



The Investigation of the Students' Creative Thinking Development

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Abstract

The purpose of this study was to investigate the of 7th class elementary students' creative thinking development. For this purpose, it was observed the development of students' creative thinking in the period of eighteen months. Research group was consisted of 30 students who follow the elementary the 7th class. The mean age of students (15 girls - 15 boys) were 12.9. The model of this study is longitudinal research which is one of the quantity research methods. Data were collected by Torrance Test of Creative Thinking (TTCT) Figural-B form. The data obtained from the study analyzed with 'Independent Samples T-Test' and 'One-Way ANOVA for Repeated Measures' statistic techniques. In the beginning from the elementary school 7th class toward the end of 8th class, with Figural-B tests were carried out three measurements on the same students in the eighteen-month period. According to results of the study, it was found that there is significant difference in favor of the measurement of 8th class between the mean scores of the TTCT Figural-B first implemented in the beginning of elementary 7th class and third implemented in the end of 8th class. Additionally, in the creative thinking development of students did not differ with respect to gender during eighteen months as significantly in the end of follow-up study. Implications of the results are discussed considering the features of physical and cognitive development of the students in early puberty age.

Keywords

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Introduction

Creativity in the process of historical development was perceived as a concealed innate talent which is solely belonged to artists. The meaning of the 'creativity' in Western languages Latin comes from the word of 'creare'. San (2004) draws attention to the use of this word as 'breed', 'create' and 'manufacture'. It can be said that the mystery in the perception of creativity concept in the historical process comes from this first meaning of the word of creativity. Whereas today, as different from that perception, creativity is becoming to developable skill. In this transformation, there is important contribution of Guilford's (1950; cited in Cropley, 2001) definition of creativity as a cognitive thinking skill. Thus, with the Guilford's definition, creativity was included in the frame of intellectual thinking and creativity began to attract the attention of psychologists and educators as a concept (Cropley, 2001).

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Creative thinking in essence, is a phenomenon which exists in our daily lives. It is needed more the creative thinking than ever before to adapt the changing living conditions and developing technology. The rapid changes of living conditions and developing technology is not only providing comfort to our daily lives but it produces new problems. Thus, creative thinking is needed to adapting to the era in which we live and solving the problems we encounter. At this point, San (2004), stated that the creativity is a basis talent which takes place in all the aspects of the human evolution. The creative thinking potential, as a basic fact of life, is thought to exist in each human (Aslan, 2002; San, 2004; Yontar, 1993). It is also known that creative thinking can be developed through education (Gartenhaus, 2000). Creative thinking, various versatility; unpredictable; changeable; the rich in the context of alternative; full of the surprises; is new and different thought activity due to manufacture of the product. These rich features of creative thinking show itself as diversity also in the definition of its concept. While Cropley (2001) clarified that the creativity is to see unusual correlations and to find solutions or new ways, San (2004) stated as curiosity, invention, thinking with images, encouraging research, be having synthesized judgments. Torrance's (1965) definition of creativity based on the Torrance creative thinking test is as follows; being sensitive against problems; developing hypothesis, testing and changing this hypothesis and conveying the results to the others. Currently, it seems to be an agreement among the majority of researches upon the definitions of creativity as new and useful (Batey & Furnham, 2006; Runco, 2007).

It is known that the development of creative thinking is beginning in the first years of life, in the early child era of individual (Butler et al., 1975; cited in Aslan et al., 1997). Torrance (1962) stated that creative thinking begins with the images and continues with the drawing according to the result of the studies on the development of creative thinking in early child era of individual. As said by San (2004), 'image' is the record in the brain as mass, color and contour of the object, whereas the imagination is talent to see correlation between the images. When a newborn baby's eyes opened to the world, she/he begins to create a kind of image bank related on the environment with visual perception. Thus, Ligon (1957; cited in Torrance, 1962) stated that child, between two and five years old, exhibits his/her experiments with imaginary games and verbal expressions. Noticeably, Torrance emphasized the importance of the insight and imagination in the basis of creative thinking (cited in Yontar, 1993). The imagination which is occurred with the correlations between the images recorded in the brain. It can be said that this imagination is forming a structure to prepare the environment for creative thinking in early child era.

According to results of the studies, the potential of creative thinking which is present in every person shows to fluctuate in the school era of individual. Simpson (1922; cited in Torrance, 1962) reported that creativity of individual is increasing in the second half of the 6th class of elementary but it is decreasing in the beginning of 7th and 8th class. Kirkpatrick (1900; cited in Torrance, 1962) concluded that students are more imaginative at their first three classes of elementary school than 4th, 5th and 6th classes of elementary school. He added that the imaginative of students is increasing in the 7th and 8th classes of elementary school. Wilt (1959; cited in Torrance, 1962) pointed out that creativity of children is increasing in the first three classes of elementary school and the sharp decline in the 4th and 5th classes of elementary school related to the results of the study on the development of creative thinking. Along with that study, he found that the creativity declines again at the 6th and 7th classes of elementary school although it was observed some improvements of students in the 5th and 6th classes. According to Camp (1959; cited in Cropley, 2001) the creativity of the child is decreasing in the era after the six ages. Similarly, Urban (1991) also found that the decline in the creative thinking potential of children is around the six ages. Torrance (1963; cited in Yontar, 1993) had made many investigations which is also included follow-up studies upon the development of creative thinking potential in various 13 and 18 age groups. Torrance observed that a line of development of the creativity of children generally increases as the parallel of growing up. However, it declines at the five age and 7th class of elementary in the measurements with Torrance Tests of Creative Thinking which was developed by him. Torrance (1966) explained this sharp decline in the creative performance of the students in the five age and 7th class of elementary school implemented on students. Butler et al.

(1975; cited in Aslan et al. 1997) claimed that observed creativity in the early years of the life is initially exhibited in the games of the children and it reaches its peak at the 13 ages of the child. Torrance (1962) stated that there is need to investigate the creative thinking development of the elementary school students in the 7th and 8th classes because of the previous studies had various results and they did not report sufficient findings on the development of creative thinking. Yontar (1993) also emphasized that there is need to many investigations upon the development of the students' creativity in the culture of Turkey.

The students between 13 and 14 ages, in the 7th and 8th classes of elementary school, have critical importance in terms of their physiological and cognitive development. The findings obtained from the studies upon the development of creative thinking of students between 13 and 14 ages it can be significant contributions in the education of that age groups. As Davaslıgil (1994) also stated that creative thinking is occurred an important dimension of education. Thus, the obtained data from the investigations upon the development of students' creative thinking can help to prepare an appropriate learning climate for the development of creative thinking.

Purpose of the Study

Purpose of this Study is to investigate of the development of creative thinking of elementary students in 7th class, in the period of eighteen months. For this purpose, research question is consisted as following: "How is the creative thinking development of the 7th class elementary students in the period of eighteen months." As related to this research question it was determined these sub-problems.

Sub problem 1: Is there any significant difference between the mean scores of the Torrance Test of Creative Thinking (TTCT) implemented on the 7th class elementary students in the eighteen months period?

Sub problem 2: Is there any significant difference between the mean score of the Torrance Test of Creative Thinking (TTCT) implemented on the 7th class girl and boy elementary students in the eighteen months period?

Method

The method of this study is the longitudinal research which is one of the quantitative research methods. The researches is applied to determine the development of samples related to time which is realized with two ways as 'Longitudinal' and 'Cross-Sectional Study' (Karasar, 2002). If the research is pursuing on the same samples, this research is named as the longitudinal study. In the longitudinal study, it is emphasized in the developmental of sample in a period of time (Çepni, 2009).

Data Collection Tool

Longitudinal studies are based on comparisons hence, using of different instruments it couldn't be meaningful for doing these comparisons (Karasar, 2002). Thus, in this longitudinal study it was only used Torrance Test of Creative Thinking (TTCT) Figural-B form as the data collection tool. Torrance (1966), developed the TTCT Figural A-B equivalent forms in the end of five years research. The TTCT is used to measure the creative thinking in various ages of individuals from kindergarten to high school students. Torrance (1966) performed reliability and validity studies for the TTCT.

Aslan (2001) collected the data about the TTCT from pre-school students to high school students for producing the Turkish version of the TTCT related to equivalent of language, reliability and validity studies. The original forms of TTCT were initially translated into the Turkish language. After that, these TTCT forms were translated again into the English language by the two English language experts. The Turkish version and original form of the TTCT were presented again within 15 days to individuals who are fluent in Turkish and English languages in order to compare their scores. The scores obtaining from the both TTCT forms were analyzed with the Pearson-Product Moment. The correlation between scores found the significant in the level of .01. For the reliability analysis, Guttman, Cronbach Alfa and Spearman Brown techniques were used and it was obtained to correlation coefficients. The internal consistency coefficient was also computed as 0.71. In the end of

all these analyses, it was observed that the forms of TTCT are reliable and validity for all the ages groups of individuals. According to results of the independent samples was found the significant difference in the all ages of participants between upper quartile (N=62) and lower quartile (N=62) in the distinctiveness analysis of question for validity of TTCT' figural forms. In the results of all these analyses, it was decided that TTCT figural A-B forms are measuring the known creative dimensions.

It was followed the criteria in the manual revised in 1984 by Torrance in the scoring of the TTCT figural forms implementing in this present study. The Turkish version of this manual was consisted by Aslan (2001). Thus, it was scored that the power of the creative product of individual according to six different judgment criteria related to stimuli of figural. The sum of the scores obtaining from the judgment criteria is constituted the creativity score. The researcher of this study received the scoring training of TTCT in the administration of the expert. The first measurement of implementing TTCT in this study was scored by the researcher firstly. And then this measurement was scored by second rater who read carefully the manual of TTCT. The inter rater reliability between both raters was analyzed with the 'interrater reliability coefficients' and it was found 0.90 of the interrater reliability coefficients. The researcher also scored again these TTCT forms later to analysis of the intrascorer reliability. According to result of this analysis it was found 0.92 as the intrascorer reliability coefficient. In the end of analyses of interrater scores and intrascorer, it was observed that interrater and intrascorer reliability were obtained.

Analysis of Data

In the analysis of the data obtained from this study was used One-Way ANOVA for Repeated Measures and Independent Samples T-Test. 'The One-Way ANOVA for Repeated Measures' is used to analyse the data whether it is changing related to time significantly. The 't-test' is used to analyze the data whether there is the significantly difference between the two measurements. The 'independent Samples t-test' is used to analyze the scores obtained reliability and validity tests between the genders differences of the samples (Büyüköztürk, 2014). The normal distribution of data which is one of the parametric test assumptions were examined with Kolmogorov-Smirnov normality test ($p > .05$). Also, the data was analyzed the homogeneity of variance (Ural & Kılıç, 2011). According to the results of these analyses it was observed that the parametric statistic techniques' assumptions are obtained.

Follow-up process

Participants of the study were students (15 girls and 15 boys) in 7th class in a public elementary school in Ankara in 2009-2010 education years. It was implemented TTCT Figural-B forms on the students to follow up the students' creative thinking development. For this purpose, the first measurement was implemented on students in the beginning of elementary 7th class. The second measurement was performed on the same students, six months later in the end of elementary 7th class. After this second measurement 12 months later in 2010-2011 education year spring semester last measurement was implemented on the same students in the end of elementary 8th class. Thus, it was completed the follow up process with the implementing on the same students in the different times of eighteen months as total with three measurements of TTCT Figural-B test.

Results

The research question of this study is consisted as following: "How is the creative thinking development of the 7th class elementary students in the period of eighteen months?" According to this research question, it was formatted the sub problems and the data obtaining from these sub problems was analyzed.

The Results of the First Research Question

The first sub problem of the research was formatted as follow: "Is there any significant difference between the mean scores of the Torrance Test of Creative Thinking (TTCT) implemented on the 7th class elementary students in the eighteen months period?" Thus;

Table 1. Descriptive Statistics

Measurements	N	M	S
First Measurement	30	12.43	4.01
Second Measurement	30	13.14	3.52
Third Measurement	30	14.85	3.60

Table 2. The Results of 'One-Way ANOVA for Repeated Measures' of TTCT Mean Scores of Students in the Period of Eighteen months.

Source	Sum of Squares	df	Mean Square	F	P	Significant Difference
Between Subjects	749.89	29	25.85			
Measurement	92.78	2	46.39	5.90	.00	3-1
Error	455.62	58	7.85			
Total	1298.29	89				

1: First measurement 2: Second measurement 3: Third measurement

It was found the significant difference in the mean scores of TTCT implemented on students between the first implemented on the students in the beginning of 7th class and third implemented on the same students in the end of 8th class in favor of third implementation [$F_{(2,58)}=5.90$, $p<.05$] (Table 2). The mean score of the first measurement of TTCT was 12.43, the mean score of the third measurement was 14.85 (Table 1). However, it was not found the significant difference in the mean scores of TTCT between the first measurement in the beginning of 7th class and the second measurement implemented on students in the end of 7th class. While this finding shows that there are not significant changes in creative thinking of students within 7th class, it also reveals that there is positive change on the development of creative thinking of same students in the end of 8th class.

Table 3. The Descriptive Statistics and Results of One-Way ANOVA of Students' mean scores in the TTCT sub scales for Repeated Measures in the Period of Eighteen months.

TTCT Sub Scales	N	First measurement		Second measurement		Third measurement		F	P	Sig. difference
		M	S	M	S	M	S			
<i>Fluency</i>	30	17.30	5.68	23.16	6.13	26.00	6.74	27.20	.03	1-3, 2-3, 1-2
<i>Originality</i>		10.06	4.98	11.93	5.15	13.10	4.42	4.83	.03	3-1
<i>Abstractness of Titles</i>		4.43	3.23	2.76	2.48	.73	1.33	23.96	.03	1-3, 2-3, 1-2
<i>Elaboration</i>		9.6	2.54	9.93	2.37	8.36	1.90	6.49	.00	2-3
<i>Resistance to Premature Closure</i>		5.16	2.86	.60	1.06	4.90	3.30	32.67	.00	1-2, 2-3
<i>Creative Strengths</i>		3.06	2.31	3.70	1.76	4.20	1.74	4.08	.01	1-3

1: First measurement 2: Second measurement 3: Third measurement

As shown in Table 3, in the creative thinking (TTCT) sub scales of *Fluency*, *Originality* and *Creative Strengths*' mean scores of students can be said that there is positive development from the first measurement to the third measurement as linear. Whereas the mean scores of students in *Abstractness of Titles*, *Elaboration* and *Resistance to Premature Closure* sub scales as seen in the Table 3, there are not linear developments from the first measurement toward third measurement.

The Results of the Second Research Question

The second sub problem of the research was formatted as follow: "Is there any significant difference between the mean score of the Torrance Test of Creative Thinking (TTCT) implemented on the 7th class girl and boy elementary students in the eighteen months period?" Thus;

Table 4. The Results of the 'Independent Samples T-Test' Related to Girl and Boy Students' TTCT Mean Scores in the Period of Eighteen months as the three measurements.

Gender		N	M	S	Sd	T	P
First measurement	Girl	15	13,18	4,58	28	1,02	0,31
	Boy	15	11,68	3,34			
Second measurement	Girl	15	14,22	3,08	28	1,73	0,94
	Boy	15	12,06	3,70			
Third measurement	Girl	15	15,86	3,70	28	1,57	0,12
	Boy	15	13,84	3,31			

It was not found the significant difference in the measurements of TTCT according to gender variable in terms of the development of students' creative thinking [$t_{(28)}=1.02$, $p>.05$], [$t_{(28)}=1.73$, $p>.05$], [$t_{(28)}=1.57$, $p>.05$] (Table 4). Examining the Table 4, the mean scores of creative thinking of girl students are higher than boy students in all measurements. But this situation is not indicated that there is a significant difference in the creative thinking development in the between of girl and boy students. In other words, this finding shows that the development of creative thinking of students is not differentiation significantly according to gender.

Discussion

According to the result of this study as regarding to first research question, it was found the significant difference ($p<.05$) in the mean scores of TTCT ($p<.05$) between the first measurement which is implemented on students in the beginning of 7th class and with the third measurement implemented on the same students in the end of 8th class. The significant difference is in favor of the third measurement (Table 2). However, it was not found significant difference in terms of TTCT' mean scores, between the first measurement of students in the beginning of 7th class and second measurement of same students in the end of 7th class (Table 2). It can be said this finding supports the results of Torrance's (1962) longitudinal study. He revealed that sharp decline in the development of creative thinking of students is in elementary 7th class. Considering the participants of this study were 13 years old in the first TTCT measurement and they were also 14 years old in the third TTCT measurement 18 months later, this finding can be expressed that is parallel to the findings of Öncü's (2003) study in terms of showing a significant increase in the creative thinking development of students in 14 years old. Öncü (2003) investigated with the comparing the creative thinking of students who are between 12, 13 and 14 years old. She found that the mean score of creative thinking of students in 14 years old is significantly higher than the mean score of creative thinking of students in 12 and 13 years old.

Related to development of creative thinking, Yontar (1992) followed the creative thinking development of elementary school students starting from the elementary school towards the high school in the ages of 11, 15 and 18, within seven years. According to the result of that study, Yontar reported that the development of creative thinking does not follow the linear in the ages of 11, 15 and 18 years. In a comparison study, Ayverdi et al. (2012) also reported that the line of creative thinking development of students who continue the elementary 6th, 7th and 8th classes does not follow as linear. In other comparison study investigated the level of creativity between 9 years old 14 years old children, Aral (1996) found that the 14 years old upper age children group's creative thinking scores are higher than lower age ones who are 9 years old. According to results of these studies in related to the development of creative thinking show us that the creative thinking development is not linear between in the ages of 12 and 14 years. However, the significant increase in the 14 years age children and the sharp decline in the 13 years age children in terms of creative thinking development is the most important point due to the similarities as the findings of longitudinal study (Torrance, 1965) and

comparison study (Öncü, 2003). Torrance (1962) predicted the sharp decline in the development of creative thinking in the 13 years age children. According to him the cause of this decline is physical development observed in early puberty age of 13 years old children. Similarly, Öncü (2003) also pointed out this physical development seen in early puberty age as a cause of this sharp decline in the development of 13 years age children. Also, Öncü connected the decreasing of the intensive of first negative effects of early puberty age to the cause of significant increase positively in the development of creative thinking of 14 years old children. Öncü (2003) clarified that adolescents in the early puberty age under the effect of physical development behave nervously. According to Öncü, this situation affects adolescents' relations with their family and the increased parental pressure upon the adolescents could be caused to negative effect on their creative thinking development. Adolescence is not a homogeny process which has different eras as the early, middle and late. Steinberg (2007) defined that the period of between 10 years age and 13 years age children are as the *early puberty age*. According to him middle era and late era of adolescence is between 14 and 17, 18 and 22 years old respectively. Elementary of the 6th – 7th and 8th class students are under the effect of intensive and rapid change owing to they are in the early puberty age (Lindzey et al., 1988; Suavi & Akboy, 2008). At this stage of adolescence with the effect of physical development mental changes happen fast and out of control. This situation causes the worries in adolescences (Çetin et al., 2004; Nelsen & Lott, 2001). As the relation to that the early puberty age is the most intensive period in terms of observing the discussion and disagreement between adolescent and their parents (Dowdy & Kliever, 1998). The physical and hormonal development of adolescents happened in the early puberty age of them is the first situation encountered in their lives. This situation ensures the adolescents confront an unknown position. As it reveals the findings of the studies on adolescent, physical and hormonal development observed in the early puberty age affect adversely on the development of creative thinking of individual (Sullivan, 1953; Wilt, 1953; cited in Öncü, 2003). Early puberty age is very intensive era in which adolescents have problems with their family arising from parental pressure beyond dealing with the physical and hormonal development problems. In the passing toward the *middle era of adolescence* from the *early puberty age* is possible that adolescents develop the insight to understand their physical development. Thus, this situation could weaken the conflict between adolescents with family. This flexible environment can be effect positively on the development of creative thinking of adolescents. Creativity as unusual thinking activity is to force the known borders for trying the different solution or expression. Therefore, it can be said that creative thinking could be developed in free and flexible environments which is out of strict rules and parental pressures. As Aslan (2007) stated that individuals could be express their creative thoughts in places where they feel to be free themselves. Also, Chambers (1973; cited in Sungur, 1997) reported that the definition of creative teacher made by creative chemists and psychologists is to promote their students to be free.

As the other cause of the sharp decline in the development of creative thinking of students in 13 years old, it can be showed the passing into the abstract thinking from physical thinking in the between 12 and 13 years old. Individuals pass to abstract thinking from physical thinking in cognitive process with the effects of physical development in the early puberty age (Çetin et al., 2004; Steinberg, 2007). The meaning of the abstract thinking is to think around the general rules (Steinberg, 2007; Yavuzer, 2003). It can be said that this situation stifle the creative thinking which is not be restricted itself within the framework of general rules. Thus, environment disciplined by the general rules could be negative effects on the creative thinking. As the findings of the studies upon the creativity revealed that creative thinking of children reduces in the starting of the school life regulated with general rules (Torrance, 1963; Urban, 1991; cited in Yontar, 1995). Hence, it must be consider to be negative effects on creative thinking development of individual at this first stage of passing into the abstract thinking from physical thinking with the relation to the features of cognitive development only belonged to early puberty age seen in the ages of between 12 and 13 years old children.

According to the findings of the second research question, it was not found statistically significant difference ($p > .05$) between the measurements of TTCT implemented in eighteen months period on students in terms of gender variable (Table 4). Thus, it can be said that there is no significant difference in the development of students' creative thinking in 13 and 14 years old in regard to gender variable. Although the girl students' TTCT mean scores are higher than boy students in the all measurements, it is not found the significant difference in eighteen months period between girl and

boy students in terms of creative thinking development. This finding is parallel with the results of Öncü's (2003) study in which it is not found significant difference according to gender variable in terms of creative thinking development. Also, present finding, it can be said that comparable with the study's results of Yontar (1992) who followed for the creative thinking development of 23 students in the 11, 15 and 18 ages within seven years. Yontar was not reported any significant difference in the development of creative thinking of students at these ages in terms of gender variables. In a comparison study, Aral (1999) found the similar results as mentioned above partially that there is no significant difference in the creativity of children who even pursued the art education and children did not pursue the art education according to gender variable. In Urban (1991)'s study, it was observed that there is no significant difference in the development of creative thinking in even at the younger ages of children regarding to gender variable. Urban (1991) reported the similar results in terms of not being significant difference in the development of creative thinking of children between 137 girls and 135 boys in the age range of five to eight years. Whereas, the study findings of Ayverdi et al. (2012) who compared with the 6th, 7th and 8th class elementary students in terms of creativity found that girl students have significantly higher mean score of creativity than boy students which it is not supporting the findings cited above with including the findings of this present study. Torrance (1965) stated that the sexual features of girls and boys play important role in the differentiation of creative thinking development related to the gender. As the majority of findings reported above with the findings of this present study, it can be said that there is no significant difference in the creative thinking development of students according to gender variable. Hence, it could be establish the connection between the general similarities of the developmental effects depending on adolescence for girl and boy adolescents with to be insignificant differences in the creative thinking development of girl and boy students in the early puberty age related to the gender variable. It can be explained this situation as the similar effects of the adolescent development will produce the similar consequences.

Conclusion and Suggestions

In this study in which was followed the creative thinking development of elementary students in the period of eighteen months, it was not found significant difference in the development of creative thinking of students in 13 years old during elementary 7th class. But it was found the significant difference in the development of creative thinking of the same students in 14 years old in the end of elementary 8th class according to beginning of the elementary 7th class. Accordingly, one of the reasons of the sharp decline in the creative thinking development of 13 years age students, it can be said that there is negative effects of the intensive physical development seen in the early puberty age of children. As the relation with this reason, the nervous environment between adolescents and their parents can also be negative effects on the creative thinking development. Adolescent could enter the chaos of mental and mood with the effects of intensive this physical development in the adolescence era. Hence, it must be developed the flexible behavior patterns away from parental pressure. Also, adolescent must be supported as psychologically. Therefore, it must be known that teachers in school have important mission to reduce in minimum level of negative effects observed on the creative thinking development of students in the early puberty age. Adolescent passes into abstract thinking from physical thinking with the effect of physical development as the distinctive feature known in the early puberty age. While the abstract thinking takes basic to think with general rules in the cognitive process, creative thinking is not be restricted within the framework of general rules due to its nature. In contrast to abstract thinking, creative thinking is fed also from the non-routine thinking processes beyond the general rules. In cognitive process this situation may cause to the contradiction between creative thinking and abstract thinking. In the end of the occurring the possible contradiction in the passing into abstract thinking from physical thinking in cognitive process, it can be expected the conflict structure that stifles creative thinking development of adolescent. The teachers' role is important in order to minimize the negative effects of this contradiction occurring in the context of cognitive. Teachers in the lessons it can be important implications in the development of creative thinking which prompt to answer by asking open-ended questions to students. Additionally, it may be significant effect in the positive direction on the creative thinking development of adolescents with the bending the rules which teachers applied in the management of the class.

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