creativity scores of the prospective teachers?
4. Do the prospective teachers' pre-test and post-test creativity scores differ in terms of gender?

METHOD**Research Model**

This research investigated the effect of drama on the creativity of prospective primary school teachers. To achieve this purpose a research method using pre-test and post-test experimental design without control group was employed.

Participants

This study was conducted on 78 students, who were enrolled in drama course in the 4th grade of the Primary School Teacher Education Program at Department of Elementary Education in Education Faculty in Kırıkkale University. "TTCT-Figural, Form A" was applied to the participants before they took drama course. 78 students out of 103 generally participated in the pre-test actively for 4 hours during 12 -week- application process, and they answered the pre-tests and post-tests. In this respect, the students, who did not participate in the applications regularly, or the ones, who did not answer at least one of the pre-tests or of the post-tests at all, were excluded from the study. The present study was performed in the fall semester of 2006-2007 academic year.

Instruments

In this study in order to determine the students' creativity levels, "TTCT-Figural, Form A", which was developed by Torrance (1966) and which was adapted to Turkish by Aslan (1999), was utilized. This test consists of such sub-dimensions as "fluency, originality, abstractness of the titles, resistance to

premature closure and elaboration”, and the mean of the scores obtained from the sub-dimensions gives the total creativity score. “TTCT-Figural Form A” was developed by Torrance and it was adapted to Turkish and checked up on validity and reliability by Aslan (1999). The test was translated into Turkish by three translators, who can use both English and Turkish fluently. This test was given to 30 university students in both languages at 15 day-intervals and transliteral equivalence study was carried out. For the analysis Pearson Moments Multiplication was used, and t-test analysis was applied to the same scores. The correlation between Turkish and English tests for figurative creativity was high.

Moreover, relating to the reliability of “TTCT-Figural, Form A” in Aslan’s (1999) adaptation, by the use of Guttman, Spearman Brown and Cronbach’s Alpha techniques it was found that internal reliability coefficients for the sum score of creativity changed between .74 and .38. Consequently, it was determined that the test could be reliably applied to students who are at pre-school, elementary school, high school and university level (Cited from Çakmak, 2005).

Implementation

After the study group was decided, “TTCT-Figural Form A” as pre-test was administrated to the participants. After the pre-test, the participants were engaged in various activities in the drama course for 12 weeks. During that process, in order to develop their creativity the students were involved in such activities as warm-up activities, steps of drama, communication activities, confidence activities, adaptation activities, relaxation activities, drama based on stories, drama based on pantomime, drama based on music and audio. At the end of 12 weeks, the participants re-filled in “TTCT-Figural, Form A”.

The Evaluation of Creativity Test

The amount of the answers the students gave were considered as the score of fluency; the fact that the answers were extraordinary were considered as the score of originality; the titles that helped the individual, who looked at the picture, understood it deeply and elaborately, were evaluated as the score of abstractness of the titles; all kinds of the details added to the borders of or around the picture were evaluated as the score of elaboration, and the case of the picture being closed directly were evaluated as the score of resistance to premature closure.

Data Analysis

For the analysis of the data gathered in this study, SPSS for Windows 10.0 (Statistical Package for Social Sciences) was used. To comment on the students' pre-application and post-application creativity scores, arithmetic mean and standard deviation were employed. Moreover, in order to examine whether there was a difference between the students' pre-test and post-test scores in "TTCT-Figural, Form A", paired-samples t test was applied and whether those scores changed in accordance with gender variable, independent-samples t test was used. In those analyses, Levene's test was utilized to find out whether the variations among the group scores were equal or not, and it was found out that group scores were homogenous. In those comparative analyses, the significance level relating to the differences among the groups scores was calculated as 0.05.

FINDINGS

The scores that the prospective classroom teachers got at the end of the application of "TTCT-Figural, Form A", and the findings about the comparison of those scores in accordance with the gender variable were illustrated in the tables below.

Table 1. The sum of mean scores received from the pre and post-test regarding the dimensions of "TTCT-Figural, Form A"

<i>Tests</i>	<i>N</i>	<i>Total Scores</i>	<i>Mean</i>	<i>SD</i>
Pre-test	78	52,64	10,52	2,88
Post-test	78	65,70	13,14	2,71

As seen in Table 1, the students' scores summary in the pre-test relating to the five dimensions of the creativity test (fluency, originality, abstractness of the titles, elaboration and resistance to premature closure) was calculated as 52,64 and its arithmetic mean was calculated as 10,52; while the total score in the post-test was calculated as 65,70 and its arithmetic mean was calculated as 13,14. According to these results, the students' creativity scores in the post-test increased considerably compared to their scores in the pre-test.

Table 2. The means of the scores the students got in pre and post-test regarding the dimensions of “TTCT-Figural, Form A”

<i>Dimensions of Creativity</i>	<i>N</i>	<i>Pre-test Mean Scores</i>	<i>SD</i>	<i>Min.</i>	<i>Max.</i>
Fluency	78	25,43	8,31	12,00	40,00
Originality	78	16,29	6,26	6,00	37,00
Abstractness of the Titles	78	1,96	2,66	,00	17,00
Elaboration	78	8,17	2,50	4,00	14,00
Resistance to Premature Closure	78	,76	1,24	,00	7,00
Total	78	52,64	4,19		
<i>Dimensions of Creativity</i>	<i>N</i>	<i>Post-test Mean Scores</i>	<i>SD</i>	<i>Min.</i>	<i>Max.</i>
Fluency	78	31,26	7,91	12,00	40,00
Originality	78	22,19	6,75	7,00	42,00
Abstractness of the Titles	78	2,08	2,64	,00	19,00
Elaboration	78	9,05	2,32	4,00	18,00
Resistance to Premature Closure	78	1,10	1,28	,00	8,00
Total	78	65,70	4,18		

In Table 2 the means of the students’ scores in pre-test and post-test relating to the five dimensions of TTCT-Figural, Form A are given. Looking at the creativity scores in the pre-test and the post-test, it is notable that compared to pre-test scores, post-test creativity scores increased at a certain amount. As noticed in the table, the students’ arithmetic mean scores relating to the “fluency” dimension of the creativity test in the pre-test was found as 25,43. As for the arithmetic means of the students’ scores relating to this dimension in the post-test, it was 31,26. This means that the students answered quite more questions in the post-test relating to fluency dimension than they did in the pre-test.

The mean of scores the students got in the pre-test relating to “originality” dimension was 16,29 while the scores in this dimension changed between 6 and 37. The arithmetic mean of the scores the students got in the post-test relating to originality dimension was calculated as 22,19. When the mean of the scores in the pre-test relating to originality dimension (16,29) is taken into consideration, it is possible to assert that the students gave more extraordinary answers than they did in the pre-test, that is, they gave original answers to the questions at the end of the process.

The arithmetic mean of the scores the students had in the pre-test related to “the abstractness of the titles” dimension was found as 1,96, whilst the mean of the students scores in the post-test was 2,08. When the standard deviation of the scores is taken into consideration, it is seen that standard deviation is higher than the mean. This situation can be interpreted as most of the students got 0 in the test relating to the abstractness of the titles while few students got high

scores and that decreased the mean and caused standard deviation to be higher than the mean. In accordance to these findings, the creativity scores of the students in the post-test relating to the abstractness of the titles dimension were not much higher than the scores they got in the pre-test.

As illustrated in Table 2, the arithmetic mean scores the students got in the pre-test about the “elaboration” dimension of the creativity test was 8,17, and the mean of the post-test was 9,05. According to this, the creativity of the students in the activities relating to this dimension increased at least some though not much compared to the case before they had drama course.

The mean of the pre-test relating to “the resistance to premature closure” dimension was calculated as ,76 and the mean of the post-test was calculated as 1,10. As it was in the abstractness of the titles dimension, in this dimension the standard deviation was higher than the mean. As it was emphasized before, this is because a significant number of students got 0 in both pre-test and post-test. According to this, the creativity of the students in the activities related to the resistance to premature closure dimension increased at least some though not much compared to the case before they took drama course.

Table 3. The findings relating to the difference between the means of the scores the students got in pre and post-test of “TTCT-Figural, Form A”

<i>Tests</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>t</i>	<i>p</i>
Pre-test	78	10,52	2,88	- 8,209	,000
Post-test	78	13,14	2,71		

According to the paired-samples t-test results in Table 3, there is a significant difference at 0,05 level between the means of the scores the students got in the pre-test and the post-test ($t = -8,209$ and $p < .05$). Based on this finding, there is a remarkable difference between the creativity scores the students had before and after the implementation. It can be argued that drama education had an effect on this difference.

A similar finding was obtained in a study carried out by Koç (1999). Koç (1999) conducted this study in which she researched the effect of creative drama on learning on the students at Faculty of Educational Sciences in Ankara University. At the end of the study it was found out that there was a significant increase in the cognitive, sensorial and psycho-motor skills of the students in the experimental group, who took creative drama course, as compared to the students in the control group.

Table 4. The findings relating to the comparison of the scores the students got in the pre and post-test of the dimensions in “TTCT-Figural, Form A”

<i>Dimensions of Creativity</i>	<i>Tests</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>t</i>	<i>p</i>
Fluency	Pre-test	78	25,43	8,31	-6,515	,000
	Post-test	78	31,26	7,91		
Originality	Pre-test	78	16,29	6,26	-8,329	,000
	Post-test	78	22,13	2,75		
Abstractness of the Titles	Pre-test	78	1,96	2,66	-,410	,683
	Post-test	78	2,08	2,64		
Elaboration	Pre-test	78	8,17	2,50	-3,738	,000
	Post-test	78	9,05	2,32		
Resistance to Premature Closure	Pre-test	78	,76	1,24	-2,143	,035
	Post-test	78	1,10	1,28		

Table 4 indicates the t-test results related to the comparison of the scores the students got in the dimensions of the creativity test. While there is a significant difference between the scores the students got in the pre-test and the post-test of the creativity dimensions ‘*fluency, originality, elaboration, and resistance to premature closure*’ ($t=-6,515$ and $p<.05$; $-8,329$ and $p<.05$; $-3,738$ and $p<.05$; $-2,143$ and $p<.05$), there is no meaningful difference in “*the abstractness of the titles*” dimension ($t=-,410$ and $p>.05$). According to this, there is a note-worthy increase in the creativity of the students regarding those four dimensions. It can be claimed that drama education applied to this group had an effect on this improvement or difference.

As for the fact that there is not a significant difference in the abstractness of the titles dimension, it can be asserted that the facts that the students used general expressions more while they were expressing themselves orally and that they used abstract and complex concepts or expressions less caused them to get lower scores in the abstractness of the titles dimension.

At the end of the study in which Akoğuz (2002) analyzed the effect of creative drama on the improvement of communication skills, it was found out that the students, who participated in the study, had improvement in their communication skills at the end of the creative drama process and that creative drama had an effect on that improvement.

Table 5. The findings relating to the difference of the students' means of the scores in the pre-test of the dimensions in "TTCT-Figural, Form A" in terms of gender variable

<i>Gender</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>t</i>	<i>p</i>
Female	50	10,23	2,66	- 1,198	,235
Male	28	11,05	3,23		

As seen at Table 5, t-test results show that there is not a significant difference between the means of the scores the students got in the creativity pre-test according to gender variable ($t=-1,198$ and $p>.05$). This finding indicates that the scores of the female and male students relating to the five dimensions in the creativity test are quite similar.

A similar finding was found out in Aslan's study (1994). Aslan (1994) designed a study on the psychological needs of the creative people. The study group consisted of 312 students, who attended different departments of the universities in Istanbul. In this study, Torrance Creative Thinking Test, Edwards Personal Preference Schedule, and Personal Information Form were used. At the end of the study it was found out that there was no meaningful difference between the creativity scores of the male and female students, who were categorized as normal, medium and creative.

Table 6. The findings regarding the difference of means of the students' post-test scores in "TTCT-Figural, Form A" in terms of gender variable

<i>Gender</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>t</i>	<i>p</i>
Female	50	13,29	2,58	,653	,516
Male	28	12,87	2,97		

Table 6 indicates the t-test results related to the comparison of the means of students' post-test scores. Thus, as in pre-test there is no significant difference between the means of the students' post-test creativity scores in terms of gender ($t=.653$ and $p>.05$). According to this finding, the means of the male and female students' post-test creativity scores are quite similar. This finding can be interpreted as the fact that education of female and male students are considered equally important especially in industrialized cities might have removed the difference in the scores of the male and female students. A similar finding was found out in Davaslıgil's study (1994). In the study she carried out in Ankara Atatürk High School of Science, Davaslıgil (1994) found out that there was no significant difference between the creativity scores of the male and female subjects.

Consequently, it was determined that the creativity scores summary the female and male students got before and after drama education were quite similar and gender variable was not effective enough to cause a difference between the students' creativity levels.

Table 7. The findings relating to the difference of means of the students' pre-test scores in "TTCT-Figural, Form A" in terms of gender variable

<i>Dimensions of Creativity</i>	<i>Gender</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>t</i>	<i>p</i>
Fluency	Female	50	24,50	7,02	-1,335	,186
	Male	28	27,10	10,1		
Originality	Female	50	16,12	6,19	-,328	,744
	Male	28	16,60	6,48		
Abstractness of the Titles	Female	50	1,52	1,75	-1,993	,050
	Male	28	2,75	3,69		
Elaboration	Female	50	8,30	2,61	,566	,573
	Male	28	7,96	2,31		
Resistance to Premature Closure	Female	50	,74	1,15	-,275	,784
	Male	28	,82	1,41		

As seen at Table 7, there is not a significant difference at 0,05 level between the male and female students' creativity scores related to the "fluency", "originality", "elaboration", and "resistance to premature closure" dimensions of the creativity test. Students' scores for these dimensions are quite similar. However, there is a significant difference in the "abstractness of titles" dimension according to gender. The difference in this dimension indicates that compared to creativity scores of female students, creativity scores of male students are higher enough to create a significant difference.

Table 8. The findings regarding the comparison of the scores the students got in the post-test of the dimensions in "TTCT-Figural, Form A" in terms of gender variable

<i>Dimensions of Creativity</i>	<i>Gender</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>t</i>	<i>p</i>
Fluency	Female	50	31,30	7,53	,046	,964
	Male	28	31,21	8,70		
Originality	Female	50	22,80	6,78	1,063	,291
	Male	28	21,10	6,67		
Abstractness of Titles	Female	50	1,72	1,65	-1,669	,099
	Male	28	2,75	3,77		
Elaboration	Female	50	9,44	2,40	2,008	,048
	Male	28	8,35	2,04		
Resistance to Premature Closure	Female	50	1,20	1,45	,894	,374
	Male	28	,92	,89		

Table 8 illustrates the findings relating to whether the means of students' creativity post-test scores changed according to gender variable. According to this, there is no significant difference between the post-test scores of the students in "*fluency*", "*originality*", "*abstractness of the titles*" and "*resistance to premature closure*" dimensions of the creativity test according to gender variable. In these dimensions the creativity scores of the male and female students are quite similar. Despite this, there is a significant difference between the creativity post-test scores of the students in "*elaboration*" dimension according to gender ($t=2,008$ and $p<.05$). This finding and the arithmetic means of the scores indicate that the creativity post-test scores of the female students are higher than the male students' scores. It can be said that such factors as girls' giving more importance to details of the figures or of the pictures than the boys do, their being more keen on drawing skills than the boys are and their being more interested in such activities than the boys were effective in that difference. A similar finding was found out in Çakmak's study (2005). In the study it was compared the creativity of the children under 6, who lived in villages and cities, Çakmak (2005) found out that the creativity scores of the girls in elaboration dimension were higher than the scores of the boys.

Consequently, when the arithmetic means and t-test results were analyzed in general, the scores of the female and male students in the dimensions of the creativity test were found to be quite similar. There was a significant difference only in "*the abstractness of the titles*" dimension of the pre-test (in favor of the male students) and only in "*elaboration*" dimension of the post-test (in favor of the female students). Based on that, it can be stated that gender is not a meaningful variable for the creativity of the participants and that drama education does not have a significant effect on the creativity of the students according to gender variable.

CONCLUSION AND SUGGESTIONS

Drama enables students, in all levels of education, develop their intellectual skills such as creativity, problem solving, communication, socialization and empathy and it gives individuals the opportunity for self-actualization, group work and sharing their responsibilities. In this study, it was generally found out that drama had quite effect on prospective teachers' creativity.

Compared to the scores in the pre-test, there observed a quite big increase in total scores the students had in the post-test relating to the dimensions of the creativity test. While pre-test scores summary is 52, 64 ($\bar{x}=10,52$), post-test scores summary is 65,70 ($\bar{x}=13,14$). Compared to the pre-test scores, the creativity scores of the students increased in significant amount after they took

drama education. The students improved more in fluency and originality dimensions of creativity than they did in the other dimensions.

There occurred a significant difference between the creativity scores summary the students got in the pre-test and post-test in favor of the post-test. It is thought that drama education the students took had an effect in this difference.

In the comparison of the students' scores in the dimensions of the creativity test, there occurred a significant difference in "*fluency*", "*originality*", "*elaboration*", and "*resistance to premature closure*" dimensions in favor of the post-test while there was not a significant difference in "*abstractness of the titles*" dimension. While the students improved at a remarkable level in the post-test in terms of "*fluency*", "*originality*", "*elaboration*" and "*resistance to premature closure*" dimensions compared to their level in the pre-test, they did not improve at a significant level in "*abstractness of the titles*" dimension. According to this, it can be stated that the reason for that significant differences is the drama education applied to the group.

The means of the creativity pre-test scores did not differ at a significant level in terms of gender variable. In other words, the creativity scores of the female and male students were quite similar. Likewise, the means of the creativity post-test scores of the students did not differ at a significant level in relation to the gender variable. According to this, it can be asserted that the scores of the pre-test and the post-test were quite homogenous according to gender variable. This could be a result of parent attitudes encouraging original and productive thinking, and of education developing personality, which provides such skills as free thinking and self-reliance for both female and male students.

In the comparison of the means of the students' scores in the pre-test in terms of gender variable, there was not a significant difference in "*fluency*", "*originality*", "*elaboration*" and "*abstractness of the titles*" dimensions while there occurred meaningful difference only in "*abstractness of the titles*" dimension in favor of the male students. According to this, the case in the four dimensions, which did not differ in test scores in accordance with the gender variable, can be considered as a result of the equal opportunities of education provided for girls and boys, and the difference in the abstractness of the titles dimension in favor of the boys can be interpreted as the case of boys preferring to use abstract concepts or expressions more than the girls do.

While there was no significant difference in "*fluency*", "*originality*", "*abstractness of the titles*" and "*resistance to premature closure*" dimensions of the creativity test according to gender variable, there was meaningful difference in "*elaboration*" dimension in favor of girls. It can be considered that this

difference is the result of girls' paying more attention to details and having longer pace of concentration compared to boys.

Here are some suggestions based on the results of the present research:

Creative drama in education increases durability of the knowledge that the individuals experience in a learning environment where they can express themselves freely. Therefore, creative drama needs to be compulsory a part of all teacher education programs in each department of faculty of education aiming to prepare future classroom teachers for all grade levels. Also, the findings of this research suggest that creative drama should be an indispensable part of education and its use should be promoted in in-service teacher training programs and there needs to be efforts to make creative drama continually usable at schools.

Beyond the formal educational and professional development activities available for teachers and teacher candidates, it is also very essential for teacher education institutions to collaborate with private organizations and non educational institutions capable of designing activities on drama to open opportunities for both pre-service and in-service teachers to benefit from such activities for a better understanding of drama. In spite of the findings discussed in this paper, more research is required to better understand the effect of drama on students' various skills or attitudes. Further research could investigate the effect of drama on pre-service teachers' problem solving, emphatic skills and interpersonal communication skills.

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