

The Effects of Knowledge Acquisition Levels on Perception in Art Education

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Abstract

Perception is a complex phenomenon that results from the interpretation of sensations caused by the surrounding stimuli either simultaneously or one after another and their stimulation into memory. The concept of perception requires a stimulus before acknowledging its environment. It is possible to summarize that the stimuli cause sensations and, as a result, each sensation leads to a perception and understanding. The expectations of individuals from the current situation, their previous knowledge and experiences, social and cultural factors all have an effect on perception. Organizing all this knowledge and experiences gathered by perception is an educational problem. However, these observations about our environment may be organized as significant, that is to say; accurate knowledge and experiences as a result of a suitable education. Visual recognition is realized by the recognition of stimulant effects resulting from the environment. These stimulant effects are recorded into long-term memory as information. The designer must have a visual intelligence, because the enrichment of a visual memory is based upon an improved visual recognition.

This study aims to explain the effects of differences between the levels of knowledge acquisition on perception. The study involves a group of 30 students from the Department of Interior Architecture and Environmental Design in Selcuk University. First, the students are divided into three equal groups. The purpose of this grouping is to instruct students in each group with different subjects and at different levels before starting the research and to examine how this knowledge affects the perception levels and creativity of students and what differences it causes to. In order to investigate the guiding effects of instruction at different subjects and levels in perceiving and visualizing, the ability to use/interpret the data and the connection between perception level and creative thinking, the students are asked to read the architectural project of

rectorate building of Selcuk University located in Konya province and to write down their observations into their sketch books freely by using the techniques they know. As a result of the study, it is determined that the differences during knowledge acquisition also affect the perception of students in a different way. Besides the fact that planned use of visual expression techniques led students to have a holistic approach when perceiving, the lack of theoretical knowledge made it difficult to visualize their perceptions and focusing on background knowledge caused to have a limited representations in detail by the students.

Keywords: Perception, Perceiving, Knowledge acquisition, Visual analysis, Looking-Seeing

Introduction

In the field of art education, perception, knowledge acquisition, designing, interpreting and expressing are acquired via using the language of arts in accordance with the aesthetical principles. Perceiving is a process that is completed via using our minds. Perception is used to refer to gathering sensational data via psychological and cognitive learning, their interpretation, selection and organization. The dictionary meaning of perception is to understand or to comprehend. Perception has many definitions. According to Lang (1987), perception is described as ‘the process of acquiring data about environment using our environment’. Perception is active, conscious and purposeful. There is always perception, where mind and reality come together. Caudwell (1974) defines perception as ‘the things that people gather from the reality by using their senses’.

Perception underlies the basics of communication process of a person with his/her environment. Perception is ‘a way of comprehension (psychology), becoming conscious of something by directing our focus into it’. Objective world is transferred into subjective conscious by the help of senses. The perception is the design that becomes a reality in a person’s conscious following an image experienced by senses from outer world’ (Hancerlioglu, 2000). The psychologist, Morgan (1995) defines perception as ‘the process of interpreting the sensations and making them more significant’. According to Atkinson, who also has many studies in General Psychology, the perception is ‘the process of organizing and interpreting the stimuli in our environment’ (Atkinson et. al., 1995).

A person should know his/her environment very well in order to live there, knowing that environment is only possible with perception and experiences. Perceiving is described as the process of interpreting the data gathered by our senses in general terms and transforming them into experiences. Aydinli stated that perceiving is a mental phenomenon that is related to sensing the stimulant effects of the environment by the help of our sense organs and giving

them a concept in our minds. Geddie argued that perceiving has two meanings and explained them as ‘becoming aware by using our senses’ and ‘gathering information by using our mind’. The stimulant effects resulting from the environment are recognized by the help of visual recognition, and then recorded into long-term memory as information. Rudolf Arnheim stated that emotional perceiving also involved such mental operations as remembering, thinking and learning with reference to the integrity of mind and senses (Aydinli, 1992).

As another approach to perception, we can give the Force Law by Stevens as an example. The Force Law studies the relative connection of physical stimuli with perceptual judgments. According to Canter (1974), the perception concept should also be kept in mind as a mathematical model of this connection. Perceiving is an individual process and the experiences of a person also have an important effect on the perception. Besides the individual characteristics of a person, outer effects also make his/her way of perceiving different. According to Immanuel Kant, ‘we see things not as they are, but as we are’. What we perceive not only depends on the structure of stimulus, but also on our previous experiences, our current emotions, desires, attitudes and purposes (Caglayan, 2014).

The interaction between a person and an object involves perceiving, knowing and thinking. According to Unlu (1998), these three concepts are “consisted of motivations, desires and values integrated with the images of affective processes, sensations about the environment and excitement” (Caglayan, 2014). In this view, the processes about memory are reported as “They have an effect on both cognitive and affective processes together with moving, doing, dealing and directing.” People always give a priority to their needs; especially the ones that provide the best answer for his/her own needs, as they are continuously interact with the objects in their environment. This choice underlines the previous knowledge he/she acquired, because they evaluate both the object and previous knowledge at the same time when making a choice. They maintain a continuous interaction between subject and object in this way.

According to the studies conducted Baskaya et al (2003), another different point than the interpretation made by Unlu indicates that perceiving process involves a two-stage structure, the first of which is “physiological processes” including the sensation of objective stimuli and “cognitive processes” including the interpretation and explanation of cognitive input resulting from this sensation. As stated in the descriptions, there is a process in perceiving. Odabasi and Baris (2002) schematize the process of perceiving in three dimensions in general as optional perceiving, perceptual organization and perceptual interpretation (Figure 1).

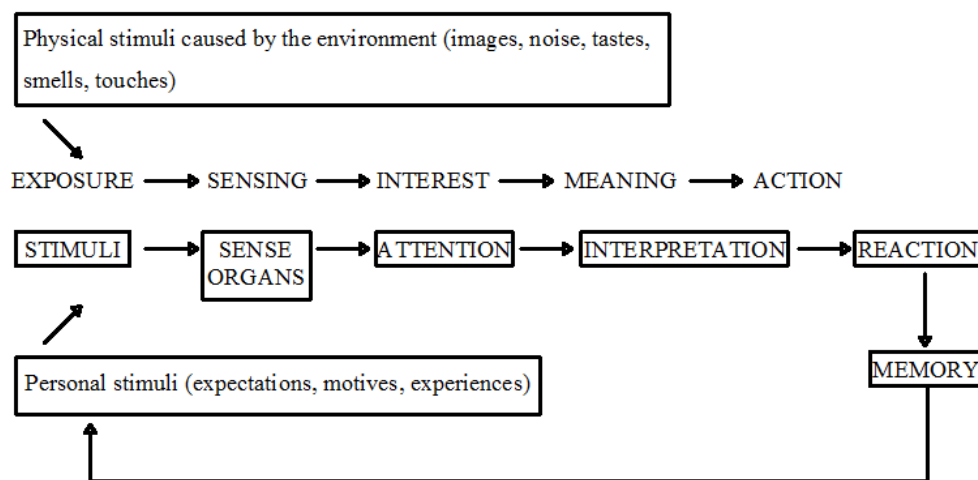


Figure 1. Process of Perceiving (Odabasi and Baris, 2002:141)

Visual recognition is the most significant one among perceptual processes when designing the educational contents and the effects of approaches of visual recognition are strongly felt in designing processes. Visual recognition involves several approaches such as making a choice by being sensually aware of the perceived concept, organizing and describing it within the framework of its visual characteristics (Behrens, 1984; Hochberg, 1978). In other words, visual recognition is the process of becoming aware of the concepts by individuals (Messaris, 1994). According to Gal and Linchevski (2010), the process of visual recognition is described as the process of perceiving the visual data gathered from sensory and mental processes and their interpretation.

Individuals experience a superficial acquisition first in relation to the concept perceived during visual recognition. This process involves a two-dimensional recognition. At this stage, individuals perceive the images in width and height. After this stage, they start to establish a deeper pattern in relation to this concept in his/her visual recognition zone. Here comes the third dimension with this perception of depth at this stage. Then, he/she makes sense of this concept with a cultural background and gives a new identity to it, that is to say, defines the concept (Booth, 2003; Findlay and Gilchrist, 2003).

Visual recognition happens when becoming aware of the stimuli that result from our environment. These stimulant effects are recorded into long-term memory after transforming into data. The designer should have such a rich visual memory that enrichment of a visual memory depends upon an improved visual recognition (Aydinli, 1992).

In the education of interior architecture, the visual development of a student starts with an analysis and it continues during all of his/her professional period. During the education of interior architecture, it is important to instruct students with visual data required to observe his/her environment, to show his/her reaction and to make an interpretation.

Visual education requires visual analysis and one should have some basic skills when making a visual analysis in order to get used to visual note taking. These are observation, perceiving phenomena and events, interpretation and description. Visual analysis is important for students in terms of learning how to reach information, using data productively and developing creative thinking and ability to interpret (Aydinli, 1992).

Research Method

Study Environment

The study aims to examine the effects of differences among knowledge levels on perception. In this view, the effects of knowledge acquisition on perception in the field of art education are observed and evaluated in a laboratory experiment. Previously, Oskay et.al (2003) and

Turkyilmaz et.al (2011) used the visual materials as a descriptive factor in their experimental studies in order to measure the effects of differences of knowledge levels on perception. Digital photos that are quite popular in recent years and an effective means of communication are used to prepare the experimental setting of this study.



*Photo 1. Satellite View of Rectorate Building of Selcuk University
(<https://www.google.com/maps>)*

Therefore, the Rectorate Building of Selcuk University is selected as research area to conduct this experiment, which is a public structure located in Konya centrum and adopted by the population. The building is located in the east of Karatay Medresesi and between Ankara Street and Vali Izzet Bey Street (Photo 1). The original entrance gate in the east of garden is kept closed presently and the new gate opened on Ankara Street in the west is used as an entrance. This building is used as Female Teacher High School until 1981 and as a Female Art Higher Teacher Education School for a certain period and now as the Rectorate Building of Selcuk University. When conducting the experiment, the Rectorate Building is identified and photographed in-situ (Table 2).

Participants

This study involves a group of 30 participants at the age of 20-25, that are enrolled in the Department of Selcuk University, Faculty of Fine Arts, Interior Architecture and Environmental Design. First, the students are divided into three equal groups of 10 students.

The purpose of this grouping is to instruct students in each group with different subjects and at different levels before starting the research and to examine how this knowledge affects the perception levels and creativity of students and what differences it causes to.

Table 1

Data presented according to student groups

Participants	1st Group of Students	2nd Group of Students	3rd Group of Students
	* Presented in detail	* Presented in general	* Presented no data
	including historical content	including historical content	including historical content
Data presented to the students	*Digital photos used.	* Digital photos used.	* Digital photos used.
	*No information given about visual analysis techniques.	* Information given about visual analysis techniques.	* No information given about visual analysis techniques.

As seen in Table 1, the first group of students is presented with detailed data including historical content about the architectural project of Selcuk University Rectorate Building located in Konya and its pictures are shown. The second group of students is not as detailed as the ones presented to the first group of students, they are more superficial and digital photos of architectural design are also shown. Besides, the second group of students is given extra information on visual analysis techniques. The third group is presented with no data including historical content and only digital photos are shown.




Application of the Study

The students are asked to use the techniques they already know and report their observations into their sketchbooks as a result of the readings given and visuals shown here about the Selcuk University Rectorate Building located in Konya province in order to examine the guiding purpose of information at different levels and subjects in perception and visualization, the ability to use this information and to interpret it and the connection between perception

level and creative thinking. All students are given 30 minutes to read the architectural project of rectorate building and to report their observations into their sketchbooks.

Table 2

Data presented to student groups about Rectorate Building of Selcuk University

Participants	Digital Photo of the Building shown to the student groups	Date and Theoretical Information about the Building
1 st Group of Students		<p>*Detailed information is consisted of location of building, its connection to the environment, previous purpose of use, architect of the building, its plan, its building technique, the materials used in the construction, interior design, detailed information on windows and doors on front sides, additional buildings constructed subsequently.</p> <p>*Digital visuals are used in the experiment.</p>
2 nd Group of Students		<p>*General information is given including historical content.</p> <p>*Techniques of visual analysis are explained (distance between objects, relation of vertical and horizontal items, rhythm, movement, direction and colors)</p> <p>* Digital visuals are used in the experiment.</p>
3 rd Group of Students		<p>*No theoretical or historical content information is given about the building.</p> <p>* Only digital visuals are used in the experiment.</p>

The students in the first group are instructed with theoretical and technical knowledge for approximately ten minutes before showing the digital visuals (Table 2). Then, the visuals are displayed for 2 minutes and students are asked to note down the structure they are informed and they have perceived into their sketchbooks subsequently.

The students in the second group are instructed with theoretical and technical knowledge for approximately five minutes before showing the digital visuals (Table 2). Then, the visuals are displayed for 2 minutes and students are asked to note down the structure they are informed and they have perceived into their sketchbooks subsequently.

The visuals are displayed to the students in the third group for two minutes without giving any theoretical and technical information and then the students are asked to note down the building they perceived into their sketchbooks by the help of these visuals (Table 2).

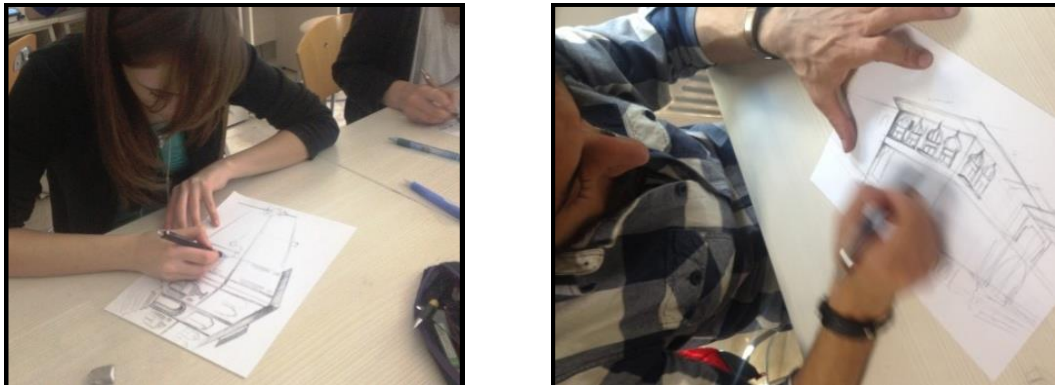


Figure 2. Students working on a sketch

Findings

As a result of this study conducted, it is determined that the information given to the students in each group at different subjects and different levels caused many effects at various levels in their perception levels and creativeness, and even in the same group, it is seen that there are differences in perception and interpretation levels depending on the personal characteristics. Here are the analyses of group works conducted:

Group 1: The students are lost in details as they are supported with an intensive amount of information and visuals. Due to this loss, they are unable to reach the overall picture. The

visual given and the theoretical background reported here confused their minds. Some students achieved to note down theoretical data into their sketchbooks as a result of the historical, spatial and front side information, but some of them interpreted it on their sketchbooks as if the parts of this building still existed though it did not survive until today. However, they lost its integrity on the sketchbook as a result of these interpretations. When the relation between vertical and horizontal types, one of the visual analysis techniques, is examined, this relation is partially not achieved. It is determined that the students with an intensive amount of information on historical content used clearer/darker lines in their sketch expressions when compared to other groups. It is supposed that using both information and visual at the same time creates confidence over the students.

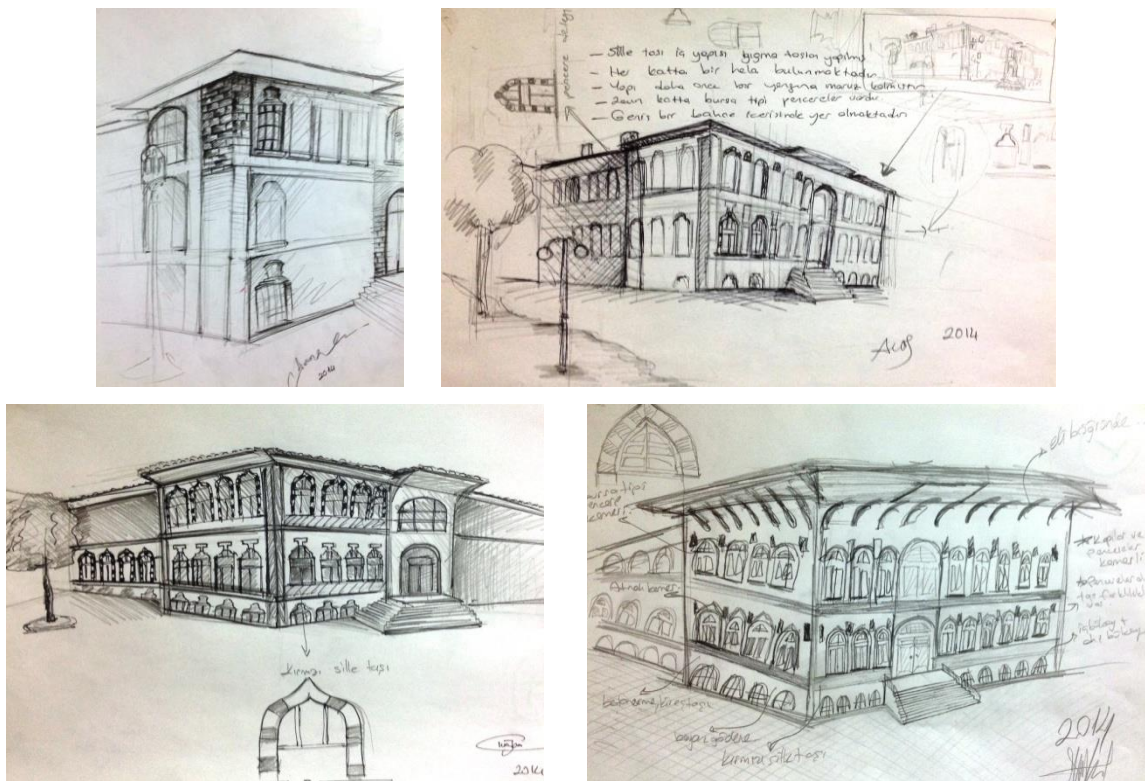


Figure 3. 1. Some sketch samples by the group students

Group 2: When compared to other groups, a complete sketch of the building is provided in overall group works because of the limited amount of information and visual expression techniques given to the students. Distance between objects, relation of vertical and horizontal

items, rhythm, movement, direction and color harmony all corresponded with the visuals given. Therefore, the use of visual analysis techniques enabled a significant achievement when reporting into the sketchbook. The planned use of visual expression techniques brought a holistic approach in the students' perceptions and the lack of historical data made it difficult to visualize their perception. While the students were abstracting the building they are working on, they used the presentation techniques they already knew.



Figure 4. 2. Some sketch samples by the group students

Group 3: Giving no theoretical and historical content information to the students led them to express the building with their own interpretations and knowledge by using the previous images in their minds, making the process quite limited. Therefore, it affected the decrease in the perception levels of students. As a result of the final products obtained, they were either unable to complete the visual or hardly expressed it in simple geometrical forms. Having a limited amount of background caused them to use research lines intensively in their sketchbooks, therefore leading to noting down weaker/paler lines. Having no information about the techniques of visual analysis such as distance between objects, relation of vertical

and horizontal items, rhythm, movement, direction and color harmony negatively affected the way they try to reach the complete visual.

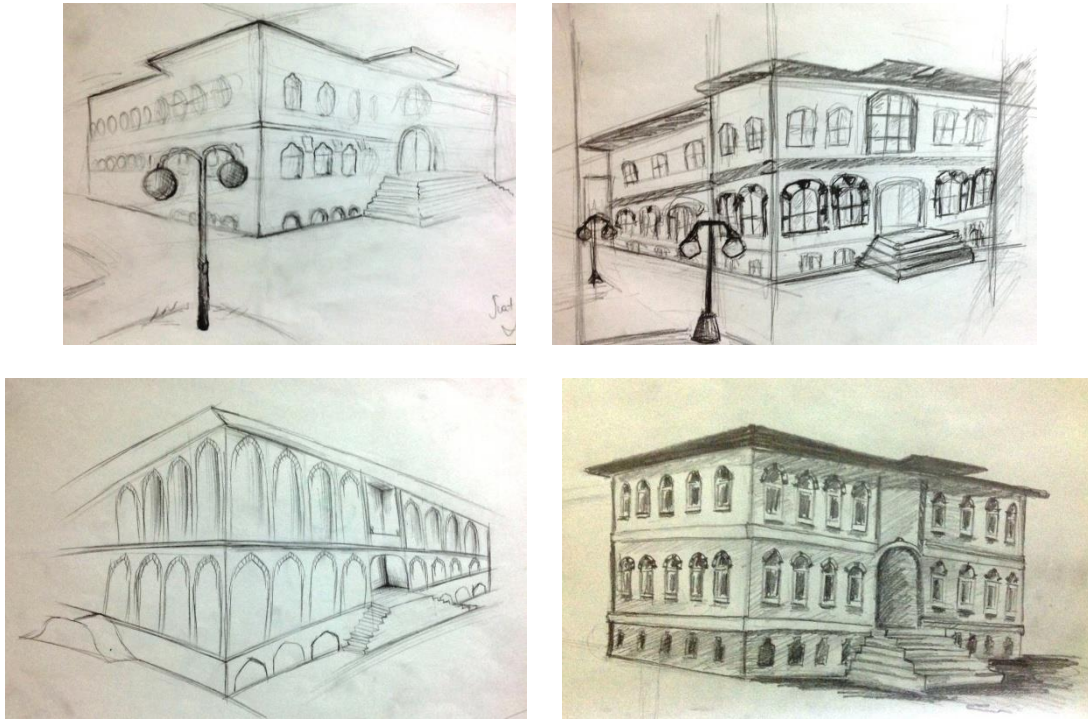


Figure 5. 3. Some sketch samples by the group students

Results

Each architect has different types of attitude and approaches that they develop in relation to their professional personality. Therefore, some basic skills must be taught to improve perceiving capacities of students with different levels and backgrounds and to equip them with an environmental sensivity in the education of interior architecture.

The education of interior architecture is consisted of theoretical and practical courses that are aimed to solve a series of problem on a large scale, including mental and emotional points of view. Students are expected to develop in two different fields. These are cognitive field (it enables a thinking system and knowledge accumulation) and affective field (it enables to improve intuition and imagination). Therefore, students should not only read, but also should they perceive their environment and feel it, so that they can learn how to gather data.

The most important factor used to improve mental processes during design stage is the skills on visual recognition level. The knowledge of design depends on either mental processes or experiences. The connections made among senses, experiences and the mind enable to describe the events and objects in an accurate way. The perception level of the designer is significant in designing process. We are faced with an effective factor that defines how we look and what we see, understanding it and thinking about it. They should have the ability to transform the value judgments made via synthesizing the subjects analyzed by the students into the design of new environments.

The value judgments gathered via visual analysis enable a person to show interest on the environment, to make a sensitive observation and to investigate it. Conducting visual analyses frequently, recording visual data and getting the habit of visual note taking will contribute a lot to acquire the required skills.

One of the most important instruments that a student should have in the education of interior architecture is the sketchbook. This instrument must be used to visualize the most attention-grabbing data in an instant and we see that it is an important source of data when used accurately. A student of interior architecture must acquire the habit of note taking by making continuous observations in his/her environment. The habit of visual note taking improves in parallel to the objectives in affective zone. The areas of interest, approaches, levels of admiration encourage people to keep a sketchbook. When a person likes a situation, he grabs the features of admiration, draws and records them into the sketchbook. In this way, people get accustomed to keeping a visual note taking after a certain time. When a physical environment is visualized by recognizing enjoyable and attractive features in a visual balance, rate/scale, visual rhythm, organization, variety and spatial arrangement.

As a result, organizing all these data and experiences via using perception is a matter of education. However, the observations concerning the environment may be organized in a

significant way as useful data and experiences by the help of a suitable education. Visual recognition happens when a person realizes the stimulant effects resulting from the environment. These stimulant effects become information and are recorded into long-term memory. The designer must have a visual intelligence, because the enrichment of a visual memory is based upon an improved visual recognition.

As a result of the data gathered in this study, it is determined that the difference acquired during this knowledge acquisition process also affects the perception of students. Besides the fact that planned use of visual expression techniques led students to have a holistic approach when perceiving, the lack of theoretical knowledge made it difficult to visualize their perceptions and focusing on background knowledge caused to have a limited representations in detail by the students.

References

- Atkinson Rita, L. vd. (1996). Hilgard' S Introduction To Psychology, Cenevre: Harcourt Press, 12.B.
- Aydınlı, S. (1992). Mimarlıkta Görsel Analiz, İstanbul: İtü Mim. Fak. Baskı Atölyesi.
- Baker, J. (1986). "The Role of the Environment in Marketing Services: The Consumer Perspective", In: Czepiel J. Et. Al., Editors, The Services Challenge: Integrating for Competitive Advantage, American Marketing Association, Chicago.
- Başkaya, A. vd. (2003). Mekansal İmaj Üzerine Bir Deneme, Ankara: Gazi Üniv. Müh. Mim. Fak. Der. Yayınları, Cilt 18, No 2.
- Behrens, R. (1984). Design in the visual arts. Englewood Cliffs, NJ: Prentice-Hall, Inc.
- Booth, R.G. (2003). Perception of the visual environment. New York: Springer
- Caudwell, C. (1974). "Yanılsama ve Gerçeklik" Payel Yayın Evi, 167, İstanbul.

Çağlayan, S. vd. (2014). Sanatta Görsel Algının Literatür Açısından Değerlendirilmesi, Journal of Research in Education and Teaching, Şubat 2014 Cilt:3 Sayı:1 Makale No: 16 ISSN: 2146-9199

Findlay, J. M. ve Gilchrist, I. D. (2003). Active vision: The psychology of looking and seeing. Oxford, England: Oxford University Press.

Gal, H. ve Linchevski, L. (2010). To see or not to see: Analyzing difficulties in geometry from the perspective of visual perception. Educational Studies in Mathematics, 74, 163-183.

Hochberg, J. (1978). Perception (2nd ed.). Englewood Cliffs, NJ: Prentice-Hall.

Lang, J. (1987). Creating Architectural Theory, Van Nostrand Reinhold, New York.

Messaris, P. (1994). Visual literacy: Image, mind and reality. Colorado: Westview Press.

Morgan, C. T. (1984). Psikolojiye Giriş, 8. Baskı.

Odabaşı, A. vd. (2002). Grafikte Temel Tasarım, İstanbul: Yorum Sanat Yayınları.

Oskay, A. vd. (2003). A Research on the effects of methods used in Architectural education on the perception level, international conference on innovation in higher education, 16-19 May, Kiev, Ukraine.

Türkyılmaz, E. vd. (2011). Bilgilenme düzeyinin algılama üzerindeki etkilerinin irdelenmesi, Mimari tasarım eğitimi:bütünleşme sempozyumu, Y.T.Ü., İstanbul.