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Bir Yazma Öncesi Tekniği Olarak Sinektik Modeli'nin Kelime Gelişimine Etkisi[1]

The Influence of Synectics Model as a Prewriting Technique on Vocabulary Development

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Öz

Bu çalışma, bir yazma öncesi tekniği olarak Sinektik Modeli'nin, İngilizceyi yabancı dil olarak öğrenen bir grup Türk yükseköğretim öğrencisinin kelime haznesi gelişimlerine etkisini araştırmayı amaçlamıştır. Bu sebeple, hem nicel hem de nitel tekniklerin kullanıldığı karma bir araştırma deseni uygulanmıştır. Nicel kısım, katılımcıların zaman içindeki kelime dağarcığındaki gelişmelerini gözlemlemek için tekrarlı ölçümlerden oluşmaktadır. Nicel veri toplama araçları, çevrimiçi bir metin analizi programı aracılığıyla tür, kelime ailesi ve kelime sıklığı düzeyleri açısından analiz edilen öğrenciler tarafından yazılmış metinlerdir. Veriler, tekrarlı ölçümler için Friedman Testi ve çift yönlü karşılaştırmalar için Wilcoxon İşaretli Sıralar Testi ile analiz edilmiştir. Nitel kısım için ise, katılımcıların deneyimlerini daha derinden anlamak için betimleyici niteliksel bir araştırma deseni kullanılmıştır. Bu amaçla, yarı yapılandırılmış görüşmeler yürütülmüş ve verilerin analizi için tümevarımcı içerik analizi tekniği kullanılmıştır. Sonuçlar, kelime dağarcığının neredeyse tüm göstergelerinde önemli bir artış olduğunu göstermiştir. Ayrıca, nitel bulgular, katılımcıların, sinektik tekniğinin kullanımının yeni kelimeleri öğrenme ve akılda tutma üzerinde çoğunlukla olumlu algıları olduğunu ortaya çıkarmıştır. Sinektik Modeli'nin, İngilizce'nin yabancı dil olarak öğretildiği ortamlarda bir yazma öncesi tekniği olarak kullanılabileceği sonucuna varılmıştır.

Anahtar Kelimeler: kelime ailesi ve türü, yazma öncesi tekniği, Sinektik Modeli, kelime haznesi gelişimi, kelime sıklığı düzeyleri

Abstract

This study aimed to investigate the influence of the Synectics Model as a prewriting technique on a group of Turkish EFL learners' vocabulary development in higher education. For this reason, a mixed research design utilising both quantitative and qualitative techniques was employed. The quantitative part included repeated measures design to observe the participants' progress in vocabulary over time. The quantitative data collection instruments were learner-written texts analysed via an online text analysis programme in terms of type, family, and word frequency levels. The data were analysed through Friedman Test for repeated measures and Wilcoxon Signed Ranks Test for pairwise comparisons. As for the qualitative part, a descriptive qualitative research design was used to gain a deeper understanding of the participants' experiences. To this end, semi structured interviews were conducted, and inductive content analysis technique was employed. The results indicated a significant increase in almost all indicators of vocabulary development. In addition, qualitative findings revealed the participants had mostly positive perceptions about the use of synectics in learning and retaining new vocabulary items. It is concluded that the Synectics Model could be used as a prewriting technique in EFL contexts.

Keywords: family and type, prewriting technique, Synectics Model, vocabulary development, word frequency levels

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Extended Abstract

Introduction: Since vocabulary learning is central to second language (L2) acquisition and communicative competence, its teaching requires a well-structured and systematic approach. In doing so, teachers need to address several issues and make decisions about the content, teaching methods and procedures, and classroom practices considering their learners' level and needs, educational goals, and contextual features. Although vocabulary could be taught in an isolated way, its instruction could be infused with the teaching of four language skills. Writing as a productive skill could be considered quite suitable for the integration of vocabulary teaching as learners might have a higher potential to turn language input to output through a writing task, which indeed might lead to fluency development that is related to lexical knowledge and use. In the prewriting stage of the writing process, different techniques concentrating on vocabulary might lead to the growth of vocabulary. For example, Muncie (2001) found that an explicit focus on vocabulary in the prewriting stage might foster learners' vocabulary expansion. For this reason, conducting a variety of techniques in the prewriting stage and investigating their impact on vocabulary might yield effective results. This study, therefore, intended to implement a novel prewriting technique which actually has not been researched sufficiently especially in L2 writing, and to research its influence in relation to progress in vocabulary. To this end, synectics as an instructional model (SM) was employed as a prewriting technique in this study, and its effects were sought on vocabulary development.

Method: A mixed research design was adopted for the current study, and one intact group comprising 20 intermediate level EFL prep-year learners from the School of Foreign Languages at a Turkish state university participated in the study. For the quantitative part, repeated measures design was employed in order to track the participants' development in vocabulary during the course of the study. Regarding the qualitative part, semi-structured interviews were implemented to be able to understand the participants' perceptions in relation to their experience in more depth. An intervention programme which included six 50 minute-long-sessions whereby the SM was used as a prewriting technique was carried out. Synectics sessions included seven steps of building different types of metaphors about a specific topic. The paragraphs written by the participants at the beginning, in the middle, and at the end of the intervention were used for text analysis to examine the parameters related to vocabulary. An online text analysis programme called Vocabprofile (Laufer & Nation, 1994), was used for analysing the texts through lexical items like tokens, types, word families, and word frequency levels. The collected data were analysed statistically through descriptive statistics. Since the participant number was below 30, non-parametric Friedman Test for repeated measures and Wilcoxon Signed Ranks Test for pairwise comparisons on SPSS 20 were utilised. For the qualitative data, inductive content analysis was carried out.

Results: The findings of the study indicated that there was a significant difference between each pair of tests of type. In terms of findings regarding family, it was found that there was a meaningful difference between pre and post, and mid and post-tests. There was also an increase in pre and mid-tests of family, but it was not significant. As for the word frequency levels, the difference between at least two pairs of tests out of three appeared to be significant in 1000, 2000, and AWL word levels. These results were also supported by the qualitative findings as almost all of the participants reported that their vocabulary improved extensively thanks to the synectics programme.

Conclusions: The results indicate that the SM is a promising and innovative technique which could be implemented as an alternative prewriting technique or an instructional model in EFL, which always looks for and embraces new ideas. Without a doubt, to provide robust conclusions with regard to its use, there seems to be a need to research the SM with various age groups, proficiency levels and in other EFL settings. Apart from the direct conclusions of this study, it could be suggested that the SM be used in different skill areas in EFL contexts. In writing, its use could be alternated with other prewriting techniques to create variety. Furthermore, since the implementation of the technique seems a bit complicated both on the part of instructors and students, it is also recommended to do a thorough piloting before starting a course or implementing a research study.

1. Introduction

It is an increasingly accepted fact that "lexical competence is at the very heart of communicative competence, the ability to communicate successfully and appropriately" (Coady & Huckin, 1997, cited in Decarrico, 2001, p. 285). In order to facilitate the development of lexical competence, it appears to be essential to support learners to acquire and expand their second language (L2) vocabulary. In this regard, a carefully planned teaching programme including a set of procedures and guidelines for instructing vocabulary appears to be a requisite for encouraging learners' vocabulary growth.

In the context of vocabulary teaching, there are two globally accepted instructional approaches to follow: isolated vocabulary teaching and integrated vocabulary teaching (e.g. File & Adams, 2010; Zarei & Esmaeili, 2015). In isolated vocabulary teaching, "the main focus is on the language forms rather than the meaning" (Genç & Savaş, 2011, p. 4). In the case of integrated vocabulary instruction, the focus is on communicating the meaning, and vocabulary teaching could be infused with the teaching of both receptive and productive skills. Regarding the integration of vocabulary and writing instruction as a productive skill, there is evidence from research that points to "a relationship between richness of vocabulary in writing, the learners' level of proficiency, and raters' assessment of the quality of the writing" (Nation, 2005, p. 588). In other words, one of the parameters that determine the quality of a written text is the quality of the vocabulary used to compose it. Additionally, learners are expected to use lexical items in a writing task in a productive manner as opposed to listening or reading tasks which require them to recognize the words receptively. That is, learners might have a higher potential to turn language input to output through a writing task, which indeed might lead to fluency development that is related to lexical knowledge and use (Nation, 2005).

Various writing activities could be carried out to expand written output such as linked skills activities and dictogloss (Nation, 2005). In the process writing approach, the variety of activities could be increased in different stages of the writing process. Especially in the prewriting stage, different techniques concentrating on vocabulary might lead to the growth of vocabulary. For example, Muncie (2001) found that an explicit focus on vocabulary in the prewriting stage might foster learners' vocabulary expansion. The result of this study points to the importance of the prewriting stage for L2 vocabulary development. Then it appears to be essential to endeavour to carry out different techniques in the prewriting stage and investigate their impact on vocabulary development. This study, therefore, intended to implement a prewriting technique which actually has not been researched sufficiently especially in L2 writing, and to research its influence in relation to progress in vocabulary. To this end, synectics as an instructional model was employed as a prewriting technique in this study, and its effects were sought on vocabulary development.

2. Literature Review

Teaching and learning vocabulary

A systematic approach to the teaching of L2 vocabulary is of great value to the promotion of lexical competence which is considered to be central to language acquisition (Decarrico, 2001). There are a range of issues shared by different vocabulary specialists to consider in planning and implementing a programme for vocabulary instruction.

One of these issues is concerned with what to teach. Although some questions still remain about this, most vocabulary specialists seem to have an agreement about the implications of frequency counts based on relevant written and spoken corpora. These counts suggest that some words run more frequently than others (Nation, 2005), and the study of high frequency words should have the priority over low frequency words especially in the early stages of L2 learning (Nation & Meara, 2002). This approach is considered to be cost-effective as it would be more sensible to learn a comparatively small number of high frequency words that make up a large amount of corpora. Indeed, Decarrico (2001, p. 287) states that "a basic vocabulary of about two thousand words accounts for approximately 80 percent of what we regularly see or hear." On the other hand, the number of low frequency words is substantially higher, so they could be learned gradually through making use of vocabulary strategies (Nation, 2005). In addition to the usefulness of the knowledge of frequency counts about what to teach, it is also suggested to focus on teaching word families rather than single forms. Thornbury (2002, p. 5) states that "mind groups these different forms of the same word together. Therefore, rather than talk about the number of individual words a person knows, it makes more sense to talk about the number of word families". Another important point about what to include in L2 vocabulary instruction is different aspects of knowledge involved in knowing a word. Nation (2005, p. 583-584) lists three groups of these aspects of knowledge: the form (spelling, sound, and word parts); the meaning (form and meaning, concept and referents, associations); how a word is used (grammatical functions, collocations, constraints on use, register, fluency, etc.). It is

essential to include these different aspects of vocabulary knowledge while presenting and teaching lexical items for the effective recognition and use of vocabulary.

In terms of the second issue, how to teach vocabulary, the common explicit versus implicit teaching dichotomy comes into view. Although some researchers maintain that explicit or direct learning has been found to be more effective than implicit learning (e.g. Nation & Meara, 2002), a well-balanced design offering both deliberate teaching activities and opportunities for implicit learning is a commonly held view (e.g. Decarrico, 2001; Hunt & Beglar, 2002; Nation, 2005; Tekmen & Daloğlu, 2006). Techniques and activities including word association, semantic mapping, and vocabulary games could be implemented in the classroom for deliberate teaching; and exposing learners to extensive reading and listening could offer a great amount of input for incidental vocabulary learning (Decarrico, 2001).

Strategy training is also important for independent study of vocabulary. For Nation (2005), it should start in the early stages of L2 learning when learners are studying high frequency words, and after a certain level, teachers should extensively focus on strategy development because strategies support learners to cope with thousands of low frequency items that they will mostly encounter in their further study of the language. Vocabulary strategies involve guessing from context, learning from word cards, using word parts, using a dictionary, mnemonic devices, vocabulary notebooks, and other learner strategies (Decarrico, 2001; Nation, 2005).

As briefly discussed above, since vocabulary learning is central to L2 acquisition and communicative competence, its teaching deserves a well-structured and systematic approach. In doing so, teachers need to address several issues and make decisions about the content, teaching methods and procedures, and classroom practices considering their learners' level and needs, educational goals, and contextual features. Finally, as a rule of thumb, it should be kept in mind that learning vocabulary is an incremental and cumulative process; therefore, learners need to be provided with opportunities for multiple exposures to the lexical items so that they can transfer them into long-term memory.

The Synectics Model

The term synectics is a combination of two Greek roots, syn (bring together) and ectics (diverse elements) (Weaver & Prince, 1990). W. J. J. Gordon (1961, p. 3), who is the founder of synectics, defines the term as "joining together of different and apparently irrelevant elements". In a broader definition, it is described as "a creative problem-solving process that carries participants from the analysis of problems to the generation and development of new ideas" (Weaver & Prince, 1990, p. 378). Nolan (2003, p.27) expands on synectics by maintaining that it is "a set of process tools derived from video analysis of the methods used successfully in a variety of situations. The tools may be used in a specific sequence or individually according to the needs of the situations, resulting in a variety of meeting models and techniques for enhancing personal effectiveness". It follows from these definitions that synectics comprises a set of tools which activate individuals' problem-solving capacity, idea generation abilities, and personal effectiveness.

Although synectics originated from industry based environments for producing novelty and innovation (Gordon, 1961), its scope has extended to include a variety of contexts and areas. Obviously, education is one of those areas where it has been applied widely. Synectics in education could be described as "a structured approach to creating understandings that are not merely novel but are unique to the participants", and it is "specifically designed to enhance creativity in problem solving by having students consciously develop analogies that allow for an emotional rather than rational approach to solutions" (Estes, Gunter & Mintz, 2010, p. 146). In sum, synectics is an instructional model that aims at enhancing learners' creative thinking ability and problem-solving skills by making sense of new information through a kit of tools including metaphor building.

Connection making through metaphor building is central to synectics process as it leads to the formation of new understandings of concepts (Weaver & Prince, 1990). This process includes the activation of three forms of metaphor: a direct analogy (simile) which is a direct comparison between two objects, ideas, or concepts; personal analogy (personification) that encourages learners to become a part of the problem to be solved; symbolic analogy (oxymoron or compressed conflict) which involves descriptions that appear to be contradictory but are actually creatively insightful (Estes et al., 2010, p. 147). A synectics session includes a systematic proceeding of these three forms of metaphor which includes seven steps as based on Estes et al. (2010). Appendix A includes an output chart of one of the synectics sessions held.

Research on the SM reveals that it has been found effective in creative thinking in science courses (Aiamya & Haghanib, 2012; Pany, 2008), achievement in science (Patil, 2012), language creativity in English (Yagnik, 2010), vocabulary improvement and class participation in science (Kleiner, 1991), vocabulary learning performance in a secondary EFL class (Asmalı & Dilbaz Sayın, 2016), level of vocabulary learning in EFL and its persistence (Erişti & Polat, 2017) in higher

education, fluency in L2 writing in tertiary level education (Bayraktar Balkır & Zehir Topkaya, 2017). Although a number of studies have been conducted in different areas of education, there still remains a need for studying synectics especially in EFL contexts at higher education as it has the potential for activating and fostering higher-level thinking skills (Walker, 2009). From the researchers' point of view, the use of the SM in L2 writing and vocabulary instruction needs to be investigated more thoroughly as it appears to be a promising instructional model which stands to lead to a number of learning gains.

For this reason, this study mainly aimed to investigate the effects of the SM as a prewriting technique on the participants' vocabulary development. To this end, a synectics programme was designed and answers to the following research questions were sought.

- Is there a significant change in the learners' vocabulary development throughout the synectics programme?
- How do the learners evaluate the synectics programme?

3. Method

A mixed research design was adopted for the current study, which lends itself to triangulation so that the data gathered through different research methodologies could be interpreted from different perspectives to gain deeper insights into the research questions. Therefore, both quantitative and qualitative research techniques were made use of. For the quantitative part, repeated measures design was employed in order to track the participants' development in vocabulary throughout the study. Regarding the qualitative part, semi-structured interviews were implemented so as to understand the participants' perceptions of their experience as the main shareholders of the study.

Sample / Participants

The present study was conducted at the preparatory programme of the School of Foreign Languages of a Turkish state university in the spring term. One intact group comprising 20 intermediate level EFL prep-year learners from English Language Teaching, and English Language and Literature departments voluntarily participated in the study. The sample was selected because of its convenience to the researchers. There were 18 female and 2 male participants, all of whom were native Turkish speakers. Their age varied from 18 to 21. According to the participants' fall term GPAs, they had a mean of 67.5 for the writing course, and a mean of 71.3 for the Basic English course, which could point to a moderate level of success. As for the qualitative part, 9 female participants volunteered to be interviewed at the end of the study. For the sake of anonymity, they were given codes from 1 to 9 when the results were reported.

Instruments

As the research design of this study is two-fold, two different instruments were used to collect data. The learner-written texts were the main sources to gather quantitative data. In order to examine the influence of the synectics programme on the participants' vocabulary development over time, they were given three writing tasks during the implementation of the study: one at the beginning, one in the midst, and one at the end of the programme. The topics were chosen by the participants after a class vote at the beginning of each session. They were required to write paragraphs with an average of 150-200 words in 40 minutes and warned to follow the rules for paragraph writing.

The instrument for collecting qualitative data was the semi-structured interviews. After a set of questions which were related to the research objectives were written by the researchers, they were checked and evaluated by an expert from the ELT department considering the face and content validity, clarity, wording, and suitability to the aforementioned objectives. Then the required modifications were made on some of the questions.

4. Data Collection and Analysis

The intervention programme started with informing the participants about the essential details of the study, and they all gave consent to take part in the programme which included six sessions of 50 minutes whereby the SM was used as a prewriting technique in the writing course. Five stable groups with four students in each were formed to collaborate during the implementation of each session. The topics of the sessions were determined through a class vote among a list of suggested topics at the start of each session. After an exemplary lesson was prepared and given by the researchers, the sessions started to be run. The synectics technique included seven steps of building different types of metaphors. At the end of each session, the participants wrote a definition paragraph which was about the particular topic selected by the class vote. The paragraphs written at the beginning, in the middle, and at the end of the intervention were used for text analysis to examine the parameters related to vocabulary.

At the end of 6th session, semi-structured interviews were held by the researchers. The participants were informed about the purpose, length, and conditions of the interview. The interviews were recorded after their permission was received. Each interview lasted approximately 10-15 minutes. The interview questions were posed to elicit the participants' opinions on their experiences as being a part of the synectics programme.

The paragraphs written by the participants at three intervals (henceforth pre, mid, and post-tests) were analysed using an online text analysis programme called Vocabprofile (http://www.lextutor.ca/vp/comp/). It is based on Laufer and Nation's Lexical Proficiency Profile (1994). The version preferred for the analysis of the texts is VP-Compleat (Classic), which analyses texts through lexical items like tokens (words in texts), types (different words), word families, and word frequency levels. For this study, four frequency levels were used for the analysis: 1) 1-1000 most common word families, 2) 1001-2000 most common word families, 3) 570 academic words, 4) Offlist-low frequency words that do not appear in any of the first three levels. Furthermore, the texts were analysed in terms of word types and word families to detect changes in vocabulary development. The data collected as a result of text analysis were analysed statistically through descriptive statistics. Since the participant number was below 30, non-parametric Friedman Test for repeated measures and Wilcoxon Signed Ranks Test for pairwise comparisons on SPSS 20 were utilised.

As for the qualitative data, inductive content analysis was carried out. One third of the transcribed interviews were analysed by two raters independently to assess interrater reliability. The two sets of analyses were found to be parallel 93 %, which revealed a high level consistency between the raters. After all the data were analysed by the researchers, the emerging categories and themes were tabulated for reporting the findings, and several quotations were included in the findings section.

5. Results

Results for vocabulary development

In order to find out whether there was a significant difference in the participants' vocabulary development throughout the programme, word types, word families, and word frequency levels (1000 word level, 2000 word level, AWL level, Offlist level) were calculated. Firstly, descriptive statistics were used to find out the mean values of pre, mid, and post-tests (see Table 1).

Table 1. Pre, mid, and post-test scores for type, family, and word frequency levels.

Category	Pre		Mid		Post	
	M	SD	M	SD	M	SD
Type	67.90	16.57	78	17.46	86	12.64
Family	58.45	14.84	64.20	15.47	73.25	9.67
1000 word level	108.85	33.99	124.20	41.99	132.10	24.33
2000 word level	4.95	2.67	5.30	2.98	9.30	4.37
AWL level	2.00	1.52	2.65	2.08	5.80	3.43
Offlist level	2.75	1.94	4.15	2.11	4.75	3.09

The findings which were displayed in Table 1 indicate that the mean values of all the indicators increased between each pair of measures. In other words, there was a continuous rise in all the measures of vocabulary throughout the study. In order to identify if this growth was statistically significant, Friedman Test of differences among repeated measures was run (see Table 2).

Table 2. Differences among pre, mid, and post-tests for type, family and word frequency levels.

Category	Time	N	M	SD	Df	X^2	p
	Pre	20	67.90	16.57			
Type	Mid	20	78	15.47	2	14.769	**.001**
	Post	20	86	12.64			
	Pre	20	58.45	14.84			
Family	Mid	20	64.20	15.47	2	11.100	**.004**
	Post	20	73.25	9.67			

Category	Time	N	M	SD	Df	X^2	p
1000 word level	Pre	20	108.85	33.99	2	7.600	**.022**
	Mid	20	124.20	41.99			
	Post	20	132.10	24.33			
2000 word level	Pre	20	4.95	2.67	2	17.342	**.000**
	Mid	20	5.30	2.98			
	Post	20	9.30	4.37			
AWL level	Pre	20	2.00	1.52	2	21.072	**.000**
	Mid	20	2.65	2.08			
	Post	20	5.80	3.43			
Offlist level	Pre	20	2.75	1.94	2	4.592	.101
	Mid	20	4.15	2.11			
	Post	20	4.75	3.09			

As the findings in Table 2 reveal, there was a significant difference among almost all the indicators of vocabulary development (type-$X^2_{(2)}$= 14.769, p= .001; family-$X^2_{(2)}$=11.100, p= .004; 1000 word level-$X^2_{(2)}$= 7.600, p= .022; 2000 word level-$X^2_{(2)}$= 17.342, p= .000; AWL- $X^2_{(2)}$= 21.072, p= .000). There was also a gradual rise in the offlist level, but it was not statistically significant (X^2= 4.592, p= .101). In order to identify which measures of type and family, 1000 word level, 2000 word level, and AWL level in particular differ from each other, a Wilcoxon Signed Ranks Test for pairwise comparisons was carried out as post hoc, and a Bonferroni adjustment on the results from the test was made (see Table 3 and Table 4).

Table 3. Pairwise comparisons of pre, mid, and post-test for type and family.

Category	Pair		N	Mean Rank	Sum of Ranks	Z	p
Type	Pre and Mid	*Negative Ranks*	6[a]	7.75	46.50	-2.187[a]	.029
		Positive Ranks	14[b]	11.68	163.50		
		Ties	0[c]				
	Pre and Post	*Negative Ranks*	2[a]	2.50	5.00	-3.736[a]	**.000**
		Positive Ranks	18[b]	11.39	205.00		
		Ties	0[c]				
	Mid and Post	*Negative Ranks*	5[a]	5.80	29.00	-2.463[a]	**.014**
		Positive Ranks	13[b]	10.92	142.00		
		Ties	2[c]				
Family	Pre and Mid	*Negative Ranks*	7[a]	8.86	62.00	-1.606	.108
		Positive Ranks	13[b]	11.38	148.00		
		Ties	0[c]				
	Pre and Post	*Negative Ranks*	3[a]	3.83	11.50	-3.492[a]	.000
		Positive Ranks	17[b]	11.68	198.50		
		Ties	0[c]				
	Mid and Post	*Negative Ranks*	6[a]	5.08	30.50	-2.782[a]	**.005**
		Positive Ranks	14[b]	12.82	179.50		
		Ties	0[c]				

Table 4. Pairwise Comparisons of pre, mid, and post-test for word frequency levels.

Category	Pair		N	Mean Rank	Sum of Ranks	Z	p
1000 word level	Pre and Mid	Negative Ranks	5[a]	9.70	48.50	-2.110[a]	.035
		Positive Ranks	15[b]	10.77	161.50		
		Ties	0[c]				
	Pre and Post	Negative Ranks	5[a]	6.40	32.00	-2.726	.006
		Positive Ranks	15[b]	11.87	178.00		
		Ties	0[c]				
	Mid and Post	Negative Ranks	9[a]	8.78	79.00	-.971	.332
		Positive Ranks	11[b]	11.91	131.00		
		Ties	2[c]				
2000 word level	Pre and Mid	Negative Ranks	6[a]	7.42	44.50	-.507[a]	.612
		Positive Ranks	8[b]	7.56	60.50		
		Ties	6[c]				
	Pre and Post	Negative Ranks	3[a]	3.50	10.50	-3.547[a]	.000
		Positive Ranks	17[b]	11.74	199.50		
		Ties	0[c]				
	Mid and Post	Negative Ranks	2[a]	8.50	17.00	-3.149[a]	.002
		Positive Ranks	17[b]	10.18	173.00		
		Ties	1[c]				
AWL level	Pre and Mid	Negative Ranks	7[a]	7.43	52.00	-.838[a]	.402
		Positive Ranks	9[b]	9.33	84.00		
		Ties	4[c]				
	Pre and Post	Negative Ranks	1[a]	1.50	1.50	-3.666[a]	.000
		Positive Ranks	17[b]	9.97	169.50		
		Ties	2[c]				
	Mid and Post	Negative Ranks	1[a]	10.00	10.00	-3.158[a]	.002
		Positive Ranks	16[b]	8.94	143.00		
		Ties	3[c]				

The results of the analysis as shown in Table 3 indicate that there was a significant difference between each pair of measures of word type (pre-mid, z= -2.187[a], p= .029; pre-post, z= -3.736[a], p= .000; mid-post, z= -2.463[a], p= .014). This shows that the participants performed a gradual increase regarding the word types in their written texts. As for the values concerning the word family, there was a significant difference between pre and post-tests (z=-3.492[a], p= .000), and mid and post-tests (z= -2.782[a], p= .005), but the difference between pre and mid-tests of family was not significant (z= -1.606, p= .108).

With respect to the results for word frequency levels in Table 4, the findings for 1000 word level indicate that there was a significant difference between pre and mid (z= -2.110[a], p= .035), and pre and post-tests (z= -2.726[a], p= .006). However, the difference between mid and post-tests was not statistically significant (z= -.971[a], p= .332). As for the findings in relation to 2000 word level, the differences between pre and post (z= -3.547[a], p= .000), and mid and post-tests (z= -3.149[a], p= .002) were found significant, whereas there was not a meaningful difference between pre and mid-tests (z= -.507[a], p= .612). The values also show that although there was not a significant difference between pre and mid-tests of AWL level (z= -.838[a], p= .402), the difference between the pairs of pre and post (z= -.3.666[a], p= .000), and mid and post-tests (z= -3.158[a], p= .002) was meaningful.

In conclusion, all these findings reveal that a considerable expansion in the participants' vocabulary was detected because a significant increase was observed between at least two pairs of all the measures (i.e. type, family, and word frequency levels).

Results for the participants' evaluation of the synectics programme

The results of the qualitative analysis appeared to support the quantitative findings with respect to vocabulary development and the influence of the SM on it. The two main themes emerged as a result of inductive content analyses

were learning new vocabulary items and retention of new vocabulary items.

With respect to the first theme, almost all of the participants (n=8) pointed out that the synectics programme provided them with the opportunity to learn new vocabulary items. The quotations below reflect this theme clearly.

> "We learned new words from the dictionaries and other groups in the initial stage of the activity." (S6)
>
> "While we were looking up the words during the sessions, we learned a great many words." (S4)
>
> "We've learned new words. When the others shared different words that we didn't know, we learned what they knew. We've also learned from you." (S7)
>
> "I believe that there's been some improvement in my vocabulary." (S9)

The quotations above do not only reflect the participants' perceptions in relation to the expansion in their vocabulary but also the sources of this expansion. For instance, they seemed to have attributed the reasons of this growth to the usefulness of pair or group work, the use of dictionaries, and the instructor as a reference for learning new vocabulary items.

The second theme in relation to vocabulary development was retention of new vocabulary items, which could be realised in the following quotations.

> "As we think over some of the words we have learned, they can be more memorable." (S5)
>
> "Most of the words we have learned become permanent because we also use them while writing." (S3)
>
> "Everybody utters different adjectives that I don't know. When this happens, I learn new words. Most of these words become permanent as we use them while writing." (S8)

These comments might signify several points in relation to the nature of the SM. Firstly, the use of synectics as a prewriting technique makes it possible for the participants to come up with a wealth of new vocabulary items and also to reuse them in the composing process. In a way, the words emerged as input during the activity might be turned into output through the writing tasks. Secondly, most of the vocabulary items are repeated during the sessions because the instructor summarises suggested ideas before the participants vote for the best idea for each successive stage. Finally, the chart used as a graphic organiser for arranging the emerging ideas and words was projected onto the board so that the participants were able to see all of the items through the sessions.

As could be inferred from the quotations and explanations above, the participants generally had positive perceptions related to vocabulary learning as a result of being involved in the programme. It could be concluded that the use of synectics as a prewriting technique led to a significant growth in the participants' vocabulary development as indicated by both quantitative and qualitative findings.

Although it was not one of the questions that this study sought to answer, one further theme emerged during the interview. All of the participants expressed that the programme had a positive effect on their creative thinking skills in the composing process, which could be understood from the following quotations.

> "When the ideas coming from different minds are combined, more creative things emerge." (S6)
>
> "When we are given a topic for writing, no ideas come into my mind directly, but with this technique we can have a look at different aspects and I come up with lots of ideas." (S4)
>
> "Since we worked altogether as a group, a great deal of ideas came out." (S5)

It could be seen from these expressions that the participants believed that working collaboratively and forming metaphors which are peculiar to the SM influenced their creative thinking considerably. More specifically, during the sessions, the participants worked mostly in groups and at some points as a whole class; therefore, a lot of interaction and collaboration among the participants occurred. In addition, in each session, they studied a notion from a variety of aspects through creating different metaphors such as simile, personification, and oxymoron.

6. Discussion

The results of the study indicated that there was a significant difference between each pair of tests of *type*. In terms of findings regarding *family*, it was found that there was a meaningful difference between pre and post, and mid and post-tests. There was also an increase in pre and mid-tests of family, but it was not significant. As for the *word frequency levels*, the difference between at least two pairs of tests out of three appeared to be significant in 1000, 2000, and AWL word levels. These results were also supported by the qualitative findings as almost all of the participants

reported that their vocabulary improved considerably thanks to the synectics programme.

These findings might be stemming from the fact that during the synectics sessions, a variety of vocabulary learning strategies were activated such as the use of dictionaries, referring to online sources, learning from the peers, asking the teacher for the translation of some items, etc. As the literature shows, working with dictionaries has an effect on vocabulary learning. For example, Luppescu and Day (2006) found out that the students who used a dictionary received higher scores from a vocabulary test than those who did not use a dictionary. The graphic organizers which were used to write and project the ideas created by the participants during the sessions might also have helped them to recycle and retain the new vocabulary items. In line with the result of this study, Zahedi and Abdi (2012) reported that using semantic mapping strategy, a type of graphic organizer, resulted in more cognitive activity, deeper processing, and higher retention in a group of Iranian EFL learners' vocabulary learning. Moreover, throughout the sessions, a great deal of collaborative work for sharing vocabulary items for metaphor building and idea generation was carried out, which might have contributed to the positive results in vocabulary learning. Indeed, as the qualitative data also showed the participants in this study stressed the role of peer and group work in improving their vocabulary. Thus, it can be concluded that interaction and collaboration might induce vocabulary development. Finally, concentration on new words or ideas and using them in the writing tasks in a productive way seems to have helped the participants to be able to learn and retain the new items. As stated by Muncie (2002) too, this study also showed that the explicit concentration on vocabulary in the prewriting stage could facilitate learners' vocabulary growth greatly.

When the related research is reviewed, there are two studies available to compare the results of the current study with respect to the effects of the SM on vocabulary development. Although these studies did not use synectics as a prewriting technique, making comparisons between the findings of this current study and these ones may still be fruitful in that it provides evidence for the effectiveness of the use of synectics in different skills and language areas. One of these studies yielded a relatively similar result in that it was found that the use of the SM led to an increase in the participants' vocabulary learning performance which was measured by multiple choice vocabulary questions (Asmalı & Dilbaz Sayın, 2016). The second study also indicated synectics-based vocabulary teaching resulted in an increase in the level of learning English vocabulary and the persistence of the learning (Erişti & Polat, 2017). When the results of these two studies and the present study are considered, it could be concluded that the SM seems to have the potential to lead to an expansion and retention in learners' vocabulary.

Last but not least, although it was not within the scope of this study, the interview data indicated that several participants found the SM helping them to be more creative during the composing stage specifically due to the collaborative group work and metaphor building. The literature on the SM (Estes et al. 2010; Gordon, 1961; Weaver & Prince, 1990) especially stresses the use of the model to generate innovative ideas by boosting peoples' imagination, problem-solving capacity, and free thinking. A parallel finding supporting the influence of the SM on creative thinking was recorded by Fatemipour and Kordnaeej (2014), who found that the use of the SM yielded significant positive effects on the EFL learners' creativity development. What the results of these studies might show is the potential of the SM to facilitate creative thinking as its practice, especially the power of metaphor building and collaborative work, encourages learners to use and explore the concepts and language creatively without being restricted to the rules and boundaries in academic contexts.

When all these discussions are considered, it could be concluded that synectics as a prewriting technique is of great value in facilitating learners' vocabulary growth through the use of a variety of vocabulary learning strategies activated during the sessions, collaborative work with the peers, and explicit concentration on the vocabulary items in the prewriting stage.

7. Conclusions

In this small-scale study, synectics was used as a prewriting technique in tertiary level English class at intermediate level and its use resulted in a significant vocabulary growth. Being the only study of its kind, the results indicate that it is a promising and innovative technique which could be implemented as an alternative prewriting technique or an instructional model in EFL, which always looks for and embraces new ideas. Without a doubt, to provide robust conclusions with regard to its use, there seems to be a need to research the SM with various age groups, proficiency levels and in other EFL settings.

Both quantitative and qualitative findings of this study provided evidence for the positive effect of the use of synectics on the participants' learning new vocabulary items. However, only qualitative data revealed the retention aspect.

Therefore, as a future implication, it could be suggested that in further research, a delayed test might be administered so as to investigate the effects of the technique on the retention of vocabulary items.

Apart from the direct conclusions of this study reported above, some suggestions can be made with regard to the use of SM in different skill areas in EFL settings. Having discussed the effectiveness of the model in making connections between the existing knowledge and new information through metaphor building, the SM can also be used as a pre-speaking technique, which is the other productive skill. Thus, future research can investigate its use in and effects on speaking in relation to different variables such as speaking fluency, proficiency, or willingness to communicate. In addition, further research might look into the use of the model in the instruction of receptive skills, reading and listening. It could be suggested that the model be used in the pre-reading and pre-listening stage to help learners activate their background knowledge about the topic of the main activity and generate interest and motivation in the subsequent listening or reading task.

Finally, as a word of caution, the instructors who might consider using this technique as a part of their language instruction need to be warned about a couple of points. Because of the time consuming and complicated nature of the synectics technique as observed by the researchers during course of the study, it is suggested that there need to be a variation in practicing the technique; i.e., its use could be alternated with other prewriting techniques to create variety in writing courses. Furthermore, instructors should be patient while practicing the technique as it may demand a great deal of time to offer fruitful results. In addition, since the implementation of the technique seems a bit complicated both on the part of instructors and students, it is also recommended to do a thorough piloting before starting a course or implementing a research study.

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Appendix

An output chart of a synectics session

Synectics: Session 3 **Topic**: Freedom **Categories:** Nature-animal

Description	Similar	Feels like	Opposite	Similar	Synthesis
Turks Infinity Statue of Liberty War for freedom Independence Sky	Freedom is like a desert because it is unlimited, but it's hard to adapt to its circumstances	I feel vital because everybody looks forward to me.	Under captivity and fair	A white pigeon in a cage …	as it is pure and clear, but the cage restricts its freedom.
Life without chains Prison Republic Flag Atatürk Freedom of thought	Freedom is like water as everybody thinks that it won't run out. Actually, it has an end, which is similar to the fact that a person's freedom is over when the other person's freedom starts.	I feel like under captivity because its way depends on the wind.	Under captivity and miraculous	Whales...	as they are under captivity. If they come ashore, they die.
Universe Children Restriction Art Flying Wolf	Freedom is like rain because it can drop whenever it wants without any restriction.	I feel transparent, clear, confident, noble, and fair as I own and touch everything.	Under captivity and Transparent	A child's brain…	as it is under captivity of its environment, but it can think transparently inside.
Love Blue Nature Trip Crying Breathing To annihilate	Freedom is similar to ocean as it is endless and whatever kind of creatures she has ownership of all of them.	I feel miraculous, universal, and shiny as I can reach every part of the world.	Vital and under captivity	A silkworm…	as it is pure and clear but under pressure for working.
Rights Justice Flying like a pigeon Soil Language	Freedom resembles the wings of a pigeon in the sky because it flies after its own heart.	I feel like purifying because both them clean everywhere.		A fish in a lamp glass…	as the freedom of a fish is in the water.