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Enhancing Syntactic Complexity of EFL Learners' Essays Through Creative Thinking Skills

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Abstract
This study aimed at investigating the probable effect of teaching three divergent creative thinking techniques on both EFL students' creative thinking skill and syntactic complexity of their essays. For the purpose of this quasi-experimental study, 54 female undergraduates of English literature were selected from two intact writing classes at Alzahra University in Tehran. In addition to the regular writing class, the experimental group was taught three techniques, namely brainstorming, synectics and SCAMPER and the comparison group practiced process writing activities through an online tool named padlet. Abedi's creativity test (1996) coupled with two topics from the writing topics of TOEFL (Lougheed, 2004) were administered as pretests and posttests. Furthermore, syntactic complexity of essays was measured through Syntactic Complexity Analyzer (Lu, 2010). The result showed that practicing these techniques had a significant effect on improving EFL students' creative thinking skill and the syntactic complexity of their essays over time. Thus, material developers and teachers could benefit from the suggestions of this study.

***Keywords*:** Creative Thinking Techniques, Synectics, SCAMPER, Syntactic complexity; Padlet

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1. Introduction

The importance of creative thinking for our life is to the extent that it has been emphasized by several researchers (e.g., Doyle, 2017; Eragamreddy,

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2013; European Universities Association, 2007; Guilford, 1959; Kyung–Hwa, 2005) and educational systems have attempted to invest in improving creative abilities of students (Ott & Pozzi, 2010). In fact, teaching creativity contributes to divergent thinking, problem solving, behavior, attitude, and performance of younger and older students and it is effective for all users not just gifted (Scott, Leritz & Mumford, 2004). Furthermore, by having creativity not only can we improve our own personal life but we will have an advantage in whatever field we begin (Doyle, 2017). For instance, skillful writing requires sophisticated problem solving (Deane, Odendahl, Quinlan, Fowles, Welsh, & Divenstatum, 2008) and creativity increases problem solving as a higher order thinking skill (Szerencsi, 2010). In recent years, researchers have attempted to indicate the positive effect of some divergent creative thinking techniques on EFL writing (e.g., Balkir & Topkaya, 2017; Ceran, Karaca, Eren, & Karatas, 2015; Maghsoudi & Harririan, 2013; Manouchehry, Farangi, Fatemi & Qaviketf, 2014; Rao, 2007; Richard, 1990, as cited in Rao, 2007, p. 101) although they did not focus on syntactic complexity in writing. As stated by Beers and Nagy a well-written composition needs, among many other things, the effective use of syntactic structure (2009) and the development of language involves the growth of learners' syntactic repertoire (Ortega, 2003). Moreover, at university level, students' aim is to improve syntax and convey complex ideas in complex sentences (Breeze, 2008) but as Hinkle (2003) indicates, university-level assessments of students' essays show severe problem in this area. For instance, as some studies showed (Nasseri, 2017; Wang & Slater, 2016), it is required to improve some indices in EFL students' writing such as mean length of T–unit (MLT), mean number of clauses per T–unit (C/Tu), and mean length of clause (MLC) through relevant courses in order to improve syntactic complexity of this group in English academic writing. As Tin

(2013) mentions, creative thinking helps learners to change their language and forces them to retrieve less accessible phrases and develop complex grammar. Therefore, the purpose of this study is to investigate the effect of teaching three divergent creative thinking techniques on enhancing the creative thinking skill of EFL students leading to the development of syntactic complexity of their essays.

2. Literature Review

According to Dornyei's (2005) definition, creative thinking is related to "originality, invention, and discovery, as well as divergent thinking about open-ended problems and flexible problem-solving in general" (p. 203). As Lubart and Guignard's (2004) assert, for teaching creativity, most studies have paid attention to divergent thinking techniques which according to Kilgour and Koslow (2009), assist the fixation of previously distinct memory connections and persuade the connection of far domains.

2.1 Divergent Creative Thinking Techniques

Three well-known divergent thinking techniques are brainstorming, synectics, and SCAMPER. Brainstorming is one of the divergent thinking techniques (Takahashi, 2007). In fact, it is a process in which many ideas are generated at random and without critic. Brainstorming needs free-association of ideas without focus on their relevance or logic.

The second technique is synectics. As Eragamreddy (2013) states, synectics is a metaphor or analogy-based technique and it is a tool for divergent thinking because many diverse ideas are produced by conveying ideas from one context to another in a search for new combinations. According to Joyce and Weil (2003), there are two models of teaching based on synectics procedures. One is making the familiar strange which helps students to see old problems, ideas, or products in a new way. The other is

making the strange familiar which makes new, unfamiliar ideas more meaningful.

Another divergent technique is SCAMPER. According to Mowat (2011), SCAMPER is an acronym for generating ideas with each letter standing for Substitute, Combine, Adapt, Modify/Magnify/Minimize, Put to other uses, Eliminate/Elaborate and Rearrange/Reverse. As Eberle, (1972) indicates adults or children generate creative ideas by adapting, rearranging, combining and putting into other uses and although this process happens unconsciously, it can be practiced consciously through valuable checklist like SCAMPER.

2.2 Syntactic Complexity in Writing

According to Ortega's (2003) definition, "syntactic complexity (also called syntactic maturity or linguistic complexity) refers to the range of forms that surface in language production and the degree of sophistication of these forms" (p. 492). Moreover, as Hunt (1965, 1966, 1970, as cited in Beers & Nagy, 2009) indicates, three reliable measures namely MLT (mean length of T–unit), C/Tu (mean number of clauses per T–unit), and MLC (mean length of clause) can enhance maturity in writing.

According to Lu (2011), for computing MLT, the number of words is divided by the number of T-units. C/Tu is a measure of subordination which is computed by dividing the number of clauses by the number of T-units. And MLC is computed by dividing the number of words to the number of clauses. Some studies indicate differences between EFL university students with ESL (English as a Second Language) and NS (Native Speakers of English) in these indices and suggest improving these measures via relevant academic writing courses. For instance, Wang and Slater (2016) investigated syntactic complexity of EFL Chinese students' writing and the result showed significant difference between these students and more proficient users in the use of complex nominals, MLS, and MLC. Moreover, Nasseri (2017)

investigated the Abstract section of master's dissertations in Applied Linguistics and other EFL-related subjects written by EFL, ESL, and NS students. This study indicated that Iranian EFL group produced significantly shorter MLS and MLT and lower amount of C/Tu, compared with the NS group.

3. Purpose of the Study

Based on what was previously mentioned, regarding the importance of developing creative thinking for our life and the need for improving syntactic complexity indices in EFL university students and the role of divergent creative thinking techniques for achieving these purposes, the following null hypothesis are addressed.

1. There is no significant difference between the creative thinking skills of EFL learners who practice divergent creative thinking techniques (the experimental group, EG) compared to those who do not (the comparison group, CG)?
2. There is no significant difference in the EFL students' essay writing in terms of syntactic complexity between those who practice divergent creative thinking techniques (EG) compared to those who do not (CG)?

4. Methodology

4.1 Participants

In order to choose the actual participants of the study sixty-three female sophomores studying English Literature at *Alzahra University* who had enrolled for a two-credit writing course were chosen. A proficiency test of TOEFL (Lougheed, 2004) was administered and 54 participants who scored one standard deviation above and below the mean were chosen as the actual participants of the study. Their age ranged from 18-22. In order to keep the instructor variable constant, both classes were taught by the same instructor. She taught divergent creative thinking techniques to the experimental group (EG) and practiced extra process writing activities with the comparison group

(CG) through an online tool named Padlet for one academic term consisting of 10 sessions.

4.2 Instruments

The instruments used in this study consisted of a creativity test and two topics chosen from the writing topics of the TOEFL test.

4.2.1 Creativity test as a pretest and posttest

The researchers administered Abedi Creativity Test (CT) (1996). This multiple-choice test includes 60 questions with three choices. As Abedi (2002) states, this test is founded on the structure of the Torrance test of creative thinking and the purpose for developing this test was to shorten the necessary time for scoring and administering a Torrance test of creative thinking (TTCT) and includes underlying traits called fluency, flexibility, originality, and elaboration. This test was administered before and after treatment in class. The recommended time was 30 minutes.

4.2.2 Writing proficiency test and pretest

A topic from the range of writing topics of a paper-based TOEFL test (Lougheed, 2004) with the title "*If you could invent something new, what product would you develop? Use specific details to explain why this invention is needed."* was selected and administered as the writing proficiency pretest.

4.2.3 Writing posttest

The posttest was exactly like the pretest but a different topic "*If you could go back to some time and place in the past, when and where would you go? Why? Use specific reasons and details to support your choice."* Was selected from the TOEFL test (Lougheed, 2004) and administered after the completion of ten sessions for both groups in class.

5. Procedure

In order to answer the research questions, the following procedure was pursued. First of all, before the treatment, the participants were required to complete Abedi's creativity test (1996) to determine their level of creativity. The recommended time for this test was 30 minutes. At the next step, a topic

from writing topics of TOEFL (Lougheed, 2004) was administered. There was a 30–minute time limit and the word limit of 250–300 words was determined for writing an essay.

The researcher needed the students' essays for two purposes: First, the essays were rated for determining the students' level of proficiency. For this purpose, two raters who were MA graduates in TEFL and also experienced teachers were chosen for scoring the writing papers. To determine the proficiency level of students, the raters used the test of written English (TWE) scoring guide for the paper-based TOEFL test (Educational Testing Service, 2014). The rubric had a six Likert scale. Furthermore, a Pearson–product moment correlation coefficient was run to investigate the inter-rater reliability. The result ($r = 0.92$, $p<0.05$) indicated a high correlation between the two raters.

After conducting a test of proficiency, 54 students who scored one standard deviation above and below the mean, were selected and randomly assigned to an experimental group (EG) and a comparison group (CG) with 27 students in each class. Second, these essays were taken into account as a pretest and were analyzed through a syntactic complexity analyzer. As Lu (2010) indicates one of the purposes of syntactic complexity analyzer which is a web–based system is to makes it possible for second language writing teachers to compare changes in the syntactic complexity of written products of different students with each other over time. This system automatically analyzes different indices of syntactic complexity. In fact, the system produces indices by retrieving and counting the occurrences of all related syntactic structures in the text and calculates the syntactic complexity indices by using those counts. As mentioned by Lu (2010) the system achieves a high degree of reliability in computing the syntactic complexity indices for the essays. Moreover, "the system is designed with advanced second language proficiency research in mind and is therefore developed and evaluated using college–level second language writing data" (Lu, 2010, p. 474). Therefore,

syntactic complexity indices of each essay were measured based on Lu's (2011) definition. For computing MLT, the number of words is divided by the number of T–units. C/Tu is computed by dividing the number of clauses by the number of T–units and MLC is computed by dividing the number of words to the number of clauses.

5.1 Padlet

In another session of the writing class before the beginning of the treatment, the researcher explained padlet to the students. In fact, padlet is a big wall that is easy to use, and students and teachers can create an online post-it board and share their unique ideas and their creative work with each other. Padlet allows teachers to insert activities and explanation about different topics and students could also insert their ideas (Renard, 2017). Moreover, it is a great tool for following class updates and students can ask their questions and discuss complicated topics with their teacher by placing them on Padlet wall (Halsted, 2014). The comparison group also utilized padlet but with different activities in order to eliminate the effect of using padlet on the experimental group.

5.2 Activities

Both groups of students (the EG & the CG) attended their regular writing class and the online class and received proper instruction. In the regular class, process writing was taught and practiced. Topics such as thesis statement, topic sentence, subject–verb agreement, unity and coherence were the focus of the class. Moreover, students' essays were written in three drafts and every draft was revised two times and corrective feedback was provided. Creative thinking techniques were taught through padlet only to the EG and CG practiced process writing in line with their own writing class through padlet.

5.2.1 Creative thinking activities in padlet

For the purpose of this study, researchers selected divergent thinking techniques which could complement each other. For instance, brainstorming was selected as the first technique for acquainting students with idea

generation and as Kawenski (1991) stated by experiencing brainstorming, students gain required confidence for experimenting a more demanding technique named synectics. As Bertoncelli, Mayer, & Lynass (2016) mention, by synectics "brainstorming is led through metaphors and analogies" (p. 193). Therefore, the second creative thinking technique taught was synectics because students could find a practical procedure for improving their idea. And the last technique practiced was SCAMPER since as indicated by 1 (2001), by using SCAMPER editing sheet, students can think about various ways to change their ideas.

5.2.2 Brainstorming

For the EG, first of all, one of the researchers explained what creative thinking is and some of the techniques that students could use for improving their idea generation. The first technique was brainstorming. Sternberg and Williams (1996) stated that by asking your students to imagine, create or invent, you can persuade them to think creatively. For this purpose, two activities namely "idea link" and "sense making" were selected from a book named *101 activities for teaching creativity and problem solving* by Vangundy (2005). First, students were assigned to do free association based on the sample for topics such as designing something new (e.g., book) or improving something (e.g., city). In one of these activities called *Idea links*, free association took place in a precise direction. This activity began with action verbs and went toward a topic which was a challenging problem linked to it. Students were taught that, if your problem is to design or improve something, you might set it up as follows:

Design _____ _____ _____ book

Improve _____ _____ _____ city

Next, begin free associating by filling in the blanks and finally, use the free associations to think of ideas. After this phase, students were required to write on the assigned topics based on their ideas

5.2.3 Synectics

The exercises and lesson plans for teaching synectics was from the book *Models of Teaching* by Joyce and Weil (2003). In fact, for teaching synectics six phases of making the familiar strange was taught. In the first stage, the teacher asked students to describe a topic as they see it now. In the second step, students suggested direct analogies. In direct analogy, students were required to compare two objects or concepts which were not similar in all respects. For example, students were asked to think 'How is a videotape like a book?' In the third phase, students became the analogy they selected in the previous phase. Students needed to empathize with an objects or ideas that they use. For instance, pretend you are your favorite book. Describe yourself. What are your three wishes? After that, students suggested several compressed conflicts from descriptions in phase two and three and chose one. In compressed conflicts, students were required to practice conflicts, for example, which machine is like a smile and a frown? In the next phase, students selected a direct analogy based on compressed conflict and for the last step, students went back to original topic and used the last direct analogy for description.

5.2.4 SCAMPER

The third creative thinking technique taught was SCAMPER. The explanation and activities for this technique were from a book named Brilliant activities for stretching gifted and talented children by Mowat (2011). In this phase, the students became aware of the verbs of this acronym and they were taught how to use this technique for changing their ideas. For instance, students were asked to rewrite their text based on the SCAMPER questions. They were asked to change the idea in a text and different questions based on this acronym were asked such as could you SUBSTITUTE the idea in the text with another idea? Could you COMBINE knowledge of the text with your own knowledge of science? Could you ADAPT the design to indicate future? Could you MODIFY the text in order to show peoples' speech in future? Could you add new ideas to the text by

putting things TO OTHER USES? What details could you ELABORATE at the beginning to show futuristic setting? Could you REVERSE or REARRANGE key details in the text to provide a new idea? Furthermore, students were assigned to apply this technique rewriting their own drafts.

5.3 Process Writing Activities in Padlet

For the CG, the students were required to practice more process writing activities in line with their regular writing class as explained in the previous sections. After 10 sessions of treatment, the results of the students' practice were investigated. First, the participants completed Abedi's creativity test (1996) in 30 minutes in class. Afterwards, one posttest was administered and students were asked to write an essay.

6. Data Analysis

To analyze the relevant data, the mean and standard deviation of the scores were tabulated through descriptive statistics. Moreover, for investigating changes from pretest to posttest and comparing changes between two groups of EG and CG mixed design was used. Hence, in order to answer the first research question with one dependent variable (creativity), mixed ANOVA was used to measure within–subject effect (changes from pretest to posttest), between–subject effect (between the EG and the CG) and interaction of time and group. For answering the second research question with three dependent variables (MLT, MLC, & C/Tu) mixed MANOVA was used and within–subject effect, between–subject effect, and interaction of time and group effect were investigated. Moreover, it should be mentioned that three indices of syntactic complexity including MLT, MLC, and C/Tu were analyzed by *syntactic complexity analyzer* (Lu, 2010). Moreover, SPSS 18 software was used for ultimate analysis of syntactic complexity scores obtained from analyzer and creativity scores.

7. Results

According to the purpose of the study, a number of instruments for analyzing the relevant data were used to answer the research questions.

7.1 Participant Selection

Table 1 shows the descriptive statistics of writing proficiency scores with the mean being 3.77 and the standard deviation 0.80, respectively.

Table 1

Descriptive Statistics of Writing Proficiency Scores, Creativity Scores and Syntactic Complexity Measures for the Experimental and the Comparison Group

Group			Time	Mean	Sd
Proficiency scores				3.77	.80
Creativity		Experi	Pretest	132.56	11.30
			Posttest	147.74	8.72
Comparison			Pretest	131.33	12.39
			Posttest	135.19	9.29
Syntactic Complexity Measures	Mean length of T-unit	Experimental	Pretest	15.37	2.92
			Posttest	20.57	2.78
		Comparison	Pretest	14.39	2.72
			Posttest	16.02	2.65
	Mean length of Clause	Experimental	Pretest	7.88	1.23
			Posttest	9.38	1.19
		Comparison	Pretest	8.14	1.64
			Posttest	8.84	1.30
	Clause per T-unit	Experimental	Pretest	1.82	.34
			Posttest	2.22	.45
		Comparison	Pretest	1.86	.38
			Posttest	2.08	.53

7.2 The Effect of Teaching Divergent Creative Thinking Techniques on EFL Students' Creativity

To answer the first research question, a mixed ANOVA was utilized. As displayed in Table 1, estimates of means show that the mean scores of creativity for the experimental and the comparison groups in pretests are 132.55 and 131.33 and in posttests are 147.74 and 135.18 respectively. Moreover, for making any statistical claim on the obtained results, multivariate tests were utilized.

As Table 2 indicates, the result of multivariate test shows that there is a statistically significant difference for time (from pretest to posttest) on creativity scores, (F (1, 52) = 108.561, $p < 0.05$, partial $\eta = 0.67$). Furthermore, test of between-subject effect for group shows that (F (1, 52) = 6.425, $p < 0.05$, partial $\eta = 0.11$) there is a significant difference between groups. Moreover, interaction of time and group (F (1, 52) = 38.476, $p < 0.05$, partial $\eta = 0.42$) shows that there is significant difference between two groups in terms of their creative thinking skill over time.

Table 2
*Multivariate Test of the Effect of Time, Group, & Time * Group for Creativity*

Effect		**F**	**Hypothesis Df**	**Error Df**	**Sig**	**Partial Eta squared**
Time	Wilks' Lambda	108.561[a]	1	52	0.00	.676
Group		6.425	1	52	0.01	.110
Time* Group	Wilks' Lambda	38.476[a]	1	52	0.00	.425

In fact, as Figure 1 also confirms, there is a significant difference between the experimental and the comparison groups regarding their creative thinking skill after the treatment and as observed the EG outperformed the CG in this regard.

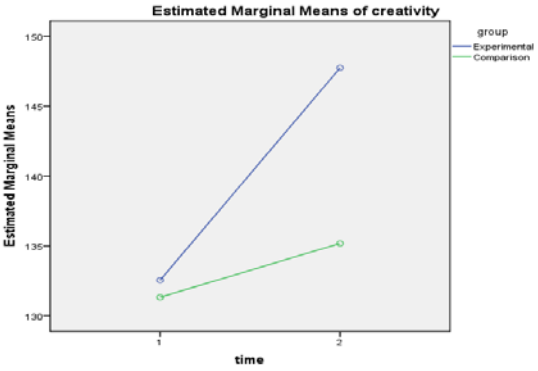

Figure 1. Mean scores of pretest and posttest for EG and CG on creativity

7.3 The Effect of Teaching Divergent Creative Thinking Techniques on the Syntactic Complexity of EFL Students, Essays

In order to answer the second research question, mixed MANOVA was run. As Table 1 indicates, estimates of means show that the experimental group's means in pretest are 15.38, 7.88, and 1.82 while comparison group's means are 14.39, 8.14, and 1. 86 respectively. Moreover, mean scores of the EG in posttest are 20.57, 9.38, and 2.22 while mean scores of the CG are 16.02, 8.84, and 2.08. For making statistical claim on the obtained results, multivariate statistics was utilized.

Table 3
*Multivariate Statistics of Time, Group, and Time*Groups Effect for Syntactic Complexity in Essays*

Effect		**F**	**Hypothesis df**	**Error df**	**Sig**	**Partial Eta squared**
Group	Wilks' Lambda	5.67[a]	3	50	.00	.25
Time	Wilks' Lambda	44.54[a]	3	50	..00	.72
Time*group	Wilks' Lambda	9.88[a]	3	50	.00	.37

a. Exact Statistic

Wilks' Lambda test indicates that there is a statistically significant difference (F (3, 50) = 5.67, p < 0.05, partial η = 0.25) between groups. Likewise, there is a substantial main effect for time, (F (3, 50) = 44.54, p < 0.05, partial η = 0.72) which indicates that there is a statistically significant difference from pretest to posttest. Furthermore, based on Wilks' Lambda test the two-way time by group interaction is also statistically significant, (F (3, 50) = 9.88, p < 0.05, partial η = 0.37). This indicates that there is a significant difference between the EG and CG writing performance in terms of syntactic complexity from pretest to posttest and the EG had much more improvement. In addition, in order to identify the specific dependent variables contributed to the significant overall effect, a univariate F test was utilized.

Table 4
Univariate Tests for Mean Length of T-unit (MLT), Mean length of Clause (MLC), and Clauses per T-unit (C/Tu) in Essays

Source	Dependent Variable	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Time	MLT	314.044	1	314.044	97.01	.00	.65
	MLC	32.571	1	32.571	29.15	.00	.35
	C/Tu	2.592	1	2.592	16.58	.00	.24
Time*group	MLT	86.180	1	86.180	26.62	.00	.33
	MLC	4.332	1	4.332	3.87	.05	.06
	C/tu	.229	1	.229	1.46	.23	.02
Error			52				

As observed from Table 4, the univariate statistics shows that there is a significant difference from pretest to posttest for mean length of T–unit (F (1, 52) = 97.01, p < 0.05, partial η = 0.65), mean length of clause (F (1.52) = 29.15, p < 0.05, partial η = 0.35) and clause per T-unit (F (1, 52) = 16.58, p < 0.05, partial η = 0.24). Furthermore, interaction of time and group shows that there is a significant difference between the EG and the CG in one dependent variable. In fact, as figure 2 also shows, the EG outperformed the

CG significantly in terms of mean length of T - unit (F (1, 52) = 26.62, p < 0.05, partial η = 0.33) but not in mean length of clause (F (1,52) = 3.87, p<0.05, partial η = 0.069) and clauses per Tu (F (1,52) = 1.46, p < 0.05, partial η = 0.02).

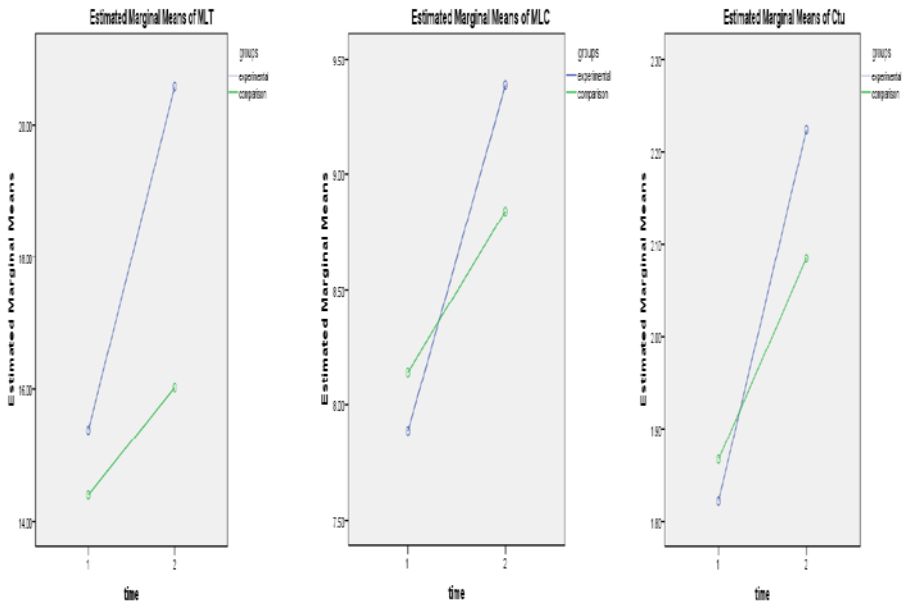

Figure 2. Mean scores of pretest to posttest for mean length of T-unit, mean length of clause, and clauses per T-unit

8. Discussion of the Findings

The study attempted to probe 2 research questions. The result showed that teaching three divergent creative thinking techniques including brainstorming, synectics, and SCAMPER could assist learners to boost their creative thinking skills. Moreover, these techniques were effective for developing the syntactic complexity of essays.

The findings of this study are in line with the results of other studies that investigated the effect of teaching divergent creative thinking techniques on the enhancement of creative thinking skills of students. For instance,

Fatemipour and Kordnaeej (2014) investigated the effect of synectics on EFL students' creativity. Unlike the study, the researchers only taught synectics to one group but similar to the present study, the researchers taught synectics to EFL students and used Abedi's creativity test (1996) to measure the student's creative thinking. The researchers found that practicing synectics could enhance students' creative thinking skills.

In another study, Aiami and Haghani (2012) investigated the effect of teaching brainstorming and synectics on science students to develop their creative thinking skill. Unlike this study, each technique was taught to one group. The findings showed that both techniques were efficient for developing creative thinking skills of students.

Furthermore, Ozyaprak (2016) investigated SCAMPER technique for enhancing creative thinking skill gaining positive results. The only technique practiced in this research was scamper and also the Torrance test of creative thinking was used for measuring creativity. Like the study, the effect of practicing SCAMPER technique on undergraduate students' creative thinking was investigated by Ozyaprak. In line with the present study, the findings indicated that using SCAMPER in creative training increases students' creative thinking skills.

Nevertheless, some studies used these techniques just for gifted students. For instance, Khawaldeh and Ali (2016) investigated the effect of SCAMPER Program on creative thinking of tenth grade students. Unlike present study, the participants were gifted and talented students and Torrance test of creative thinking was used. The results confirmed the findings of this study and substantiated that the scamper technique was significantly effective for developing the creative thinking of students.

In another study, Yaghobi, Mohagheghi, Erfani, and Mortazavi (2011) investigated the effect of brainstorming, synectics, and SCAMPER on

guidance students' creative thinking skill. Each of these three techniques was taught to one group of students and Abedi's creativity test (1996) was used for assessing creativity improvement of students. The result showed that students' creative thinking skills were enhanced although this improvement was just significant for brainstorming.

Likewise, the study has some similarities and differences with studies which investigate the effect of divergent creative thinking techniques on EFL students' writing performance. For instance, similar to this study, studies by Rao (2007), Richard (1997, cited in Rao, 2007), Maghsoudi and Harririan (2013), and Manouchehry, Farangi, Fatemi and Qaviketf (2014) were conducted on EFL students and except one study by Manouchehry et al. (2014), other studies were performed on undergraduate students. Unlike this study, only brainstorming was practiced. These four studies indicated that brainstorming had some positive influence on the writing performance of EFL students. But Hashempour, Rostampour, & Behjat (2015) conducted a study with different results. They investigated the effect of using brainstorming and its subcategories as a prewriting strategy on 60 Iranian EFL advanced learners both male and female. The results indicated that there were not any significant relationship between brainstorming and its subcategories and EFL learners' writing development. Moreover, findings revealed no significant difference between males and females.

Similar to this study, some studies used synectics for improving writing. For instance, Balkir and Topkaya (2017) investigated the effects of synectics on the writing fluency and lexical complexity of Turkish EFL learners' written texts. The quantitative result indicated that the participants' writing fluency enhanced significantly at the end of the program while their lexical complexity remained intact. Additionally, the results of the qualitative part showed that the participants had mostly positive perceptions about their

synectics' experience in terms of vocabulary learning, development of writing skills, and attitudes toward writing.

Moreover, similar to the present study, Scamper technique was also practiced for developing writing in a study by Ceran et al. (2015). This study was carried out with 70 middle school 6th grade students in a public school in Ankara. Like this study, the purpose of practicing Scamper technique was helping students to develop idea generation techniques for writing but not on the syntactic complexity of the written text like this study. In Ceran et al.'s study, the stories (re)written before and after practicing SCAMPER technique were compared for finding the opinions of the students and the creativity of their story. The results indicated that students wrote more creative stories after SCAMPER education. Furthermore, students stated that not only they enjoyed the course but also SCAMPER activity made them think about more original ideas on story writing and enhanced their imagination.

9. Conclusion

Unlike previous studies, in this study, three divergent creative thinking techniques were used in order to complement each other and provide students with a repertoire of techniques for idea generation. As Scott et al. (2004) stated, for teaching creativity, revision or extension of techniques could help us find better understanding of techniques that could be used for increasing creative thinking. The result of this study indicates that practicing brainstorming, synectics, and SCAMPER not only helps students enhance their creative thinking skill but assists them in increasing the syntactic complexity of their essays as well. Therefore, material developers can prepare textbooks which provide learners with explanations and activities of such kind.

Another group who can benefit from the results of this study are writing teachers who can take advantage of these techniques in their essay writing classes. In fact, most teachers restrict brainstorming to 5 or 10 minutes before

essay writing while as Tan and Matthews (2009) stated, 60 techniques of brainstorming and its variants exist for generating ideas. Thus, teachers could use them in addition to teaching other processes of writing. Furthermore, synectics designed based on creative thinking processes could increase students' creative thinking skill as a powerful idea generation technique for better writing. SCAMPER as a revising sheet for idea generation could assist students to revise their ideas after practicing two techniques of brainstorming and synectics. Therefore, students could revise their own ideas besides grammar, vocabulary, coherence, or unity of their drafts in a process writing class.

Last but not least, this study utilized a graffiti wall called padlet for instruction. In fact, for teaching creative thinking techniques a nonjudgmental environment is crucial, as indicated by Fuchs (2014), using Padlet in writing instruction can provide a non-threatening space. Thus, this study suggests that teachers use this tool for teaching creative thinking activities to their students.

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