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The Effects of Differentiated Foreign Language Instruction on Academic Achievement and Creativity of Gifted Students

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Abstract

The main aim of this study is to investigate the effects of an English language education program that addresses the academic and cognitive needs of gifted children on their academic achievement and creative thinking levels. To this end, through an experimental research design, the unit "Health Problems" in English course book was differentiated for gifted students at Grade 5 and the effects of this differentiation on the students' creative thinking levels and academic achievements were examined. Due to the experimental nature of the study, the Randomized Pre-test Post-test Control Group Design was used. The research was conducted with the students who were randomly assigned to control and experimental groups, according to the results of the Raven SPM Test and Torrance Test of Creative Thinking. The Raven SPM Test and Torrance Test of Creative Thinking were applied in the study. The participants of the study consist of 24 gifted students at Grade 5 in Beyazit-Ford Otosan Primary School that is the only mainstream primary school for gifted students in Turkey. The study was conducted in 2011-2012 academic year. The data were analyzed by means of Mann Whitney-U and Wilcoxon Signed Ranks tests. The findings showed that the differentiated English language education program for gifted students significantly improved their creative thinking levels and academic achievement.

Keywords: Gifted Students, Curriculum Differentiation, Teaching English as a Foreign Language, Creative Thinking, Academic Achievement

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1. Introduction

According to the 1971 Marland Report of American Educational Commission, gifted and talented individual is the one who is able to show great performance due to his extraordinary superior abilities. Renzulli (1986) states that superior ability comes out of the intersection of three sets; the high level of general abilities and flairs, commitment to high level tasks (motivation) and high level of creativity. In order to have a real and superior achievement in any field, an interaction between these three sets of characteristics is necessary. The individual is accepted as gifted if he is more successful than 85% of his peers in all these sets or than 98% of his peers in at least one.

Gifted individuals have their own special affective and cognitive characteristics. For this reason, it is crucial for them to be educated in harmony with their characteristics in the sense of personal rights and principle of equality. Especially, the primary aim of the education should be to ensure that those individuals could use their potential together with their creativity to become happy and productive individuals. The education for gifted students is limited with extracurricular enrichment activities or the efforts of families in Turkey. Differentiated curriculum designs are necessary to meet the needs of gifted students in mainstream education. The main structure of differentiation contains adaptations of content, process and product, which are made to address the needs, interests and talents of gifted students. Tomlinson (2007) describes differentiation as the adaptation of curriculum components, content, process or product, in line with the needs of the students according to their readiness, interests or learning profiles by teachers whenever they want, during the whole class or single unit.

Differentiated curriculum design should be structured in accordance with the characteristics of gifted individuals, promote their cognitively active participation by stimulating high level thinking processes and combine the knowledge and skill that they gain through the courses with creativity.

Creative thinking, one of the high level thinking abilities, is an important issue in superiority and serves as the primary aim of the most curriculums designed for gifted students. Renzulli asserts that the individuals who have average intelligence and high creativity and motivation make the most important contributions to the society (cited: Davis, 2006: 238). Teachers and researchers have faced the increasing need that students should acquire 21st century skills, which requires to be efficient users of national and international languages and to be good at high level thinking skills (Yang, Chuang, Li & Tseng, 2013).

At this point, it is believed that the tasks of the differentiated curriculum, designed to improve creative thinking skills of the students, provide information about creative thinking peculiar to the field and contribute to the field as sample practice.

Within this scope, this study aims to understand the effects of differentiated foreign language instruction on the academic achievement and creativity of gifted students.

2. Proposed Research

2.1 Research Design

In the study, the Randomized Pre-test Post-test Control Group Design was used. In the Randomized Pre-test Post-test Control Group Design, the groups are identified. If there is no significant difference between the pre-test scores of the groups, it can be stated that the groups are equal to each other. In testing the hypotheses, the scores of both groups that are changed from pre-test to post-test are compared in order to determine whether there is a significant difference. (Akgün, Karadeniz & Demirel, 2012; Bulduk, 2003; Büyüköztürk, Kılıç Çakmak & Christensen, 2004).

2.2 Participants

Since the study had an experimental design, the population and sample were not specified. The participants of the study were 24 gifted students at Grade 5 in Beyazıt-Ford Otosan Primary School that is the only mainstream

primary school for gifted students. In the study, a pragmatic approach was adopted to determine the gifted students sample and high intelligence and academic aptitude rather than language aptitude was set as the criteria to diagnose giftedness. As aforementioned, it is suggested in the literature that high level language aptitude is related to high academic aptitude. The study was conducted in Beyazıt-Ford Otosan Primary School in 2011-2012 academic year.

2.3 Instruments

2.3.1 Torrance Test of Creative Thinking

To measure the creative thinking skills of control and experimental groups, Torrance Test of Creative Thinking designed by E. Paul Torrance was used. Torrance Test of Creative Thinking was first published in United States of America in 1966. The test includes a total of ten sub-tests that measure verbal and formal creativity and it was standardized into Turkish and statistically analyzed by Esra Aslan (2001) in terms of its linguistic equivalence, reliability and validity.

Torrance Test of Creative Thinking consist of two parallel forms: Form A and Form B. Both forms of the test consist of "verbal" and "formal" parts. Verbal part has seven sub-tests, formal part has three sub-tests and the test has ten sub-tests in total. For this study, only verbal part of the test was used.

2.3.2 Achievement Test

For the aim of the study, the unit "Health Problems" in English course was adapted for differentiated instruction. The researcher designed a 62-item academic achievement test in order to measure the achievements of control and experimental groups. The test was revised according to Bloom's Taxonomy. For the unit "Health Problems", 21 outcomes were listed. During the design of achievement test, at least three questions were prepared for each of the outcomes. The questions were multiple choice and open-ended questions. There were 73 questions in the preliminary version of the test. This preliminary test together with the outcomes was sent to 8 experts who were 3 English teachers, 2 professors of English Language Teaching, 1 curriculum designer, 1 specialist in testing and evaluation and 1 specialist in education for gifted and talented students. The preliminary version of the test was administered to 434 students, 160 of which were diagnosed as gifted. As a result of this process, the last version of the test consisted of 62 items. Including multiple choice and open-ended questions, the achievement test was administered to the students in experimental and control groups at the beginning and end of the treatment as pre- and post-tests.

3. Findings

Table 1. Descriptive Statistics for Sub-scales of Achievement Test

Test	Group	N	X	Ss
Pre-test Remembrance	Control G.	12	1,50	0,50
	Experimental G.	12	1,80	1,30
Post-test Remembrance	Control G.	12	1,90	0,50
	Experimental G.	12	4,90	1,10
Pre-test Comprehension	Control G.	12	1,50	0,51
	Experimental G.	12	1,20	0,50
Post-test Comprehension	Control G.	12	6,50	2,10
	Experimental G.	12	12,40	5,10
Pre-test Application	Control G.	12	1,50	0,50
	Experimental G.	12	1,10	1,10
Post-test Application	Control G.	12	1,50	0,50
	Experimental G.	12	3,20	2,20
Pre-test Analysis	Control G.	12	1,50	0,50
	Experimental G.	12	2,20	1,30

Post-test Analysis	Control G.	12	1,50	0,50
	Experimental G.	12	4,00	1,90
Pre-test Evaluation	Control G.	12	1,50	0,50
	Experimental G.	12	1,70	1,70
Post-test Evaluation	Control G.	12	2,50	0,50
	Experimental G.	12	3,70	2,40
Pre-test Creation	Control G.	12	1,50	0,50
	Experimental G.	12	1,30	0,40
Post-test Creation	Control G.	12	1,70	0,50
	Experimental G.	12	15,00	13,90
Pre-test Total	Control G.	12	11,13	3,90
	Experimental G.	12	12,13	4,30
Post-test Total	Control G.	12	9,50	2,70
	Experimental G.	12	17,25	6,70

Descriptive statistics are presented in Table 1. The mean score of the students in control group in the pre-test is 11,13 and their mean score in the post-test is 9,5. The mean score of the students in experimental group in the pre-test is 12,13 whereas it is 17,25 in the post-test

Table 2. The Mann-Whitney U Test Results of Achievement Pre-tests

Pre-test	**N**	**Mean Rank**	**Sum of Ranks**	**U**	**z**	**p**
Control Remembrance	12	11,83	142,00	64,000	-0,479	0,671
Experimental Remembrance	12	13,17	158,00			
Control Comprehension	12	11,79	141,50	63,500	-0,49	0,619
Experimental Comprehension	12	13,21	158,50			
Control Application	12	13,29	159,50	62,500	-0,573	0,567
Experimental Application	12	11,71	140,50			
Control Analysis	12	10,75	129,00	51,000	-1,249	0,212
Experimental Analysis	12	14,25	171,00			
Control Evaluation	12	10,46	125,50	47,500	-1,451	0,140
Experimental Evaluation	12	14,54	174,50			
Control Creation	12	12,83	154,00	68,000	-0,252	0,801
Experimental Creation	12	12,17	146,00			
Control Total	12	11,13	133,50	55,000	-0,954	0,340
Experimental Total	12	13,88	166,50			

As it is shown in Table 2, non-parametric Mann-Whitney U test was applied to the achievement pre-test mean scores of the students in experimental and control groups in order to see if there is statistically significant difference between the groups in terms of sub-scales of the achievement test and no statistically significant difference was found.

Table 3. The Mann-Whitney U Test Results of Achievement Post-tests

Pre-test	**N**	**Mean Rank**	**Sum of Ranks**	**U**	**z**	**p**
Control Remembrance	12	7,50	90,00	12,000	-3,64	0,00*
Experimental Remembrance	12	17,50	210,00			
Control Comprehension	12	6,96	83,50	5,500	-3,86	0,00*
Experimental Comprehension	12	18,04	216,50			
Control Application	12	7,40	84,50	6,500	-3,838	0,00*
Experimental Application	12	17,96	215,50			

Control Analysis	12	8,75	105,00	27,000	-2,625	0,00*
Experimental Analysis	12	16,25	195,00			
Control Evaluation	12	9,17	110,00	32,000	-2,332	0,02*
Experimental Evaluation	12	15,83	190,00			
Control Creation	12	6,63	79,50	1,500	-4,149	0,00*
Experimental Creation	12	18,38	220,50			
Control Total	12	7,75	93,00	1,500	-3,294	0,00*
Experimental Total	12	17,25	207,00			

As can be seen in Table 3, the result of non-parametric Mann-Whitney U test was applied to the mean scores of experimental and control groups in achievement post-test to understand if there were any significant differences between the groups. The results showed that there was statistically significant difference between the groups in terms of their remembrance level (z=-3.64, p<.01), comprehension level (z=-3,86, p<.01), application level (z=-3,838, p<.01), analysis level (z=-2,625, p<.01), evaluation level (z=-2.332, p<.05), creation level (z=-4.149, p<.01) and total score (z=-3.294, p<.01).

Table 4. The Mann-Whitney U Test Results of Range for the Achievement Test

Pre-test	**N**	**Mean Rank**	**Sum of Ranks**	**U**	**z**	**p**
Control Remembrance	12	9,04	108,50	30,500	-2,48	0,01*
Experimental Remembrance	12	15,96	191,50			
Control Comprehension	12	7,13	85,50	7,500	-3,739	0,00*
Experimental Comprehension	12	17,88	214,50			
Control Application	12	7,67	92,00	14,000	-3,388	0,00*
Experimental Application	12	17,33	208,00			
Control Analysis	12	8,88	106,50	28,500	-2,549	0,01*
Experimental Analysis	12	16,13	193,50			
Control Evaluation	12	9,46	113,50	35,500	-2,178	0,02*
Experimental Evaluation	12	15,54	186,50			
Control Creation	12	6,50	78,00	0,000	-4,315	0,00*
Experimental Creation	12	18,50	222,00			
Control Total	12	7,92	95,00	17,000	-3,182	0,00*
Experimental Total	12	17,08	205,00			

As Table 4 illustrates, the non-parametric Mann-Whitney U test was used to determine whether there were any significant differences between the experimental and control groups in terms of range score at sub-scale of the achievement test. The test results showed that there was statistically significant difference between the groups in terms of their remembrance level (z=-2,48, p<.05), comprehension level (z=-3,739, p<.01), application level (z=-3,388, p<.01), analysis level (z=-2.549, p<.05), evaluation level (z=-2.178, p<.05), creation level (z=-4.315, p<.01) and total score (z=-3.182, p<.01).

Table 5. The Wilcoxon Test Results for Sub-scales of Achievement Pre- and Post-test of the Control Group

Score	**Ranks**	**N**	**Mean Rank**	**Sum Of Ranks**	**z**	**P**
Control Group	NegativeRanks	3	4,50	13,50	-1,155	0,248
Pre-test/Post-test	Positive Ranks	6	5,25	31,50		
(Remembrance Level)	Ties	3				
Control Group	NegativeRanks	1	1,00	1,00	-2,392	0,01*
Pre-test/Post-test	Positive Ranks	7	5,50	35,00		
(Comprehension Level)	Ties	4				
Control Group	NegativeRanks	5	4,30	21,50	-0,122	0,90

Pre-test/Post-test	Positive Ranks	4	5,88	23,50		
(Application Level)	Ties	3				
Control Group	NegativeRanks	2	6,50	13,00	-1,499	0,13
Pre-test/Post-test	Positive Ranks	8	5,25	42,00		
(Analysis Level)	Ties	2				
Control Group	NegativeRanks	0	0,00	0,00	-2,848	0,04*
Pre-test/Post-test	Positive Ranks	10	5,50	55,00		
(Evaluation Level)	Ties	2				
Control Group	NegativeRanks	2	1,50	3,00	-1,342	0,18
Pre-test/Post-test	Positive Ranks	0	0,00	0,00		
(Creation Level)	Ties	10				
Control Group	NegativeRanks	3	2,33	7,00	-2,321	0,02*
Pre-test/Post-test	Positive Ranks	8	7,38	59,00		
(Total Level)	Ties	1				

As it is seen in Table 5, the Wilcoxon Signed Ranks test was applied to the mean scores of the control group in achievement pre- and post-test to understand if there were any significant difference in terms of each sub-scale of the test at the end of the study. The results revealed that there was statistically significant difference in terms of comprehension level (z=-2,392, p<.05), evaluation level (z=-2.848, p<.05) and total achievement score (z=-2.321, p<.05) at .05 level, whereas no statistically difference was found in terms of remembrance level (z=-1,155, p>.05), application level (z=-0,122, p>.05), analysis level (z=-1.499, p>.05) and creation level (z=-1.342, p>.05). Based on the data, it can be claimed that the training without any intervention received by the control group improved the comprehension and evaluation abilities of the students.

Tablo 6. The Wilcoxon Test Results for Sub-scales of Achievement Pre- and Post-test of the Experimental Group

Score	**Ranks**	**N**	**Mean Rank**	**Sum Of Ranks**	**z**	**P**
Experimental Group	NegativeRanks	0	0,00	0,00	-2,831	0,005*
Pre-test/Post-test	Positive Ranks	10	5,50	55,00		
(Remembrance Level)	Ties	2				
Experimental Group	NegativeRanks	0	0,00	0,00	-3,064	0,00*
Pre-test/Post-test	Positive Ranks	12	6,50	78,00		
(Comprehension Level)	Ties	0				
Experimental Group	NegativeRanks	1	1,50	1,50	-2,968	0,00*
Pre-test/Post-test	Positive Ranks	11	6,95	76,50		
(Application Level)	Ties	0				
Experimental Group	NegativeRanks	0	0,00	0,00	-2,966	0,00*
Pre-test/Post-test	Positive Ranks	11	6,00	66,00		
(Analysis Level)	Ties	1				
Experimental Group	NegativeRanks	0	0,00	0,00	-2,989	0,00*
Pre-test/Post-test	Positive Ranks	11	6,00	66,00		
(Evaluation Level)	Ties	1				
Experimental Group	NegativeRanks	0	0,00	0,00	-3,059	0,00*
Pre-test/Post-test	Positive Ranks	12	6,50	78,00		
(Creation Level)	Ties	0				
Experimental Group	NegativeRanks	0	0,00	0,00	-2,805	0,00*
Pre-test/Post-test	Positive Ranks	10	5,50	55,00		
(Total Level)	Ties	2				

As shown in Table 6, the Wilcoxon Signed Ranks test was applied to the mean scores of the experimental group in achievement pre- and post-test to understand if there were any significant differences in terms of each sub-scale

of the test after the treatment. Statistically significant differences were found in terms of remembrance level (z=-2,831, p<.01), comprehension level (z=-3,064, p<.01), application level (z=-2,968, p<.01), analysis level (z=-2.966, p<.01), evaluation level (z=-2.989, p<.01), creation level (z=-3.059, p<.01) and in terms of total achievement score (z=-2,805, p<.01) at .01 level. Based on the data, it can be claimed that differentiated foreign language instruction was successful in improving the remembrance, comprehension, application, analysis, evaluation and creation levels of the students in the experimental group.

Table 7. Descriptive Statistics for Torrance Test of Creative Thinking Results

Test	Group	N	X	Ss
Pre-test Fluency	Control G.	12	11,83	0,50
	Experimental G.	12	13,17	17,50
Post-test Fluency	Control G.	12	8,50	0,50
	Experimental G.	12	16,50	31,60
Pre-test Flexibility	Control G.	12	12,13	0,50
	Experimental G.	12	12,88	7,05
Post-test Flexibility	Control G.	12	9,50	0,51
	Experimental G.	12	15,50	8,17
Pre-test Originality	Control G.	12	11,50	0,51
	Experimental G.	12	13,50	19,82
Post-test Originality	Control G.	12	7,96	0,51
	Experimental G.	12	17,04	24,99
Pre-test Total	Control G.	12	11,67	0,51
	Experimental G.	12	13,33	89,03
Post-test Total	Control G.	12	8,29	0,51
	Experimental G.	12	16,71	62,99

Table 7 presents the descriptive statistics for Torrance Test of Creative Thinking results of the gifted students in control and experimental groups.

Table 8. The Mann-Whitney U Test Results of Torrance Pre-test of Creative Thinking

Pre-test	N	Mean Rank	Sum Of Ranks	U	z	p
Control Fluency	12	11,83	142,00	64,000	-0,462	0,644
Experimental Fluency	12	13,17	158,00			
Control Flexibility	12	12,13	145,50	67,500	-0,261	0,794
Experimental Flexibility	12	12,88	154,50			
Control Originality	12	11,50	138,00	60,000	-0,693	0,488
Experimental Originality	12	13,50	162,00			
Control Total	12	11,67	125,00	47,000	-1,443	0,149
Experimental Total	12	13,33	175,00			

As seen in Table 8, as a result of the non-parametric Mann-Whitney U test applied to the mean scores of the experimental and control group in Torrance Pre-test of Creative Thinking, no statistically significant difference was found between the both groups in terms of the total score and the sub-scales of the test, i.e. flexibility, fluency and originality.

Table 9. The Mann-Whitney U Test Results of Torrance Post-test of Creative Thinking

Post-test	N	Mean Rank	Sum Of Ranks	U	z	p
Control Fluency	12	8,50	102,00	24,000	-2,777	0,00*
Experimental Fluency	12	16,50	198,00			
Control Flexibility	12	9,50	114,00	36,000	-2,086	0,03*

Experimental Flexibility	12	15,50	186,00			
Control Originality	12	7,96	95,50	17,500	-3,150	0,00*
Experimental Originality	12	17,04	204,50			
Control Total	12	8,29	99,50	21,500	-2,918	0,00*
Experimental Total	12	16,71	200,50			

As it is illustrated in Table 9, non-parametric Mann-Whitney U test was applied to the mean scores of the students in both experimental and control groups in Torrance Post-test of Creative Thinking to understand if any difference exists between the two groups in terms of the total score and the sub-scales of the test. The results showed that there was a significant difference between the groups in terms of fluency ($z=-2.777$, $p<.01$), flexibility ($z=-2.086$, $p<.05$), originality ($z=-3.150$, $p<.01$) and the total score ($z=-2.918$, $p<.01$).

Table 10. The Mann-Whitney U Test Results for Range Score of the Groups in Torrance Test of Creative Thinking

Post-test	**N**	**Mean Rank**	**Sum Of Ranks**	**U**	**z**	**p**
Control Fluency	12	8,67	104,00	26,000	-2,658	0,00*
Experimental Fluency	12	16,33	196,00			
Control Flexibility	12	10,96	131,50	53,500	-1,070	0,285
Experimental Flexibility	12	14,04	168,50			
Control Originality	12	9,38	112,50	34,500	-2,166	0,03*
Experimental Originality	12	15,63	187,50			
Control Total	12	8,88	106,50	28,500	-2,513	0,012*
Experimental Total	12	16,13	193,50			

Table 10 shows that non-parametric Mann-Whitney U test was applied to mean creative thinking range scores to understand if any difference existed between the groups and the results revealed that there was a significant difference between the groups in terms of fluency ($z=-2.658$, $p<.01$), originality ($z=-2.166$, $p<.05$) and total score ($z=-2.53$, $p<.05$). However, there was no significant difference between the groups in terms of flexibility ($z=-1.070$, $p>.05$).

Table 11. The Wilcoxon Test Results for the Scores of the Control Group in Torrance Pre- and Post-tests of Creative Thinking

Score	**Ranks**	**N**	**Mean Rank**	**Sum Of Ranks**	**z**	**P**
Control Group	NegativeRanks	6	5,58	33,50	-1,304	0,192
Pre-test/Post-test	Positive Ranks	3	3,83	11,50		
(Fluency)	Ties	3				
Control Group	NegativeRanks	3	7,25	435,00	-0,935	0,35
Pre-test/Post-test	Positive Ranks	9	4,50	22,50		
(Flexibility)	Ties	4				
Control Group	NegativeRanks	8	7,75	62,00	-1,806	0,07
Pre-test/Post-test	Positive Ranks	4	4,00	16,00		
(Originality)	Ties	0				
Control Group	NegativeRanks	7	8,00	56,00	-1,334	0,182
Pre-test/Post-test	Positive Ranks	5	4,40	22,00		
(Total)	Ties	0				

Table 11 shows that Wilcoxon Signed Ranks test was used to examine if there is any difference in the mean scores of the control group students in Torrance Test of Creative Thinking and in its sub-scales before and after the

treatment. The results showed that there was no difference of control group sub-sclaes; in terms of fluency (z=-1.304, p>.05), flexibility (z=-0.935, p>.05), originality (z=-1.806, p>.05) and the total score (z=-1.334, p>.05). The data showed that the instruction without any intervention in the control group did not have any effects on the creative thinking levels of the students in this group.

Table 12. The Wilcoxon Test Results for the Scores of the Experimental Group in Torrance Pre- and Post-tests of Creative Thinking

Score	Ranks	N	Mean Rank	Sum Of Ranks	z	P
Experimental Group	NegativeRanks	3	4,83	14,50	-1,923	0,05*
Pre-test/Post-test	Positive Ranks	9	7,06	63,50		
(Fluency)	Ties	0				
Experimental Group	NegativeRanks	4	5,75	23,00	-0,891	0,373
Pre-test/Post-test	Positive Ranks	7	6,14	43,00		
(Flexibility)	Ties	1				
Experimental Group	NegativeRanks	3	7,33	22,00	-0,978	0,32
Pre-test/Post-test	Positive Ranks	8	5,50	44,00		
(Originality)	Ties	1				
Experimental Group	NegativeRanks	3	5,67	17,00	-1,726	0,044*
Pre-test/Post-test	Positive Ranks	9	6,78	61,00		
(Total)	Ties	0				

Table 12 shows that Wilcoxon Signed Ranks test was used to examine if there is any difference in the mean scores of the experimental group students in Torrance Test of Creative Thinking and in its sub-scales before and after the treatment. The results showed that a significant difference exists in terms of fluency (z=-1.304, p<.05) and the total score (z=-2.53, p<.05) at .05 level; but no significant difference was found in terms of two sub-sclaes, i.e. flexibility (z=-0.891, p>.05) and originality (z=-0.978, p>.05). Based on the data, it can be suggested that differentiated instruction for the experimental group made significant improvements in fluency and total creative thinking level of the students.

4. Conclusion and Discussion

The data in the study showed that the mean scores of the students in the control group in achievement pre-test was 11,13, whereas their mean score was 9,5 in the achievement post-test. The reason behind this decrease could be that English is a course that requires a pre-leaning and next course subject is built on the other one. In such courses that makes pre-leaning necessary, the association of upcoming course subject with the previous knowledge is expected. It is considered that the post-test results of the students in the control group were lower than their pre-test results because learning took place at a lower level and high level of thinking abilities were not stimulated. Another finding that supports this suggestion was that the performance of the students in the control group increased only in comprehension (p<.05) and evaluation levels (p<.05). However, an increase in every level of Bloom's taxonomy is expected in case of a high level learning. This argument is also supported by the existing curriculum studies. Gökler (2012) puts forward that for the 8th grade English course in Turkey; course objectives, learning outcomes, written exam and Proficiency Exam questions are generally prepared at the lower levels of Bloom's taxonomy. Also, he states that metacognitive knowledge at knowledge level is highlighted only in course objectives. Demir (2005) who examined the learning outcomes of MoNE foreign language education program asserts that learning outcomes do not include high level of thinking abilities.

As a result of the study, a statistically significant difference was found for the control group students in terms of evaluation level, which might be related to the characteristics of gifted students. Especially, it can be claimed that students' intensive reading activities enable them to improve their evaluation skills. Another reason may be that students are exposed to multiple choice questions due to the testing system and this improves the students' evaluation level most since they focus on only one correct answer. Ungan (2007) states in his study that

evaluation level improves because of the similarity of the course to the ones that his participants took in previous terms.

It is clear that the studies conducted about the effects of differentiated instruction on academic achievement yielded similar results. Wood (2006) pointed out that differentiated instruction in the mathematics program improved the academic achievement of the students at the end of the program. Stager (2007) found that the academic achievement of the students improved as a result of an experimental study in which the researcher included tiered instructional design for 5 weeks. Springer, Pugalee and Algozzine (2007) investigated the effects of differentiated instruction on the achievement of students and designed a computer-aided mathematics program. As a result of the study, they found that the academic achievement of the students increased. Richards and Omdal (2007) applied tiered instructional technique in science course in their experimental study and observed an increase in the academic achievement of their participants. Luster (2008) found an increase in academic achievement of the students in the experimental group of the study that compares differentiated instruction and traditional instruction. Yabaş ve Altun (2009) asserted in their experimental study that there was an increase in the academic achievements of the students receiving differentiated instruction in Maths course. Beler (2010) applied differentiated instruction in Social Studies course and found similar results. In the same line, Samms (2009) concluded that differentiated reading instruction improved academic achievement and creative thinking abilities of the students.

The review of related literature shows that the studies about the effects of differentiated instruction on creative thinking yielded similar results. Among those studies, Karaduman (2012) stated in his study that differentiated geometry instruction raised creative thinking levels of gifted students at Grade 5. Özyaprak (2012) conducted a research study to examine the effects of differentiated Mathematics education and found a significant improvement in the creative thinking abilities of gifted and talented students who received this type of instruction. Similarly, Kök (2012) stated in his experimental study that differentiated geometry instruction improved the academic achievement and creative thinking skills of gifted and talented students. Karadağ (2010) applied differentiated instruction in Turkish course for Grade 5 students. As a result, the researcher found out that the creative thinking levels of the students significantly improved.

Before the present study was conducted, the students in the experimental group gave a few opinions to the questions directed themselves. After the study, the number of different opinions increased and fear of giving wrong answers disappeared. At the end of the study, a significant increase was observed in the scores of experimental group students in fluency sub-scale ($p<.05$) and the total creative thinking levels ($p<.05$). The results of the study are in line with the results of the previous studies (Aktaş, 2009; Greenlee, 2002; Karataş ve Özcan, 2010; Newman, 2005; Özbek, 2008).

According to the results of the Mann-Whiney U test that was applied to the range scores in Torrance Test of Creative Thinking, a significant increase was observed in terms of flexibility and originality sub-scales. However, the results of Wilcoxon Signed Ranks showed that the difference between the mean scores in flexibility ($p>.05$) and originality ($p>.05$) sub-scales was not meaningful at .05 level. Based on this data, it can be claimed that differentiated instruction given in the experimental group did not improve originality and flexibility of the students significantly. Original and flexible creative thinking skills require higher level of cognitive skills compared to fluent creative thinking skills. Besides, the student has to think in the foreign language to be able to use that language during the class. In this process, a multidimensional processing is needed, such as producing an original idea, shaping this production by thinking in the foreign language and presenting the produced idea in the foreign language. Although all of these are the skills that can be improved via differentiated instruction, the acquisition of those skills require a long process of study.

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