International
SOCIAL SCIENCES STUDIES JOURNAL
SSSjournal (ISSN:2587-1587)

Economics and Administration, Tourism and Tourism Management, History, Culture, Religion, Psychology, Sociology, Fine Arts, Engineering, Architecture, Language, Literature, Educational Sciences, Pedagogy & Other Disciplines in Social Sciences

Vol:5, Issue:53	pp.7451-7461	2019
sssjournal.com	ISSN:2587-1587	sssjournal.info@gmail.com

Article Arrival Date (Makale Geliş Tarihi) 10/10/2019 | The Published Rel. Date (Makale Yayın Kabul Tarihi) 23/12/2019
Published Date (Makale Yayın Tarihi) 23.12.2019

BİR CREATIVE THINKING SKILLS IN VISUAL ARTS

GÖRSEL SANATLARDA YARATICI DÜŞÜNME TEKNİKLERİ ÜZERİNE BİR ARAŞTIRMA

Dr. Emine TARAKCİ EREN
Karadeniz Teknik Üniversitesi, Orman Fakültesi, Peyzaj Mimarlığı Bölümü, Trabzon/TÜRKİYE
ORCID ID: https://orcid.org/0000-0002-5595-9505

Article Type : Research Article/ Araştırma Makalesi
Doi Number : http://dx.doi.org/10.26449/sssj.2045
Reference : Tarakci Eren, E. (2019). "Creative Thinking Skills In Visual Arts", International Social Sciences Studies Journal, 5(53): 7451-7461.

ABSTRACT

Since landscape architecture is a multidimensional profession that incorporates the concepts of various disciplines, it is necessary to integrate different systems and components in landscape architecture education. Thus, students are expected to use creative techniques that are adequate for the goals through the integration of the design processes. In the Department of Landscape Architecture at Karadeniz Technical University (KTU), the theoretical and practical design courses that emphasize the master-apprentice relations are very important for the students to acquire design and creativity skills. Thus, students take several design courses (Basic Design Concepts, Architectural Design, Environmental Design Project, Furniture Design, etc.) beginning from the freshman year until the senior year. In these courses, initially, design elements and principles are instructed. Design education is also considered as a personality education in the process of becoming a master, and instead of imposing generally applicable methods, students are provided with the opportunity to explore their own methods in these courses. The final designed product is the result of creative problem solving and visual thinking processes.

A survey was conducted with senior KTU Landscape Architecture students (n = 63) to determine their knowledge on creative thinking techniques in visual arts and the techniques they utilize in their products.

Key Words: Visual arts, creative thinking techniques, landscape architecture

ÖZ

Peyzaj Mimarlığı disiplini, farklı disiplinlerden gelen kavramları bünyesinde barındıran çok yönlü bir meslek olduğundan, eğitiminde farklı sistem ve bileşenlerin birbirlerine entegre edilmesi gereklidir. Bu nedenle eğitim sürecinde öğrencilerden tasarım süreçlerini bütünleştirerek amaca uygun yaratıcı teknikleri kullanmaları beklenmektedir. Karadeniz Teknik Üniversitesi (KTÜ) Peyzaj Mimarlığı Bölümünde öğrencilere tasarım ve yaratıcılık becerisi kazandırmak için usta çırak ilişkisinin ön planda olduğu teorik ve uygulamalı tasarım dersleri oldukça önemlidir. Bu bağlamda öğrenciler 1. Sınıftan 4. Sınıfa kadar birçok tasarım dersi (Temel Tasar Kavramları, Mimari Tasarım, Çevre Tasarım Proje Dersleri, Donatı Tasarımı vb.) alırlar. Bu derslerde öğrencilere, öncelikle tasarım eleman ve ilkeleri öğretilir. Tasarım eğitimi ustalaşma yolunda bir kişilik eğitimi de olarak ele alınır ve bu derslerde genel geçer bir yöntem empoze etmek yerine, her öğrencinin kendi yolunu keşfedebilmesine fırsat verilir. Sonuçta elde edilen tasarlanmış ürün yaratıcı problem çözme aşamasının ve görsel düşünmenin bir sonucu olarak ortaya çıkar.

KTÜ Peyzaj Mimarlığı Bölümü 4. Sınıf (63 kişi) öğrencilerine; tasarım derslerinde görsel sanatlarda yaratıcı düşünme tekniklerinin hangileri hakkında bilgi sahibi oldukları ve hangi teknikleri kullandıkları anket yapılarak sorgulanmıştır.

Anahtar Kelimeler: Görsel Sanatlar, Yaratıcı Düşünme Teknikleri, Peyzaj Mimarlığı

1. INTRODUCTION

1.1. Visual Arts Alt Başlıklar

The link between the performer and the follower of arts transfers the arts from the past to the present and to the future. Arts have survived to the present day and eliminated the risk of extinction. Much of our knowledge on the past and history is thanks to arts. Because, art is the embodiment of culture. Art is a means of transferring the past to the present and the present to the future. Arts, starting from the historical wall paintings, sometimes appeared as a means of communication and sometimes as a means for change. What distinguishes humans from a work of art is the ability to express one's self. This characteristic owes its existence to the arts (Ünver, 2002).

The most important trait that distinguishes humans from other living things is its ability to think. One of the most important basic tasks of schools, which are among the institutions that prepare individuals for social life, is to teach the ability to think. Visual arts course is among the most important courses that teach the ability to think. Art education is conducted through education rather than instruction. Thus, art education is a lifelong process. This is a requirement besides the fact that art courses should be compulsory (Kırışoğlu, 2009). All fine arts fields defined art education within or outside the school (San, 2008). This course, which includes several fields such as painting, graphics and architecture, aims to raise the awareness of the individuals about their talents and to allow them to recognize and preserve their cultural heritage. Furthermore, visual arts course connects interdisciplinary concepts. Acquisition of the aim of this course by the students would improve the knowledge, skills and attitudes of the students (TC Ministry of National Education, [MEB], 2006). Visual arts course was included in modern education and was not based on traditional methods (Kırışoğlu, 2009). Furthermore, apart from the visual arts courses at schools, everything has been visualized in the age we live in, and all individuals experience almost everything visually using computers, telephones, the Internet and smart electronic devices.

1.2. Visual Arts Design Principles and Elements

If the students know and utilize the design principles and elements in the applied visual arts course, they could release their creativity freely and achieve success in their work. Visual arts design elements and design principles are presented in Table 1.

Tablo 1. Visual arts design elements and design principles

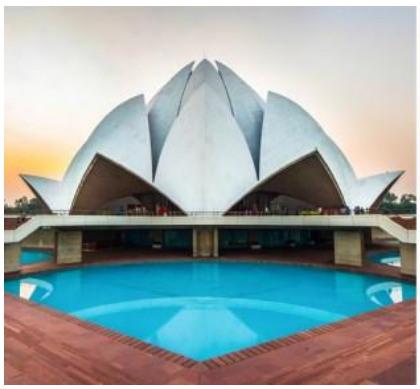
Design elements	Design principles
Line	Rhythm
Texture	Balance
Form	Emphasis
Space	Contrast
Color	Harmony
Value	Diversity

The concepts of creativity and creative thinking are very important in visual arts. Thus, these concepts will be defined below.

1.3. Creative Thinking Techniques

The concepts of creativity and creative thinking have different meanings, however, are often used interchangeably. Creative thinking mostly includes cognitive activities and creativity includes both cognitive and performance-oriented activities (Genç, 2011; Yazçayır, 2015). Özden (2011) emphasized that the source of creative thinking techniques is the level of thinking techniques used by certain historical figures who were creative inventors and thinkers. These techniques, which are adopted by creative individuals unconsciously, have been included in educational curricula as recognized and teachable techniques. Creative thinking is based on analogical thinking (adaptation) and visualization. Analogical thinking is involved in the creation of an artwork through inspiration by another work. For example, the Beijing National Stadium was inspired by a bird's nest, The Lotus Temple in New Delhi was inspired by the lotus flower and the Taiwan Disease Center was inspired by a seashell (Table,2).

Tablo 2. Anological thinking examples

	
Beijing National Stadium (URL,1)	
	
Palm Islands, Dubai (URL,1)	
	
Disease Control Center, Taiwan (URL,1)	
	
Lotus Temple, New Delhi (URL,1)	

Olympic Pavillion, Barcelona (URL,1)

Visualization entails the creation of an idea, word or picture, an image in our minds. Fisher (1995) described the basic dimensions of creativity as follows: 1. Fluency: The rapid and fluent use of information stored in the mind when needed. 2. Flexibility: It reflects free thinking by extending cognitive patterns when solving a problem. 3. Originality: Ability to tackle a problem from different perspectives and to produce various solutions to problems. 4. Detailing: It is the process of improving simple stimuli by addition (Çubukçu, 2013).

In individuals, creativity could both be supported and developed or dulled. Özden (2011) listed the factors that prevent creativity as follows: 1. Do not insist to do right about the things that your students do. There may be more than one way to do something. Do not hamper the self-confidence of those who seek these ways. 2. Do not prevent children from daydreaming. This can eventually destroy their desire to discover. 3. Do not compare children with others. This compels the child to adapt, whereas creativity occurs when there is no pressure to adapt. 4. Do not hamper children's curiosity. Curiosity is a sign of creativity. Answer children's questions patiently. To develop creativity, certain basic tools are sufficient rather than an environment equipped with expensive and detailed instruments. In the classroom, versatile material such as bookshelves adequate for the height of the children, boards where their products could be displayed, hooks hanging from the ceilings, etc. could improve creativity in the classroom environment (Yıldızlar, 2013).

The creative thinking techniques discussed in this section include Synectic/Analogy, creative drama, roleplay, mind map, visualization, creative problem solving, brainstorming and SCAMPER techniques.

1.4. Anology/Synectic

This technique aims to associate the relational structures of an unknown state to a known state. The association is not only formal. The analogy is focused on relationships rather than the form (Güler, 2014). Although the inspiration is based on formal similarities in architecture, Synectic, one of the methods that creative individuals use unconsciously, is the association of unrelated parts. The sub-methods of this technique are used in creativity training programs (Özden, 2011). In direct analogy, the students are allowed to discuss the current problem and how they can solve it by considering how living beings solve the same problem in nature. For example, the discussion could be initiated with as question such as “What do animals do to keep warm?” (Özden, 2011). In personal analogy, students are asked to think that they are part of the physical elements of the present problem by considering themselves an object or other living being which is the part of the problem. For example, questions such as “What do you feel when the sun rises and dries you?”, “What would you think if you were the engine of a car?” could be posed (Erginer, 2015). These questions could be used to improve students' thinking skills as well as to develop their empathy skills. Fantasy analogy entails listing desires and wishes. Students are asked to list all their desires. In this type of analogy, the goal is to allow the students to use and reinforce their imagination. Tomorrow's inventions may be possible with today's creative fantasy analogies (Özden, 2011). In inverse analogy, students are asked to enforce the meaning of the concept by starting from the opposite meaning of the concept. This technique extends the meaning of the concepts. Erginer (2015) attempted to clarify the issue using the following examples: If you think that you are a computer, you can be both timid and aggressive. What is the thing that could be both terrible and beautiful?

1.5. Creative drama

According to San (1990), creative drama is the reorganization of an experience, event, idea, abstract concept or behavior of the individuals through old cognitive patterns and the reanimation of observations, experiences and emotions with dramatic processes using theater or drama techniques in a group setting (Üstündağ, 2011). Creative drama, which is an effective method to develop creativity, could be defined as an educational field that trains the individual. Creative drama is common in Turkey. This technique that

does not utilize a written text does not need to be staged. In creative drama, the individuals who direct the drama, in other words, the teachers are called the leaders and the students are called the participants (Ulaş, 2014). For a functional creative drama process and to prevent the dominant characters in the class to affect the others, leaders should lead a successful direction process. Okuvuran (1999) listed the required leader traits as follows: 1. Leaders should be democratic, respectful individuals who value others. 2. Leader should develop trust. 3. The leader should be a good listener. 4. The leader has the right to conduct, halt and change the process but must also take into account the wishes of the group. 5. Empathy is very important in creative drama. The leader should possess empathy skills to carry out a healthy process. 6. The leader should respect and enable the participant's right to dramatic expression (Bozdoğan, 20069). Students learn better when they are interested in and motivated by the learning content. In creative drama activities, educational environments that would attract the interest of the individual are organized. For example, an improvisation that would be selected for primary school students could be about the environment or daily events, while it could entail examination of abstract concepts for higher education students. If it is noticed that the interest is declining, albeit infrequently, the environment could be improved with new activities and paticipation (Üstündağ, 2014).

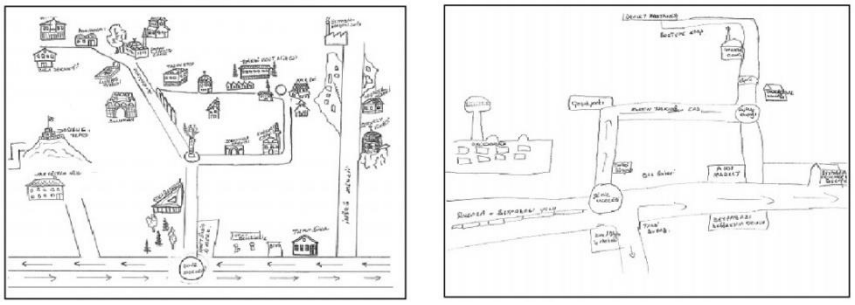
1.6. Roleplay

The roleplay that could be described as the recreation of a scene without prior preparation is based on mobilization of the student at a given condition with empathy. The main objective of roleplay is to measure the sensitivity of students in certain conditions (Özden, 2011). It is a type of case study. It is a technique that allows the students to play certain roles and reflect their understanding about the characters they portray (Çakmak, 2015). In roleplay, the students perform a topic or situation in front of their peers. Instead of watching, listening and discussing, the group members follow the course of the event as it unfolds and observe the details. Roleplay could be used to solve classroom problems and to understand historical and social events (Ocak, 2014). Tok (2014) listed the roleplay steps as follows: 1. Warm up the group. Once you present the problem, make sure that your students understand the problem. Then, provide problem examples. 2. Select the participants. Do not ignore the student preferences in role distribution. 3. Put it on stage. Ask your students to create the stage environment. 4. Prepare the observers. Ask the students who do not play a role to analyze the play. 5. Start the play. Make sure that the first part of the play is short and stop when the basic topics are covered. 6. Discuss and assess. Discuss the first part and analyze other scenarios. 7. Restart the play. Thus, the players will enact different scenarios and introduce new interpretations. Allow them to analyze the cause and effect relationships in the play. 8. Discuss and evaluate the results. If necessary, repeat the improvisation. 9. Share and generalize the experiences. Allow the students to describe their perceptions. It could be argued that roleplay is difficult because it takes too much time especially in crowded classes. If the role selection is not effective, the students may experience difficulties in understanding the activity and the students with roleplay skills could put pressure on shy students and direct the play (Ocak, 2014). This method is one of the preferred methods in foreign language instruction and especially in speech instruction (Çakmak, 2015).

1.7. Mental map

The psychologist writer Tony Buzan, known for his television show “Use Your Head,” made the mind maping technique popular (Mapman 2013, Kansızoğlu, 2014). Unlike linear writing methods used to record information, the mind map is not based on texts. Lines, symbols, keywords, colors, and images are used in mind maps. Güneş (2013) reported that mind maps provide a visual image of existing information. Thus, in addition to storing the information in the mind, it also helps to transfer information easily to paper. Mind maps and concept maps are two different techniques that are sometimes used interchangeably. Aykaç (2014) reported that mind map is a technique based on the interpretation and rationalization of the students similar to the concept maps. According to Aykaç, the difference between mind maps and concept maps is that the mind maps do not only allow the remembrance of the concepts, but also the remembrance of the information transferred to the paper using keywords and images. To develop a mind map, the following steps are followed: 1. A colored image is drawn on the center. Images significantly improve memory and promote creative thinking. 2. Channels that are connected to the main topic are drawn using curved branches. 3. To define the curved branches, keywords are assigned to the branches. 4. The drawings are colored. 5. The curved branches are strengthened with subtitles. 6. The final map is visualized. 7. The relationships are displayed on the map. 8. The mind is relaxed. Inquisitive thinking is avoided. 9. Important issues and areas are emphasized (Buzan, 2010; Graffiths and Costi, 2011; Kansızoğlu, 2014).

Tablo 3. Architectural mind map examples (Türk, 2017)



1.8. Visualization

Visualization, a word often used by creative individuals, reflects the creation of an idea or an image in the mind. Visualization motivates imagination. Gawain, who is one of the leaders of the Creative Visualization Program in the USA, emphasized that visualization and creative skills could be developed (Özden, 2011). Visualization is one of the topics that Buzan (2010) tackled within the context of the mind maps. In fact, it is necessary to note that both images and visualization are utilized in the mind map technique. Thus, the fact that the mind map technique is both a unique technique utilizing visualization reflects the significance of this technique. Saussure, one of the significant linguists, when explaining the general structure of linguistics, mentioned that an indicator is without a reason. According to Saussure (1998), the connection between the indicator and the indicated is causeless. For example, the concept of brother has no connection with the sound sequence indicator b-r-o-t-h-e-r. Saussure stated that this principle dominated linguistics and the consequences were too numerous to count. Kıran and Kıran (2010) also emphasized the significance of social agreement. According to them, the t-a-b-l-e sound sequence leads to the same concept in everyone's mind as a result of social agreement. Saussure (1998) also mentioned the causality of the indicator. Saussure stated that not all indicators are without cause, while all indicators could not be with a cause and proposed the concept of relative causality. Börekçi (1999) stated that the principle of non-causality of the indicator ignored the relationship between culture and language and led to a contradiction. According to Börekçi, the fact that the words sword, sheath, spall (*kılıç, kın, kıymak* in Turkish) start with a k was not accidental, since the same sound is produced by an animal when it is slaughtered. According to Börekçi, it was not a coincidence that "k" was written with an "arrow" (↓) in Orkhon scriptures known to be written in national Turkish alphabet. It is not difficult to provide similar examples in Turkish language. Thus, Börekçi focused on the concept of relative causality, since causal language elements are more frequent in Turkish based on the relationship between the indicator and the indicated. Elective Turkish Creative Thinking Course Curriculum (2012) emphasized visualization and proposed visualization activities. These activities included creating objects by combining simple forms, thinking about the spelling of the words based on their meanings. According to Vardar (2001), these artificial indicators reflecting the external reality with the impression of similarity included features reminiscent of the above-mentioned phenomena. Photos, pictures, drawings, etc. are also included in this group. These indicators are human constructs whose causes could be explained. These activities attract the attention of the students and the students enjoy participating in these activities. Among these activities, spelling a word based on its meaning is negatively correlated with the principle of non-causality of the indicator. The students were encouraged to convert non-causal indicators to relatively causal indicators to approximate the indicator to the indicated. In other words, it could be argued that these activities convert non-causal indicators to relatively causal indicators. The activity was developed to encourage reflection on these associations.

1.9. Creative problem-solving

Creative problem solving is a general type of problem solving. Most problems encountered in daily life in the classroom are multi-dimensional and therefore require creative thinking (Senemoğlu, 2001, Üstündağ, 2011). In this technique, problem solving areas that may be significant for the students may include certain real life problems such as financing the class trip, unwanted behavior at school, uninteresting school corridors, food lines in school canteen, irregular school material, stray animals around the school (Tok, 2014). Özden (2011) mentioned two models in creative problem solving. The first model is the Parnes Model and the other is the Hermann Model. In the model developed by Parnes, five steps are taken to complete the process: Fact finding: In this stage, everything that is known about the problem is listed. At this stage, it was suggested to ask “who, what, when, where, how and why” questions. Identification of the

problem: This is the stage where alternative definitions are provided for the problem and sub-problems that it includes. Generating ideas: This is the stage where the brainstorming technique is implemented, and different ideas are proposed for each definition. Finding a solution: It is the stage where the ideas proposed in brainstorming are analyzed. And, the most likely alternatives to solve the problem are selected. Acceptance: This is the process where the action plan is developed. Hermann Model discussed the creative problem-solving process in six steps and associated these steps with various professional fields. Discoverer: Reveals the problem is. Detective: Discusses the problem with all its aspects. Engineer: Develops ideas, converts them to practice, produces adequate solutions. Artist: Since the initial ideas often do not lead to solutions, the artist produces alternative perspectives. Judge: Selects the most accurate idea. Producer: Conducts trials for the implementation of the solution.

1.10. Brainstorming

This technique is one of the creative techniques used to solve an issue, make decisions and produce ideas with imagination (Demirel, 2014). Gözütok (2000) listed the brainstorming technique steps as follows: 1. Allow the participants to sit comfortably. 2. Make a board available to write the ideas. 3. Describe the problem, write it on the board. 4. Explain the rules. In particular, state that ideas will not be categorized as positive or negative. Emphasize that they should consider the marginal ideas and think freely, produce several ideas, develop others' ideas as well as changing and opposing these ideas. 5. Ask them to come up with ideas. 6. Based on the group size, have one or several individuals to write their ideas on the board. 7. Provide your views to encourage the participants. 8. Do not allow anyone's idea to be mocked. 9. Keep brainstorming as long as new ideas emerge. 10. Encourage students to resume coming with ideas when they stop coming with new ideas. 11. Stop the brainstorming when no new ideas are produced. 12. Read all ideas and enumerate similar or identical ones. 13. Create a post with the specified solutions on the classroom board. 14. If you do not have time to conduct the steps 12 and 13, you can assign them to the participants (Üstündağ, 2011). Brainstorming, a group instruction technique, has advantages such as promoting autonomy, creativity, imagination and free expression. In addition to these advantages, Uzunboylu and Hürsen (20114) stated certain disadvantages of the method. One of the disadvantages mentioned was the fact that the method was time consuming. Furthermore, the solutions proposed by the students may lead to deviation from the course objectives. Thus, the teacher should manage the course very well and be careful not to get off the point.

1.11. Scamper (direct brainstorming) technique

This technique was included in the Elementary School Creative Thinking Course (Grades 1-8) Curriculum (2012) and introduced as an entertaining technique. This technique allows the student to act outside cognitive patterns could be used at all educational levels. SCAMPER steps include the following: Substitute: Displacement. Combine: Consolidation. Adapt: Adaptation. Modify, Minify, Magnify: Change, reduce, enlarge. Put to other uses: Substitute with other uses. Eliminate: Removal. Reverse, Rearrange: Reversing, organization. Although SCAMPER is a type of brainstorming technique, there are some differences between SCAMPER and brainstorming techniques. In brainstorming groups, it was observed that students experienced a deadlock, all produced ideas could be the same, or the course could deviate from the topic. SCAMPER is the most adequate technique when students are in a deadlock or contradict with the essence of the topic (Swain, 2001; Islim, 2011). Yağcı (2012) listed the following stages for each SCAMPER step: S: "Which person, object or emotion can replace a person, object or emotion? Here, a trial and error process is experienced until the accurate idea is obtained. C: The main idea is to bring items together, to combine them. We should ask the question: "Which ideas can be combined?" A: We need to adapt to bring other ideas closer to our own. In this process, the question "Which other ideas are similar?" should be asked. M: "What can I change? (color, form, taste…)" P: To plan other areas of use for items other than their regular use, questions such as "What else could be used for this? Are there alternative ways?" are asked. E: In this step, the questions "What should be added and what should be subtracted?" are answered. R: In this step, questions such as "Can negativities be reversed? What happens when you reverse the order? Which organization would lead to development?" are posed.

The aim of the present study was to determine the knowledge levels of landscape architecture students on the above-mentioned creative thinking techniques and which techniques they utilized in their landscape architecture projects.

2. MATERIAL and METHODS

Since landscape architecture is a versatile occupation that incorporates concepts from different disciplines, it is necessary to integrate different systems and components in landscape architecture education. Thus, students are expected to use adequate creative techniques by integrating the design processes. In the Department of Landscape Architecture at Karadeniz Technical University (KTU), the theoretical and practical design courses that emphasize the master-apprentice relations are very important for the students to acquire design and creativity skills. Thus, students take several design courses (Basic Design Concepts, Architectural Design, Environmental Design Project, Furniture Design, etc.) beginning from the freshman year until the senior year. In these courses, initially, design elements and principles are instructed. Design education is also considered as a personality education in the process of becoming a master, and instead of imposing generally applicable methods, students are provided with the opportunity to explore their own methods in these courses. The final designed product is the result of creative problem solving and visual thinking processes.

A survey was conducted with senior KTU Landscape Architecture students (n = 63) to determine their knowledge on creative thinking techniques in visual arts and the techniques they utilize in their products.

3. FINDINGS

The survey participants included 49 female and 14 male students. The distribution of the participants based on gender is presented in Table 4.

Tablo 4. The Distribution of the Students in the Study Sample Based on Gender

Gender	n	%
Female	49	77,7
Male	14	22,3
Total	63	100

The senior KTU Landscape Architecture students who participated in the survey were asked to respond to the question “You have knowledge on which visual arts creative thinking techniques?” using a 5-point Likert-type scale (1: None; 2: A few; 3: Moderate; 4: Several; 5: Most). Thus, the student responses were analyzed, and it was concluded that the students had knowledge on these techniques. The students’ knowledge level was the highest in roleplay (4,94), followed by brainstorming (4.84), creative drama (4.82), analogy (4.67), visualization (4.56), SCAMPER (4.35), mind map (4.02), and creative problem solving (3,96) techniques.

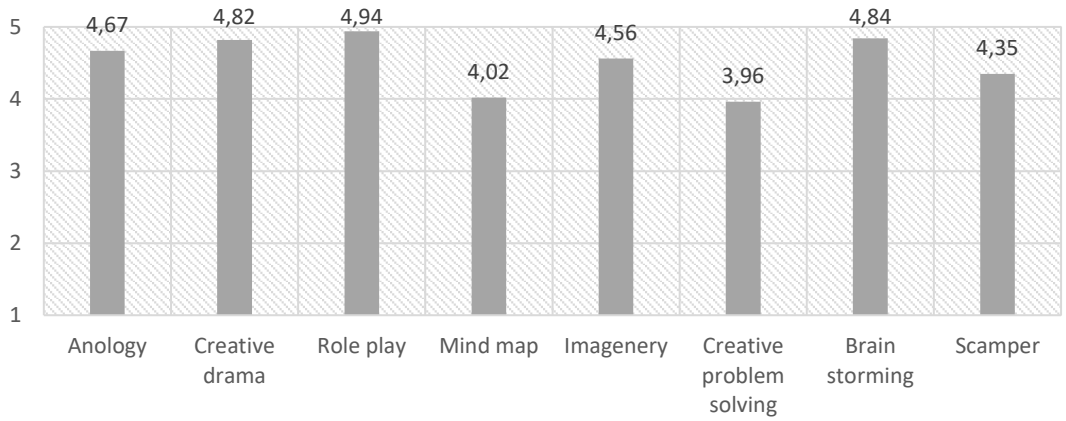


Figure 1. The student responses were analyzed, and it was concluded that the students had knowledge on these techniques.

The student responses to the second question "Which of these techniques you utilize in your designs?" were presented graphically. The number of students that utilized each technique is presented in the figure below. Thus, all students (63) used brainstorming technique in their designs, 62 students used SCAMPER technique, 60 students used the analogy technique, 57 students used the mind map technique, 53 students used the visualization technique, 35 students used the creative problem solving technique, 3 students used the roleplay, and 2 students used the creative drama technique.

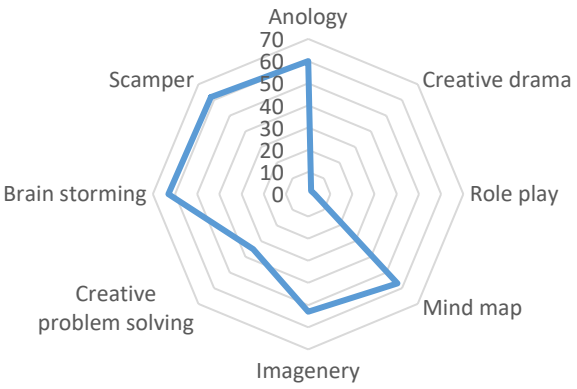


Figure 2. The number of students that utilized each technique

4. DISCUSSION and CONCLUSION

The present study aimed to determine the knowledge levels of landscape architecture students on creative thinking techniques in visual arts and the techniques they utilized in their designs. All participating students had similar knowledge level on all creative thinking techniques. However, there were differences between their usage levels. In their designs, it was found that they utilized brainstorming, SCAMPER and analogy techniques at a higher level, and they also utilized the mind mapping and visualization techniques at moderate levels and roleplay and creative drama techniques at low levels.

Brainstorming technique, the most used creative thinking technique in the present study, was used for the first time by an advertiser named Osborn (1957) in the creation of new brand names and slogans for new products. It was later applied in psychology and literature as an instruction method (Davies, 1971; De Cecco, Crawford, 1974). In his brainstorming sessions, Osborn (1963) observed that all criticism and assessments hindered individuals' imagination, because ideas and criticism do not occur concurrently (Özden, 2005).

The other commonly used technique, analogy, which means combination of unrelated parts, was invented by Gordon (1961), who researched the methods unconsciously used by creative individuals. There are three methods in Synectic, which is based on analogy (transferring ideas into another medium): direct analogy, personal analogy and fantasy analogy. All three methods are frequently used in creativity curricula (Özden, 2005). Among these analogy methods, the most commonly used method by landscape architecture students was the direct analogy. In direct analogy method, the student is asked to solve a problem similar to the solution adopted in nature. Student attempts to solve the problems based on the behavior of an animal, bird, flower, insect, etc., in a similar situation.

The mind map method is a visual technique based on Ausubel's meaningful learning theory and developed by Novak et al. at Cornell University in late 1970s (Bahar, 2007). This technique helps students to understand the correlations between new knowledge and to connect previous knowledge with the new. Concept maps that lead to meaningful learning allows the teachers to organize meanings, to decide on discussion methods with the students and to reveal inaccurate learning (Kaptan and Korkmaz, 2001).

In conclusion, the study findings demonstrated that students, artists or designers in all other professional disciplines related to visual arts initiated visual thinking with visuals, visual thinking is necessary in design education, and landscape architecture students utilized creative thinking techniques in their designs similar to other designers. It was determined that these techniques played an important role in the development of landscape designs.

REFERENCES

Aykaç, N. (2014). Öğretim ilke ve yöntemleri (2. Baskı). Ankara: Pegem Akademi Yayınları.

Bahar, M., (2007).“Biyoloji Eğitiminde Kavram Yanılgıları ve Kavramsal Değişim Stratejileri”, Kuram ve Uygulamada Eğitim Bilimleri / Educational Sciences: Theory&Practice 3(1).

Bilirdönmez, K., and Karabulut, N. (2016). Sanat eğitimi süreç ve kuramları. EKEV Akademi Dergisi, 20(65), 343-355.

Bozdoğan, Z. (2006). Okulda rehberlik etkinlikleri ve yaratıcı drama (2. Baskı). Ankara: Nobel Yayın-Dağıtım

Börekçi, M. (1999). Gösteren ile gösterilen ilişkisi açısından Türkçenin görünümü üzerine bir deneme. bilig Türk Dünyası Sosyal Bilimler Dergisi, S.8, s. 77-82. 06.07.2015 tarihinde http://bilig.yesevi.edu.tr/yonetim/kcfinder/upload/files/bilig-8- kis-99.pdf adresinden alınmıştır.

Buzan, T. (2010). Aklını kullan (2. Baskı). İstanbul: Alfa Yayınları

Çakmak, M. (2015). Öğretim yöntem ve teknikleri. Y. Budak (Ed.), Öğretim ilke ve yöntemleri, (s.437-471). Ankara: Pegem Akademi Yayınları.

Çubukçu, Z. (2013). Düşünme becerileri. S. Büyükalan Filiz (Ed.), Öğrenme-öğretme kuram ve yaklaşımları (2. Baskı), (s. 280-334). Ankara: Pegem Akademi Yayınları.

Davies, J. K. (1971). *Athenian propertied families*. Clarendon Press.

Demirel, Ö. (2014). Öğretme sanatı (20. Baskı). Ankara: Pegem Akademi Yayınları.

De Cecco, J. P., and Crawford, W. R. (1974). *The] psychology of learning and instruction educational psychology* (No. LB1051 D35).

Erginer, E. (2015). Öğretim ilke ve yöntemleri (6. Baskı). Ankara: Pegem Akademi Yayınları.

Fisher, R. (1995). Teaching Children to Think. Cheltenham: Stanley Thomes Publishers

Genç, E. (2000). Öğretmenlerde Denetim Odağının Problem Çözmeye Yönelik Yaratıcılıklarıyla İlişkisi. Yayımlanmamış Yüksek Lisans Tezi. Marmara Üniversitesi, Fen Bilimleri Enstitüsü. İstanbul.

Griffiths, C., & Costi, M. (2011). *GRASP: The Solution*. FilamentPublishing Ltd.

Gordon, W. J. (1961). Synectics: The development of creative capacity.

Gözütok (2000 Gözütok, F. D. (2000). Öğretmenliğimi Geliştiriyorum, Ankara: Siyasal Yayıncılık.

Güler, B. (2014). Çeşitli öğretim teknikleri. F. Güneş (Ed.), Öğretim ilke ve yöntemleri, (s. 378- 385). Ankara: Pegem Akademi Yayınları Kırışoğlu, O. T. (2009). Sanat kültür yaratıcılık: Görsel sanatlar ve kültür eğitimi-öğretimi. Ankara: Pegem Akademi Yayıncılık.

Güneş, F. (2013). Türkçe öğretimi yaklaşım ve modeller. Ankara: Pegem Akademi Yayınları.

Kaptan, F., and Korkmaz, H. (2001). İlköğretimde Fen Bilgisi Öğretimi, İlköğretimde Etkili Öğretme ve Öğrenme Öğretmen El Kitabı, Modül 7 s:1-7.

Kansızoğlu, H. B. (2014). Güncel öğretim teknikleri. F. Güneş (Ed.), Öğretim ilke ve yöntemleri, (s. 338-350). Ankara: Pegem Akademi Yayınları.

Kıran, Z., Kıran, A. E. (2010). Dilbilime giriş (3. Baskı). Ankara: Seçkin Yayıncılık

Ocak, G. (2014). Yöntem ve teknikler. G. Ocak (Ed.), Öğretim ilke ve yöntemleri (6. Baskı), (s. 253-358). Ankara: Pegem Akademi Yayınları.

Okvuran, A. (2001). Okulöncesi Dönemde Yaratıcı Drama, http://www.egitim.com/ egitimciler/0753/0753.1/d_0753.1.yaratıcidrama.p01. Erişim Tarihi: 03.04.2010.

Osborn, A. F. (1957). Applied imagination (rev. ed.). *New York: Scribner*, 379.

Osborn, M. J. (1963). Studies on the gram-negative cell wall, I. Evidence for the role of 2-keto-3-deoxyoctonate in the lipopolysaccharide of Salmonella typhimurium. *Proceedings of the National Academy of Sciences of the United States of America*, *50*(3), 499.

Özden, Y. (2011). Öğrenme ve öğretme (11. Baskı). Ankara: Pegem Akademi Yayınları.

Özden, Y. (2005). Öğrenme ve Öğretme. (Yedinci Baskı). Ankara: Pegem Yayıncılık

Saussure, F., D. (1998). Genel dilbilim dersleri. İstanbul: Multilingual Yayınları.

San, İ. (2008). Sanat eğitimi kuramları. Ankara: Ütopya yayınları.

San, Ġ. (1991). Metinde 1990 ı değiş Eğitim-Öğretimde YaÇayarak Öğrenme Yöntemi ve Estetik Süreç Olarak Yaratıcı Drama. Eğitimde ArayıÇlar 1. Sempozyumu, Eğitimde Nitelik GeliÇtirme. (13-14 Nisan).

[MEB], 2006. Milli eğitim bakanlığı

Senemoğlu, N. (1997). GeliÇim Öğrenme ve Öğretim. Ankara: Erdem Matbaacılık

Sinem, TürK. 2017. Beypazarı Kent Kimliğinin Bilişsel Haritalama Yöntemi İle Değerlendirilmesi. *Mehmet Akif Ersoy Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, *9*(19), 483-499.

Slim, Ö., F. (2011). Scamper (yönlendirilmiş beyin fırtınası) tekniği. 5th International computer & instuructional technologies symposium'da bildiri olarak sunulmuştur, Elazığ 06 Temmuz 2015 tarihinde http://web.firat.edu.tr/icits2011/papers/27676.pdf adresinden alınmıştır

Swain, M. (2001). Integrating language and content teaching through collaborative tasks. *Canadian Modern Language Review*, *58*(1), 44-63.

Tok, T. N. (2014). Etkili öğretim için yöntem ve teknikler. A. Doğanay (Ed.), Öğretim ilke ve yöntemleri (9. Baskı), (s. 161-237). Ankara: Pegem Akademi Yayınları.

Ulaş, A. H. (2014). Drama oyun ve fiziksel etkinlikler. İstanbul: Favori Basım Yayın ve Reklamcılık San. Tic. Ltd. Şti.

Uzunboylu, H. And Hürsen, Ç. (2011). Lifelong learning competence scale (LLLCS): The study of validity and reliability. Hacettepe Üniversitesi Eğitim Fakültesi Dergisi, 41, 449-460

Üstündağ, T. (2011). Yaratıcılığa yolculuk (5. Baskı). Ankara: Pegem Akademi Yayınları.

Üstündağ, T. (2014). Yaratıcı drama yöntemi. Ö. Demirel, Öğretim ilke ve yöntemleri öğretme sanatı (20. Baskı), (85-102). Ankara: Pegem Akademi Yayınları.

Ünver, E. (2002). Sanat eğitimi. Ankara: Nobel Yayınları.

Vardar, B. (2001). Dilbilimin temel kavram ve ilkeleri. İstanbul: Multilingual Yayınları

Yağcı, E. (2012). Yönlendirilmiş beyin fırtınası tekniği: scamper konusunda veli görüşleri üzerine bir çalışma. Hacettepe Üniversitesi Eğitim Fakültesi Dergisi. S. 43, 114 s. 485- 494

Yazçayır, N. (2015). Düşünme temelli öğrenme modelleri. Y. Budak (Ed.), Öğretim ilke ve yöntemleri, (s.191- 254). Ankara: Pegem Akademi Yayınları

Yıldızlar, M. (2013). Öğretim ilke ve yöntemleri (4. Baskı). Ankara: Pegem Akademi Yayınları.