

**AN ANALYSIS OF PERCEPTUAL PROCESSES OF STUDENTS
ABOUT THEIR SCHOOL ENVIRONMENTS THROUGH
COGNITIVE MAPPING: SCHOOL ENVIRONMENT IN
NİŞANTEPE NEIGHBORHOOD**

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by

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DEDICATION



To my beloved family and the next generation of world changers:

My future kids.

ABSTRACT

As of the 60s, Istanbul's neighborhoods started to take their form with the emergence of settlements due to rapid migration in 50s. The population in the city center did increase, and in this way, so did it disperse to the city's outskirts. Around 2010, Istanbul initiated urban development and, the neighborhood affected by the wave of urban development started in the center of Istanbul.

Nişantepe Neighborhood's urban morphology has been informally formed, neglected by government's mental decisions [1]. Thus, due to the low level of social and economic values, socially disadvantaged groups of people started to build their own houses informally without any license or permission. These informal settlements (*gecekondu*) mostly consist of local people, Romans, starting from 1980s when urbanization started [2]. Not only did the government built public housing in the neighborhood with the cooperation of TOKİ and capital investments, but also private educational buildings by 2010s started to emerge so that the land value has been increased.

Within the scope of this thesis, it is claimed that the children who grow up and go to school in such a diversly unattached settlement, which can be considered as the periphery of Istanbul, tend to be cognitively affected by the physically and socially tense environment. Since children have their own perceptual processes affected not only by social parameters considering their parents, friends, teachers, but also physical parameters considering the urban and environmental conditions around them. Though, it is supported through the

literature that the developmental stages of perception in children have an impact on shaping their future and individual behavior [3].

In this framework, this study aims to analyze the perceptual processes of middle school students particularly 13-year-olds going to the schools located in Nişantepe Neighborhood, about their school environments by comparing the perceptual and syntactic data of two different types of school environments: a private school and a governmental public school. The study is based on three datasets; the data of the spatial configuration of the schools are revealed through cognitive mapping based on the students' drawings, and the demographic data is collected through surveys filled in by the parents of the students. The research focuses more onto the physical and social characteristics considering the environments of the schools.

Within this context, the research question asks how the children, who are going to school in Nişantepe neighborhood, perceive their school environments and how the cognitive dataset obtained through cognitive mapping sessions correlates with demographic and syntactic variables. The study hypothesizes that the cognitive mappings created by children which were evaluated in accordance with Lynch's image parameters would have correlation with the demographic variables obtained in surveys and Space Syntax analysis. The mixture of land uses in the neighborhood seems to be fertile for the case study area in the research, and it would be significant to see the relationship between students at a private school and their school environment, Nişantepe neighborhood.

The study is conducted in two middle schools located in Nişantepe; one is a private school and the other one is a public school. Through data collections, parents and students

are given a hardcopy of a Google Document Survey which were prepared online to the Students of 7th Grade (13-year-old children) were requested to draw a drawing with the title of “draw your school and its environment” and it was also noted that it may include some marks/notes regarding their own emotions and thoughts on an A4 paper which would approximately take 15-20 minutes. Then, they were supposed to give them back to the teachers. The surveys were expected to be given to the *Art/Drawing Course teachers* or *responsible classroom teachers* in the scope of their homework. In the following step the surveys were evaluated through SPSS analysis and the drawings were evaluated according to Lynch’s image parameters and the spatial configurations of the schools will be evaluated through Space Syntax method. The research is expected to contribute to accordance with achieving better planned, designed, and integrated school environments within the urban context of the city.

ÖZETÇE

İstanbul'un mahalleleri, 60'lı yıllardan itibaren, 50'li yıllarda hızlı göç nedeniyle yeni yerleşim yerlerinin ortaya çıkmasıyla yeni bir kentsel form oluşmaya başladı. İstanbul'un kent merkezinde nüfus artmış, bu şekilde şehrin dış mahallelerine dağılmıştır. 2010 yılı itibariyle ise İstanbul'da başlayan kentsel yenileme projeleri, yalnızca İstanbul'un merkezini değil, çepere yayılan ve tüm mahalleleri etkileyen yeni bir mofolojik değişim süreci başlattı.

Nişantepe Mahallesi özelinde ise, mahallenin resmi olmayan bir şekilde inşa edildiği ve ağırlıklı olarak enformel konu dokusunun yer aldığı bir kentsel forma sahip olduğu belirtilebilir [1]. Mahallenin oluşum sürecine bakıldığında, mahallede ağırlıklı olarak, alt sosyoekonomik gruptan gelen bireylerin ve toplulukların yaşamakta olduğu, toplumun dezavantajlı gruplarından olan bireylerin, herhangi bir ruhsat veya izin olmaksızın, gayri resmi olarak kendi evlerini inşa ettiği bir çevrede yaşadığı ifade edilebilir. Bu gayri resmi yerleşimler (gecekondu) çoğunlukla yerel halktan olan Roman asıllı bireylerden oluşmaktadır ve 1980'lerde başlayan yeni kentleşme hareketleri döneminde bölgeye yerleştikleri bilinmektedir. Nişantepe Mahallesinde, devletin, TOKİ işbirliği ve sermaye yatırımlarıyla gelişen konutların yanı sıra, 2010'lu yıllarla birlikte özel eğitim binaları da ortaya çıkmaya başlamış olup, ve arsa değerinin bu yatırımlar sebebiyle yükseldiği fark edilmektedir.

Bu tez kapsamında, biri devlet okulu, diğeri ise özel okulda okul olmak üzere Nişantepe Mahallesi'nde yer almakta olan iki farklı okulda okuyan, devlet okuluna devam eden çocukların Nişantepe Mahallesi'nin enformel konut dokusunda yaşadığı, özel okula

devam eden çocukların ise Nişantepe’de yer alan korunaklı konut sitelerinde veya Çekmeköy’de formel konut dokusunda yaşadığı iki farklı çocuk grubunun okul çevresine ilişkin algısal süreçleri değerlendirilmektedir. Bu tür birbirinden bağımsız yerleşim yerlerinde büyüyüp okula giden çocukların, fiziksel ve sosyal olarak gergin sayılabilecek çevrelerden bilişsel olarak etkilenme eğiliminde oldukları tez çalışmasının öngörülleri arasındadır. Nitekim çocukların kendi algılama süreçleri, anne-babaları, arkadaşları, öğretmenleri gibi sosyal parametrelerin yanı sıra, fiziksel çevrelerine ait kentsel ve çevresel koşullar ve parametrelerden de etkilenmektedir. Bununla birlikte, çocuklarda algısal süreçlerin ve gelişimsel dönemlerinin, onların geleceklerini ve bireysel davranışlarını şekillendirmede etkili olduğu literatür araştırmalarında da desteklenen konular arasındadır [3].

Bu çerçevede bu çalışma, iki farklı okul ortamına ait: bir özel okul ve bir devlet devlet okulunda okuyan çocukların algısal süreçlerine ilişkin veriler ile mekan dizimi verilerinin karşılaştırarak, Nişantepe Mahallesi'nde bulunan okullara giden 13 yaş grubundan olan 7.sınıf ortaokul öğrencilerinin okul ve yakınçevresine ilişkin algısal süreçlerini incelemeyi amaçlamaktadır. Çalışma, üç veri setine dayanmaktadır; okulların mekânsal yapılanmasına ilişkin veriler, öğrencilerin çizimlerine dayalı bilişsel haritalama yoluyla ortaya çıkarılmakta olup demografik veriler, öğrenci velileri tarafından doldurulan anketler aracılığıyla toplanmaktadır. Araştırma, okulların bulunduğu yakın çevreleri dikkate alınarak, çevrenin ağırlıklı olarak fiziksel ve sosyal özelliklerine odaklanmaktadır.

Bu bağlamda araştırma sorusu, Nişantepe mahallesinde okuyan çocukların okul ortamını nasıl algıladıklarını ve bilişsel haritalama yoluyla elde edilen veri setinin

demografik ve sentaktik deęişkenlerle nasıl iliřkili olduęunu sorgulamaktadır. alıřma, Piaget'nin biliřsel alan parametrelerine baęlı olarak, ocuklar tarafından oluřturulan biliřsel haritalamaların, anketlerde ve *mekan dizimi* analizinde elde edilen demografik deęişkenlerle arasında kurulan korelasyonlar aracılıęıyla incelenmektedir. Mahalledeki arazi kullanımlarının heterojen yapısı, arařtırmanın rnek vaka alıřması iin verimli bir saha nitelięindedir. Bu baęlamda, faklı biri devlet okulu, dięeri ise zel okul olarak seilen iki farklı fiziksel evrede eęitim gren ocukların okul evrelerine iliřkin algılarını lmenin, gelecek arařtırmalara katkı saęlayacaęı dřnlmektedir.

alıřma, yukarıda belirtildięi zere, Niřantepe Mahallesi'nde yer alan iki farklı ortaokulda yrtlmř olup, Veri toplama yoluyla, velilere ve ęrencilere evrimii olarak hazırlanan Google Dokman Anketi'nin basılı bir kopyası 7. Sınıf ęrencilerine (13 yařındaki ocuklar) verilmiřtir. ęrencilerden, “okulunu ve bulunduęu evreyi iz” bařlıklı bir soru sorulmuř olup, bir A4 kaęıda yaklařık 15-20 dakika sre boyunca izim yapmaları istenmiřtir. ęrencilere, izimlerine, kendi duygu ve dřnceleriyle ilgili notlar/iřaretler ekleyebilecekleri belirtilmiřtir. alıřmalarını tamamlayan ęrenciler, kendilerine teslim edilen anket formlarıyla birlikte, izim alıřmalarını ęretmenlerine teslim etmiřlerdir. Okul ve evresine iliřkin algısal parametreler, Lynch'in mge/imaę parametrelerine dayanılarak, ęrencilerin ortaya koyduęu alıřmalardan elde edilmiřtir.

alıřmanın dięer veri setini ise, iki farklı okulun sentaktik parametreleri oluřturmuřtur. Okulların meknsal konfigrasyonlarına iliřkin hazırlanan eriřilebilirlik (accessibility) ve eřgrř (isovist) grafları aracılıęıyla her okulun dizimsel veri setleri ortaya konmuřtur. alıřmanın analiz ařamasında ise, biliřsel haritalardan elde edilen frekanslar ile

mekânsal dizim analizleri sonucunda elde edilen sentaktik frekanslar arasında bağıntılar kurulmuştur. Araştırmanın, kentsel bağlamında daha iyi planlanmış, tasarlanmış ve bütünleşik eğitim mekanlarının elde edilmesine katkı sağlaması beklenmektedir.



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CHAPTER I

INTRODUCTION

1.1 The Scope of Study

Human perception in general has been discussed in the literature on psychology. One of the prominent psychologists Piaget [4], argues that perception has a relation with intelligence and knowledge. On the other hand, Carbon [5] discussed human perception with the illusion of images which has a connection with comprehension. Experiences regarding human perception have been observed with tactile sensory and objects [6, 7] as well as preferences in terms of tastes whether they can be subjective or objective [8, 9]. Scientifically, it is emphasized in studies which showed the infrasonic and ultrasonic ranges whether humans can perceive or not [5, 10]. Further topics about the illusions that experimented for the perception have been suggested in the studies with their own methods [4, 11].

Children's perception has been acknowledged to be the main core of human perception which is the starting point of understanding the world [12, 13]. The theory of human behavior and environment has discussed that there are various factors which affect children's behavior as well as the broader information concerning the relationships between behavioral and environmental variables since they affect the development of a child [12].

Studies argued the school environment and classroom environment with an observation of a classroom, and it is discussed whether the observer's environment perception is objective or not [12]. Children between the age of 4-17 have been mentioned in the studies of children's environment related to places that they prefer to spend their own time [14]. Schools in

Istanbul in different settings have been studied particularly in the outskirts of the city of Istanbul which covers the socioeconomic status of the children's living environment correlated with their school [3]. Therefore, the study aims to be a useful source and to contribute the literature in the studies of children's perception of the school and its environment as it will also demonstrate an investigational and analytical approach to examining the spatial configuration of the school and its environment, it might help the future designers have a vision for better-planned school environments.

1.2 The Aim of Study

The study hypothesizes that the cognitive maps created by children which are evaluated in accordance with Lynch's image parameters would have a correlation with the demographic variables obtained in surveys and Space Syntax analysis. The mixture of land uses in the neighborhood seems to be fertile for the case study area in the research, and it would be significant to see the relationship between students and their school environment. The case study was conducted in two schools in Nişantepe; one is a governmental school named Nişantepe Middle School and the other is a private middle school named Derya Öncü Middle School. The research question asks how children perceive their school environment and how the dataset obtained through cognitive mapping correlates with demographical and syntactic variables considering the accessibility and isovist parameters of the school environment.

The aim of the study is:

- to analyze the perceptual processes of middle school particularly 7th Grade students (13-year-old) about their school environments by observing their cognitive data and analyzing

the physical characteristics of their school environments related to the socioeconomic conditions of the students,

- to analyze the spatial configuration of the school building with its garden through cognitive mapping drawn by students,
- to focus more on how the school environment is perceived and Nişantepe Neighborhood is determined as the case study environment of the research,
- to examine correlations between two quantitative datasets regarding the cognitive data and the syntactic data of the school environments.

Through the results revealed, it is investigated whether the outcomes of the study may contribute to the social sustainability of Nişantepe Neighborhood in accordance with achieving better planned, designed, and integrated school environments with the urban context of the city.

1.3 The Method of Study

Through data collection, parents and students are given an Online/Printed Google Document Survey to be filled. The parents answered the questions in the survey regarding their socio-economic situation such as the neighborhoods that the families are currently living in, house types, etc. they live in. Furthermore, since this research is based on voluntary participation, the consent of the parents regarding the participation of their children to participate was taken in advance. Students in 7th Grade (13-year-old children) were requested to draw on an A4 size of paper with the question asking them to “draw your school and its environment” which approximately took 15-20 minutes of them. The surveys were expected to be given to the Art

or Drawing Course teachers (if there is no such course it can be directly given to the parents) within the scope of their homework.

The data was collected from both the students of 7th Grade and their parents. The method of reaching the participants is conducting an online or offline survey in line with the official decisions by the Ministry of Health due to the pandemic. Students did not make any extra physical effort during the research. During the study, no dialogue was established with the students to not cause any change in their cognitive and emotional moods. Therefore, the case study did not affect their physical, emotional, and cognitive status. The participants were informed by the school management and teachers before the survey. In addition, the survey form was filled out by the child's parents first. Since cognitive mapping was conducted with the children who let their children participate in the study, children were also informed about the study through their parents. This research was based on the voluntary participation of the children and was documented through an approval consent form that was filled out by the parents. It was assumed that students would gain awareness about their schools and their nearby environment through this study. In addition, this case study can be considered a useful study process for students, as the students participating in the research participate in a creative study and thus can express themselves. After participation in the survey, there was no need for feedback since there was no confidential information to be kept from parents and children.

The methodology of the research was consisted of three stages:

1. First, it was started by the evaluation of the surveys using various types of charts through descriptive analyses. Besides, the cognitive frequencies revealed by cognitive maps were taken into consideration as the dependent variables of the study and these were used in the regression correlations. Thus, dependent variables are comprised of gender, number

of siblings, education level of parents, the distance between child's house and school, house type, number of rooms, balcony, room, child's own balcony, location of the student's classroom, transportation, sitting location in class, short break location, short break activities, short break friends, long break location, long break activities, long break friends. Independent variables, on the other hand, are comprised of syntactic parameters of the two school environments separately: the values of integration, visibility, and connectivity.

2. Second, it was continued by the evaluation of the spatial configurations of the school using space syntax method, analyzing syntactic parameters regarding the accessibility and the isovist parameters of the school environments.
3. Lastly, all outputs were collected for the correlations of the dataset obtained from cognitive map drawings with the syntactic and demographic analysis.

Since this research is based on a comparative analysis, the correlations between datasets obtained from cognitive mappings, syntactic and demographic analysis were analyzed for significant correlations in the probability level of 0.05 ($p < 0.05$).

CHAPTER II

CHILDREN'S SPATIAL PERCEPTION PROCESS

This section explains the subtopic of children's spatial perception process starting with the definition of perception first in how humans perceive followed by the children about how they perceive. Second, the theories on children's spatial perception put forward by prominent scholars such as Jean Piaget and Urie Bronfenbrenner are discussed. Third, this section discusses the child and developmental stages considering their psycho-social, emotional, social, and cognitive developments. Fourth, children's spatial perception is discussed with the children's spatial representation development.

2.1 Definition of Perception

This section describes the definition of perception with the following related questions about how humans perceive. It is more into the general human's perception of the world with common sense in every age group. The literature review topic regarding perception is as follows:

- Gestaltian approach in perception
- Transactional approach in perception
- Ecological approach in perception
- Cultural approach in perception and lastly as a recent topic,
- Neuroscientific approach in perception using technological advancement will be discussed.

However, the following question is about how children perceive. Since the inner world of children is different from adult's, it seems to be vital to categorize every age group within the children as it changes along the development stages as well as the perception.

How Do Humans Perceive?

Human perception has been discussed among psychologists and architects, particularly in the perception of space and nature. Various types of approaches in perception are categorized and discussed below according to the authors as follows: (1) Gestaltian Approach, (2) Transactional Approach, (3) Ecological Approach, (4) Cultural Approach, and (5) Neuroscientific Approach.

2.2 Perception Theories

The studies of perception theories vary in terms of approaches. In this section, five different approaches in perception put forward by the scholars and psychologists who worked on specific topics are demonstrated through the chapters below.

2.2.1 Gestaltian Approach in Perception

One of the pioneer scholars of psychology, Kohler [15] contributed to the Gestaltian approach and developed the theory of insight learning through the experiment with apes. Since there is a similarity in features psychologically to humans', apes can experience a flash of insight as much as humans do. In the study of Carbon [5], he discussed the human

perception topic with visual illusions such as Gestalt-based images that can assist to comprehend the magic of perception. He, then asserted that illusions are parts of our lives which can kill time and they are solely created to intrigue people's attention with playful illusions. The argument continues with the importance of illusions in the perceptual system that in fact, we can interpret quickly and intuitively, while we face them in everyday culture. Human perception, illusion, eyewitness, percepts, proof, factual knowledge than having perceived of. The link between perception and physical reality is strong for the visual sense trying to touch to analyze haptically. Touch seems to be a more convincing perceptual experience in terms of physical proof [6]. Our perception is mostly very reliable and objective [7]. The perception toward objects is different, some may think that the world is flat, and others think that it is spherical [16].

Even if we have access to given information from the environmental world, it would be an illusion to think of "objective perception" of it- differences in perception across different individuals seem to be obvious: this is one reason for different people, the perceptual having different tastes, but it is even more extreme: even within a lifetime of one person, the perceptual qualities and quantities which we can process change [5]. Objective perception is impossible, it is an illusion since there is a cycle of preferences [8], and changes in tastes [9]. Gestalt concept, "physical perception" and "constructed perception" are not a depiction of physical reality, but is constructed by top-down processes based on the guess heuristic as a kind of hypothesis testing or problem-solving [11].

2.2.2 Transactional Approach in Perception

In the transactional approach, Pallasmaa [17], describes all the sense-related qualities with the details of materials and experience related to interior space with the sense of sound, smell, sight, touch, taste, and movement of the body. He suggested the relationship between construction and body. As the body moves around the space touching the materials, muscles execute the movement subsequently. This experience is fully unified as sensory experiences which create memories of the interior architecturally. It is essentially perception based on experiences.

The transactional approach in perception refers to the idea that perception is a dynamic interaction between the perceiver and the environment, where both influence and shape each other. This approach views perception as a transaction between the individual and the environment, rather than a passive reception of information [18]. The perceiver actively seeks information, and the environment provides it, and the interaction between the two perceptions [19].

This approach emphasizes the active role of the perceiver in shaping their experience of the world [20], and recognizes the influence of contextual factors, such as the perceiver's past experiences, expectations, goals, and motivations, on perception [21]. The transactional approach also recognizes that perception can vary from person to person, and that there can be multiple realities, as perception is not solely a reflection of the objective physical world, but also depends on the perceiver's interpretation of it [22].

2.2.3 Ecological Approach in Perception

When reviewing the ecological approach in perception studies, Gibson (1966) asserted that there are various factors in how humans perceive. In his studies, detailed information regarding the five senses of attention: smelling, listening, looking, touching, and tasting are coined in a way that each different sensory organ of humans particularly described in how they work on specific occasions to receive the information. In the light of perception, psychologists have studied the common point of how perception can emerge in the mind [4, 23]. Gibson [23] pointed out that everyone's perception is reflected by their environment with their own memory of exposure. Gibson has developed an ecological approach which is regarded as a revolution in psychology. Even though the main approach is mainly the analysis of environment, it turns out that it also relates to the view of person-environment which involves significantly with epistemology and psychology, particularly it advanced the studies of environment-behavior and environmental design [24]. Gibson [22] put forward the importance of the ecological optics with the analysis of interactions between environmental surface layout and light in such environment brighten up and filled with reflected light on surface resulted ambient optic array, so that it provides information regarding the environment for the perceiver [24].

On the other hand, regarding the environment and behavior studies, the ecological approach has various implications for perception within the framework describing the environment and it has two different tendencies between the individual and environment related to the theories of perception [24]. This approach emphasizes the role of the environment and the organism's interaction with it in shaping perception. This approach

argues that perception should be understood in terms of the information available in the environment and the observer's adaptive response to that information [22]. Gibson viewed the organism as an active part of its environment, perpetually receiving information through its sensory channels. He introduced the concept of "affordances" which are the potential actions that the environment offers to the observer [23].

The ecological approach also underlines the importance of direct perception, which pertains to the idea that perception is instant and direct, rather than being mediated by mental processes or unconscious deductions [22]. This point of view emphasizes the physical information in the environment that is directly available to the observer, rather than indirect or symbolic representations [21].

In addition to Gibson's studies, he highlighted three determinant factors of perception for how much it depends on organs, growth, or experience of the individual. In this case, Gibson [23] discussed the mechanisms of perception between acquired (learnt) and innate (genetic) which have factors of development types: growth and maturation.

It is observed that the ecological approach applied to the environment for children successfully showed the tendencies of children's activity but indeed it also applies for the individuals who utilize the environment (**Figure 1**). Ecological approach in terms of implications for the future has great extent to assist the environmental behavior study for the fact that it has inclusive approach in both perception and cognition which evidently related to environmental information.

Ittelson [25] discussed the urban experience related to environmental perception within the context of the change in the city itself. However, he also added that the concept of perception within the environmental perception does not merely depend on the interpersonal,

physical, cultural, and environmental aspects, but also depends on the status of the individual such as actions, needs, cognitive processes, motives, and so forth.

2.2.4 Cultural Approach in Perception

As for the cultural approach in perception, Rapoport [26] asserts that the built environment is shaped according to the human's social status individually. Human behavior hence provides a clue to the process of finding solutions for the environmental conditions in particular settings. Rapoport pointed out that stimulus obtained from the environment has vital impact on the perception. Thus, he claims that cultural components should be associated with perception. In fact, behavior patterns that created by individuals who have common culture, asserted to have effect on perception that to adapt the living environment they make changes and regulations [3].

Rapoport [27] , emphasized the terms of homogeneity and cultural landscapes in a way that such homogeneity, residential areas shaped by people's cultural knowledge need to be developed so that the area could have clearer character and meaning in terms of human behavior and personalization, especially in heterogeneous areas which are in opposition. The case of character is not merely about individuals but rather groups. In addition to that, cultural landscapes are defined as the garden of residential areas.

In the study of Rapoport [28], the process of evaluation judges the character of areas, and groups of people were observed in slums in the US by evaluating the use of materials such as the originality (fake plastic coating brick patterns). Even though slums are greatly improved now, they are still stigmatized as "bad" areas. We can put forward that the study

has shown how materials used in houses can be stereotyped. In other words, classifying the group identity can be based on materials in the living environment. On the other hand, Rapoport [26], inferred the meaning of space by pointing out the important aspect of the environment: space. He mentioned that space is beyond the three-dimensional physical space so that it contains many contexts which deal with spaces related to the fundamental design of space. He then mentioned a conceptual map based on Sonnenfeld (**Figure 1**) regarding the spatial environment categorization in order from the outer section.

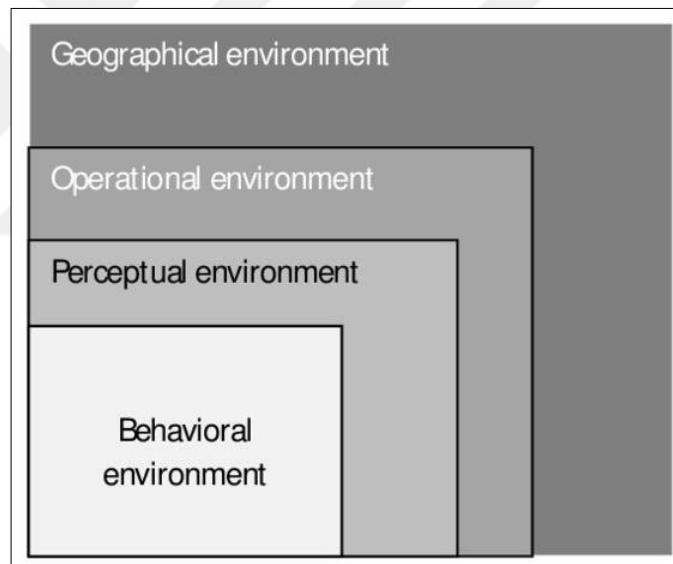


Figure 1: Human Environmental Types (Sonnenfeld, 1972)

2.2.5 Neuroscientific Approach in Perception

In the study of the neuroscientific approach in perception, Spence [29] put forward multisensory experiences. He discussed the importance of architectural design practice which has a vital connection with the role of the human senses. A space that humans perceive is regarding atmospheric interactions or cross-modal environmental attributes such as lighting,

color emotion and thermal comfort, and between sound and the perceived public areas [29, 30]. In other words, cross-modal correspondences with the multisensory integration in the human body. The study of Manav et al. [30] conveyed information regarding space perception depending on color emotion. This experimental research is conducted in the research statistically and the results showed that a light-yellow room has a more “stimulating” impression than a light blue room while the average responses were commonly on the “intimate” impression. The recent studies of cognitive neuroscience grow with the multisensory perception or experiences to enhance the development of built environments and urban spaces that can do a better job of encouraging our social, cognitive, and emotional well-being [29, 31]. Therefore, the design purpose is not only based on appearance but also on experience.

Recent studies still try to approach the relationship between architectural spaces and human emotions by focusing on the geometrical aspects. The studies that were conducted by technological advancements of psychological sensors such as VR (Virtual Reality), ET (eye-tracking) devices, GSR (Galvanic Skin Response), and EEG (Electroencephalography) to measure the outcomes through both qualitative and quantitative data through architectural spaces to be experienced in virtual environments [32-34].

Shemesh & Grobman [34] studied the human perception on space through exploring reaction towards different kind of geometries of spaces with participants consisted of experts (designers) and non-experts (non-designers). The study illustrates the development of neuroscience in a way that architectural space has connection with human feelings. It is conducted in a 3D virtual environment using VR in the first stage and on the second stage other measuring devices utilized, such as eye tracker device, EEG (measures the electrical

activity of brain), and EEM (emotional engagement measurements). To conduct the experiment, four distinct types of virtual environments were built, such as the regular symmetrical space, rounded space with dome, sharped space, and curvy smooth space. The results showed the *liking score* of non-experts have no preference towards symmetrical spaces but more towards curvy spaces while experts have interests towards sharped spaces. The initial assumption contradicted the results, since it was hypothesized that non-experts would feel pleasant in a familiar space (regular square symmetrical space). Neuroscientific studies, thus, have potential to contribute to architectural design awareness towards users optimally [33].

In recent studies, Shemesh et al. [32], applied the same methodology to the study using measurements devices such as VR, EEG, and GSR (galvanic skin response) devices. However, the VR environments are distinct from the previous studies. In this study environments are rather more detailed: have various types of space such as protrusion and curvature spaces are used with different proportions and scales. In general, the study has a relation between human emotions and architectural spaces in the hope to flourish architectural design and neurosciences into the experimental sciences of neuro-architecture field.

Human perception, even if it might seem simple from the outside, has indeed much more complicated notions. Piaget [4] conveyed that perception sometimes can be problematic while integrating with intelligence. Since the perception might have come from the experience of ourselves that is embedded in our knowledge. Knowledge in this case has been processed within structures which are figurative for instance in perceptions and, consequently operative, the structures of operations or actions. As an essential figurative knowledge which

has been in discussion of configuration in the scientific disciplines, geometry plays a primary role [4].

2.3 How Do Children Perceive?

Children's characteristics and behaviors are related to the fundamental ground of human behavior and environment: children's behavior, environmental influences of parents, peers, school, and culture. The environment was considered exclusively in interpersonal and social terms. In recent years, researchers such as Hebb, Hunt, Fiske and Maddi, and others have conducted studies that have made aware of the impact of environmental factors and distractions on child development. This has led to a more comprehensive understanding of the relationship between environmental and behavioral variables and their influence on the developmental process of children [12].

The study of behavior is commonly based on the child due to the importance of the development stage at the time which affect the perception toward the outside world. The study of Barnikis [35] aims to (1) explore how children perceive as they experience two different settings of learning environments, and (2) through this research data, to set up children as a qualified expert regarding their lived experiences. Barnikis [35] argued that the questions related to the learning environments of children are still open-ended because the issue of power imbalances comes around within the classroom. The power imbalance issues were explored through children's pedagogical practice, descriptions of space, and decision-making that has an impact on their curriculum. By recognizing children as capable social agents, educators have the potential to challenge the conventional view of children as

helpless, reliant, and inexperienced. This shift in perspective can lead to a society that acknowledges not only the beneficial influence that adults can have on children but also the positive impact that children can have on adults, educational practices, and society as a whole. Such a society would value children as important and engaged members of the present, rather than solely as future citizens [35].

2.3.1 Jean Piaget's Approach on the Psychology of Intelligence

Piaget [36] suggests that the psychology of thought must start from the point of nature of intelligence considering it both ways as logical and biological. In every human response, it is essential to deem whether it is an act as a response internalized as thought or an act as a response towards the outside world, which shapes by adaptation or re-adaptation. Piaget mentioned intelligence and perception that he described perception as the knowledge that we have about objects or their movements that we see directly while intelligence is the knowledge acquired from the deviation of objects in terms of the increase in spatio-temporal distances in which the distance between subject and object. In the following section, Piaget's study will be mentioned regarding child development.

2.3.2 Urie Bronfenbrenner's Approach on Human Development

Bronfenbrenner mainly studied human development within the relationship between families and society which has a connection to child development. Bronfenbrenner [37] criticized psychological research conducted in artificial settings. Though, his aim is to study children's

natural behaviors. Bronfenbrenner [38] contributed to creating a new study field in human development, he then combined all the professions such as psychologists, sociologists, anthropologists, etc. to make a connection altogether [39]. All this connection relates to the study of Bronfenbrenner's "Ecological Models of Human Development", he emphasized the importance of the ecological models in terms of environments as contexts of development as follows: microsystems, mesosystems, exosystems, macrosystems, chronosystems.

- **Microsystems:** A pattern of activities regarding with interpersonal relations and social roles that are experienced by the developing person in a setting of face-to-face with social, physical, and symbolic features within a complex activity in and interaction with the immediate environment [38].
- **Mesosystems:** Systems of a developing person consist of processes and linkages that happen in two or more settings (e.g., relations between school and workplace, home and school, etc.). Specifically, it is a system of microsystems [38].
- **Exosystems:** Systems consisting of two or more settings that do not contain the developing person's lives, however, which indirectly influence the developing person (e.g., for a child the relationship between the parent's workplace and the home; for a parent the relation between the neighborhood peer group and school), [38].
- **Macrosystems:** Systems that consist of all types of subsystems, particular belief systems, customs, material resources, lifestyles, bodies of knowledge, hazards, life course options, and opportunity structures that cover every aspect of these more extensive systems [38].

- Chronosystems: Systems that consist of change in time not only human characteristics but also surroundings of human's living area such as socioeconomic status, family structure, location of residence, employment, etc. [38].

2.4 Cognition and Cognitive Mapping

The sensorial information we get from milieu becomes a part of our perceptive and in time, with the new experiences in the same milieu, we recall the information all over again. This information is saved in our memory to be used on various occasions. In other words, we become more acknowledged and more aware of the milieu as well as have more knowledge that in our remembering. Therefore, the spaces would be more familiar in time which pass through the information processing due to our cognition that is saved and recollected in our memory. Information processing involves coding and sorting according to the categories in accordance with our personality and past experiences. The information about the milieu is stored in our minds and remembered. We can reminisce the information about the milieu that we have in our mind by decoding the information while we travel or describe the milieu to other people. All these psychological information processing activities allow gathering of various imageries, cognitive mappings and information related to the milieu [3, 40].

Studies regarding the cognitive mapping concepts have been explored by the experiment with rats conducted in a labyrinth to achieve food box reward. The outcome gave the concept in how human receive the information, how they build sort of mapping with system and schema in their minds [41]. On the other hand, some studies also show that cognitive mapping is used as and structure of thinking in our minds as problem solving

method [42]. Using cognitive mapping has several steps to be done in the right way: starting with note taking as well as questioning every aspect of the problems to be solved and then understanding the data collected. Within the structure of all the data, it is possible to get insights from the analysis of maps and thus, potential actions plan can be also provided through cognitive mapping method.

2.4.1 Piaget's Theory of Cognition

Piaget identifies himself as an epistemologist and is interested in the structure of human psychology in how it changes in time, especially the history of scientific information [43]. He asserted that the focal point of the study can be found clearly in child development. During the initial stages of his work, the individual concentrated on the relationship between parts and wholes, examining the organization of these connections and the equilibrium between them, much like the Gestalt theorists. While he appreciated the structuralism promoted by Gestalt theorists, he also expressed dissatisfaction with their failure to address transformation, innovation, and growth [44].

Piaget also places a significant emphasis on the concept of "intelligence". He suggests that intelligence is not solely derived from either internal or external factors, but rather emerges from the interaction between physical actions, objects, and human elements in the environment [43]. In Piaget's view intelligence involves the adaptation of the individual to their surroundings [45]. He defines intelligence as the capacity for action, which is separate from perception but is constantly evolving and enriched through the developmental process [45]. Piaget also asserts that, although perceptual activity in children is less stable and

dependent, they learn to correct distortions and overcome illusions as their intelligence develops.

2.4.2 Cognitive Mapping

In the psychology of Piaget's approach towards the child, as other psychologists portrayed, the child is an active and curious creature that endeavors to create a balance between his/her inner world and the outer world surrounding rather than being a passive [46, 47]. Human cognition is related to the environment where it takes place to experience surrounding material. Thus, the image shaped in the mind forms into meaning in accordance with experience at the time. Everyday life has vital connections in this sense that the process of making sense in terms of material comes from behavior that happens within that surrounding so that the people's social universe shaped by the image which presented by places become a single segment along with social space [48].

Humans create meanings with the process of scanning material setting. Essentially, the material setting, the manmade built environment as opposed the naturally built environment produced by nature correspond to the resultant of the objectification of social person who could modify natural substance into material objects and invest the objects with meaning [48]. In this case the social pattern of humans affects the way they look at the material during the event within the environment.

In social interaction, people tend to talk and reflect on material objects and talk about them in such a way that they finally behave as if they were things aside from their own individual actions [48]. Duncan [49] pointed out that, men name things, relationships, and

events by creating symbols in communication so they could act together. Hence, in accordance with this manner, human name relationship to shape natural material into physical human objects so that the objects indicate and involve social experiences. People act out their performances upon the stages they make up which the objects in this case become communication tools for signaling social interactions [48].

2.5 Child and Development

Development is a constant recording progress of organism, growth, maturity within the interaction of knowledge [3, 50]. According to Senemoglu [50], there are universal principles in development as follows:

- Development is a product of the interaction of heredity and environment: Hereditary characteristics such as hair color, eye color, gender, body shape is directly transmitted to the child. While some features emerge as a product of interactions with the environment.
- Development is continuous and takes place in certain stages: Development is a forward, cumulative process, preparatory to the previous stage.
- Development continues in tandem: At some stages of development, some developing areas may pause and precede the others.
- Development is from head to toe, from the inside out: In the development process, first the head, then the control of the other organs, as well as the development of the internal organs and then the arms and legs that extend to the outside world.

- Development is from general to specific: While the child first uses her whole body during an action, later, with his/her fine motor development, he/she becomes able to use his/her organs specific to more specific actions.
- There are critical periods in development: In some periods of the development process, the child is more sensitive to environmental influences and has a greater tendency to learn certain subjects.
- Development is a whole: All areas of development interact with each other; A positive/negative situation in one development area also affects another development area.
- There are individual differences in development: Development is a product of the interaction of maturation and learning. While heredity affects maturation, learning is determined by experiences obtained because of environmental interactions. As everyone's genetic characteristics are different, the environment they interact with is also different. For this reason, it is natural that there are differences in the development of individuals [50].

Children have their own way of learning process from others (e.g., teachers, friends, family members) through involvement in various interactions with them as interacting with wiser others which can enhance the ability of observing and executing skills for cultural practices on their own [51]. Such selective social learning can also create the awareness of what makes a wiser other. On the other hand, with this information they utilize to determine whether it is suitable for replacement of opportunities for learning socio-cultural practices

and norms [51]. The learning process from other of children seems to be related to the nature of themselves observing the world, receiving the information, investing the knowledge, and experimenting the knowledge on any situations they thought to be suitable for sociocultural environments.

Jensen et al. [52] expressed the importance of global child development in terms of different levels of income of countries. It is highlighted that, most of the research about child development conducted in high-income countries and portrayed mostly educated, wealthy, educated, western, industrialized, and democratic population. In recent years, studies have made efforts to accumulate and convert the data, and to put forward with advanced methodologies such as neuroimaging, app-based technology, and eye-tracking system to new framework that are happening globally.

2.5.1 Theories of Human Development

Just like other development theorists, Piaget [53], who accepts learning as the basis of development, explains development as the sum of separate learning experiences together with knowledge and learning.

Like Piaget, the important theorists Sigmund Freud and Erik Erikson divided human development into stages. Piaget is concerned with perceptual and mental development, Erikson is concerned with psychosocial development, and Freud with psychosexual development. It would be useful to briefly touch upon the developmental studies of Freud, who directed the work of important theorists such as Erikson. Erikson's psychosocial theory will be discussed under the title of psychosocial development.

In his psychosexual theory, Freud primarily mentions three concepts that exist in the human personality. These; id, ego, and superego. According to Freud, children experience a conflict between their biological and sexual desires and society's expectations, and they try to resolve it. He argues that each of these conflicts is in a specific region of the body, and that libido is focused on a body region in each period. He calls these psychosexual stages [54].

2.5.2 Child's Physiological Development

The words growth and development, which are often confused with each other, are different concepts. "Growth", which expresses the structural increase, includes quantitative changes in the body, and "development" includes the quality as well as the quantity of the changes. The child not only grows physically, but also changes in the size and structure of his brain and internal organs. It is possible. As a result of the development of the brain, an increasing ability to learn, remember and reason occurs in the child [55].

Physiological development includes both physical development and motor development in children. physical development: It refers to the increase in height and weight, the development of all organs that make up the body, the development of muscles, bones and all systems (such as digestion, excretion, circulation, respiration) [56]. The periods when physical development is the fastest, infancy, pre-school, and adolescence.

Babies are born with certain reflexes. These reflexes such as catching, and sucking are involuntary reactions of the child. Motor development occurs when these reflexes are

replaced by voluntary movements. Motor development in humans also progresses in parallel with physical development [47].

Oz [57], who agrees with Yavuzer [55], and states that the child develops mentally in parallel with physical growth, stated that the experiences and experiences that motor development gives to the child also lay the groundwork for his cognitive development. A study in Cuba shows that nutrition plays a huge role in the growth and development of children in terms of quality of life and well-being [58]. Physical attributes of children in this case associated with socioeconomic groups as they aligned with social variables, economic, and health which suggested to be studied further.

2.5.3 Child's Psycho-social Development

The psycho-social development of the child develops in parallel with the physiological, movement, sensory and cognitive development. The child, whose social environment expands as he gets older, tries to adapt to the environment with his own experiences and values. Children who start their pre-school education experience the social environment that they cannot acquire from their home environment with their peers in these centers.

In early childhood, the child's many relationships with other people increase his social development. For this reason, children who go to kindergarten show a better social adjustment than children whose social activities are limited at the level of family and neighbors, as they will establish many relationships with their friends [55]. Erikson, who is a psychoanalyst like Freud, has brought a different perspective to the subject by processing

the human life cycle and psychosocial development together with personality. Erikson is based on Freud's theory, but there are some points where he differs.

Unlike Freud, he believes that an individual's character is not formed irreversibly in childhood but is pregnant with profound changes at every stage of life [59]. Each stage of personality development created by Erikson has negative as well as positive content. He contributed to psychoanalytic theory by examining the psychosocial development of the person and by developing the work of Freud. He argues that personality development is a lifelong process and examines the whole life by dividing it into eight periods.

The study of Lloyd-Fox et al. [60] with infants from 5 to 8 months in Gambia and the UK highlighted the health and socio-economic challenges e.g., undernutrition/poverty that correlated with the responses of infants in terms of habituation and novelty. Results show that the habituation and novelty patterns started from 5 to 8 months in the UK are healthier than Gambia. Assessment of the study has been conducted through *Functional Near Infra-Red Spectroscopy* (fNIRS) which authors mentioned one of the main aims of the study is to introduce fNIRS as universal assessment tool that has vital role for such investigation on cognitive development studies. Like the previous study, Perdue et al. [61] examined children at 6 and 36 months old in an urban slum of Dhaka, Bangladesh regarding the social information processing by experimenting the metabolic responses of brain to nonsocial and social stimuli. It pointed out that the quality of social environment such as malnutrition, poverty, maternal stress, maternal education, and caregiving environment have vital impact on the social brain development of children [61, 62].

2.5.4 Child's Emotional and Social Development

Excitement can be defined as "stimulation of the whole organism", "pervasive activity of the whole body" or "the body's global response to a particular stimulus". Emotions and emotions that occur at various levels from individual to individual are behavioral expressions that can be measured and observed by others [3]. The theory of Erikson underlines the importance of child and mother relationship in the first two years of a child and this period also a vital starting point of child's emotional and social development gaining trust with attachment of mother altogether with the interactions in between them [3] .

According to Theemes [63], outdoor play is a fundamental factor and plays a big role in social development of child. Child discovers, explores, and experiences new knowledge and skills by playing and it is the best for their learning, by expanding whole knowledge children can develop themselves. The basic features in play are: (1) The play is satisfying and fun, children can play as much as they can until they get disturbed, even so they can restart from the beginning. (2) Children want the play to be within themselves in freedom, they can lose their interest when they have limitations such as rules given by their parents. (3) Playing has a time period itself within the child's engagement and it is rewarding enough, and gives pleasure to them, unless they get to play to be rewarded by parent's desire to do something. (4) Play is challenging and engaging for the child so that it should be intriguing by not causing any stress. (5) Play is creativity for the child. A simple and ordinary piece of grass for adults can be a very rich space of play of swamp during the play.

2.5.5 Child's Cognitive Development

Cognitive development describes the development of concepts, thinking abilities, memory, reasoning, and various other internal mental functions. Initial perception, cognition, movement developments and related cognitive developments are closely related and interdependent. Initially, the infant pays selective attention to aspects of his environment, depending on his innate perception preferences. Later, perceptual preferences are increasingly affected by learning and experience [64].

Initially, the infant does not have “knowledge” about the world and is insufficient to “take informatics” about the world. However, he gains the ability to perform “advanced mental processes” such as informatics with the experience and learning he has gained over time. Thus, they can also perform internal representations of external objects and events [47].

According to the health category of research regarding cognition, it is essential to give importance to socioeconomic situation [62]. It is shown that poverty affects children's development on brain and academic achievement. The poorer place they live in, the lower grades they get at school. In other words, brain structure developed regarding environmental conditions of poverty such as nutrition, limited amenities, and stress. The study suggested that interventions to improve children's environment may transform the connection between childhood academic achievement and poverty and deficits [62].

2.6 Children's Spatial Perception

Space is a three-dimensional expression of the spaces, distances, and relations of man with man, man with object and object with object, in short, the space that surrounds us. For this reason, spatial organization is a much more fundamental feature of the environment than other features that give it its physical expression, such as form and material. Space organization is provided by its form, mass, limiting and dividing elements, components, color, light and texture. The organization of the space also carries a meaning. But the organization of meaning is distinct from the organization of space, both tangible and conceptual. Environmental meaning is mostly provided by indicators and symbols and the changeable features of the space, color, texture, equipment, accessories, ornaments, etc. For a person, these are posture, status expressions, proxemic, kinesthetic and other nonverbal communication tools [65].

Piaget and Inhelder [66] discussed that there are three types of relations in the child's perception of space: (1) topological, (2) projective, and (3) euclidian (metric). Piaget's notion of topological relations refers to qualitative relationships internalized by children towards objects (**Figure 2**).

Projective features arise from the integration of actual and imagined perspectives, with their foundation relying on elements like straight lines, triangles, and parallel lines. These geometric figures maintain their characteristics despite changes in perspective. On the other hand, Euclidean or metric properties necessitate the fusion of concepts such as straight lines, distances, measurements, similarities, and angles into a cohesive operational

framework. Additionally, metric properties encompass the notions of relative distances, sizes, and comparisons based on ratios.

The child's perception of space initiates when they become aware of object permanence, usually around the age of 1. At this stage, the child comprehend that an object still exists even when it is not currently visible to them. This awareness prompts the child to begin forming connections between objects, gradually shaping their mental representation of the spatial world as an organized arrangement of forms [3, 40]

Piaget observed three types of relationships in a child's perception of the surrounding world, encompassing objects and space. Starting from the age of 2, children acquire an understanding of relationships like *proximity*, *separation*, *continuity*, and *enclosure* within the realm of space. They naturally recreate these relationships in their minds and depict them in their drawings as they continuously develop their understanding. As children grasp the precise distances between objects, they can represent these relationships in their drawings, even with some distortions due to their own perspective rules. Piaget labeled this period as the period when children comprehend projective spatial parameters. In the concept of euclidian (metric) space, children begin placing objects within a fixed *cartesian* framework and can accurately express areas distances by using proper rules [67].

In the preschool period, which covers ages 2 to 8, children have the capacity to represent the external world using symbolic expressions that are not yet systematic. However, it is essential to acknowledge that during the early phase of this period, children remain in an egocentric space, primarily focused on themselves. For example, a study conducted by Hart and Moore with children in the preoperational period demonstrated that children were unable

to fully form mental images that express complex relationships between spaces. This indicates the limited ability of children in this stage to mentally create representations of intricate spatial relationships [40].

During the later periods of the concrete operational period, children acquire the skill of route mapping. They use themselves as a point of origin and imagine moving towards different places. By drawing paths and routes from their current location to other destinations, they start representing the relationships between spaces. In essence, they consider themselves as the primary reference point and determine the position of other locations by mentally visualizing their own movement towards those places [40].

The period between ages 7 and 12, referred to as the concrete operational period in Piaget's theory, is a significant phase characterized by various forms of differentiation in children. During this stage, children start understanding reversible relationships like left-right and front-back concerning objects. All these gradual processes of the child can be followed through **Figure 2**. Moreover, it is a period where children develop a consistent frame of reference. While in earlier stages, children based their spatial relationships on a reference system's origin, they now establish a new stable reference system in their minds using landmarks such as home and school. As a result, children begin to realize, for the first time, that objects and spaces have relationships independent of themselves, marking a shift from egocentric situation [3, 40].

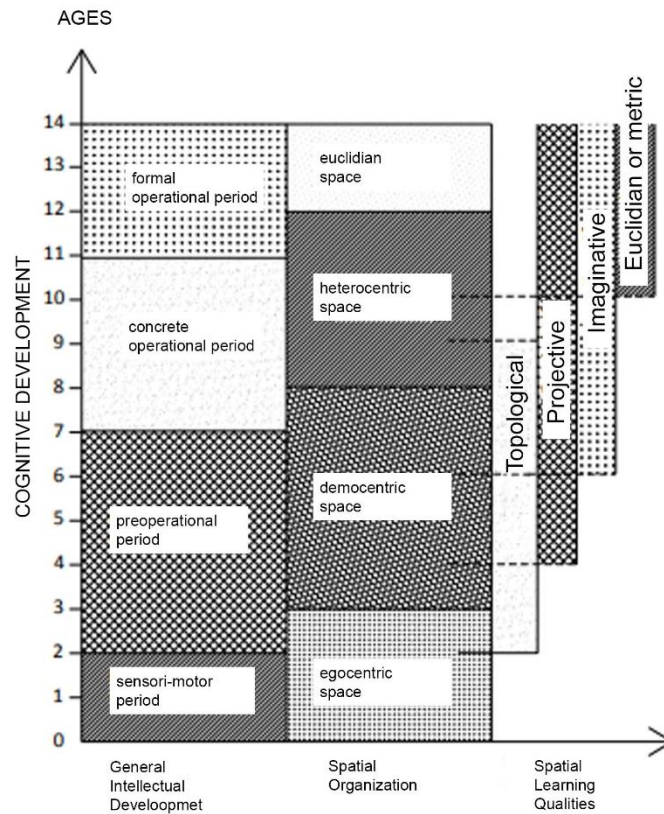


Figure 2: Mental-spatial relationship in the child’s perception (Unlu & Cakir, 2002)

The period between ages 11 and 14, referred to as the formal operational period, is characterized by using language, mathematical symbols, and complex abstractions in children. During this period, children develop a solid grasp of concepts that form the basis of a coordinated reference system, allowing them to determine the spatial position of one location in relation to another, such as north-south or east-west. The child’s understanding of space progresses from a fixed references system to a more flexible one, where positions are determined relative to each other. Additionally, children begin to represent their surroundings with more detailed and integrated depictions, moving away from fragmented representations seen in earlier periods [3, 40].

In terms of the relationship between humans and space, children perceive architectural environments to be different from how adults perceive them. Studies indicate that children's perception of space is influenced by their multisensory experiences, including smell, touch, hearing, vision, and taste. However, the roles of these senses vary in their experience of space and can differ based on the characteristics of the specific environment [68].

2.7 Child's Space Representation and Development

Children's first drawings; it neither resembles the real view nor conforms to the expected spatial projections. Children are technically incapable of reconstructing what they perceive. Children do not have an adult's eyes that can concentrate on objects and do not have steady hands. Therefore, his eyes and hands are incapable of drawing correct lines with a pencil or brush. It is quite true that young children's drawings reflect incomplete motor control. According to the most negative and most common explanation about children's drawing; Since children do not draw what they are supposed to see, mental activities besides perception are also involved in drawing [69].

In his research conducted in cities such as Boston, Jersey, and Los Angeles, Kevin Lynch [70] a city planner, aimed to determine the *mental images* that people hold about these cities. He concluded that there are five key dimensions in people's mental maps of cities. These dimensions are *paths*, *edges*, *districts*, *nodes*, and *landmarks*. According to Lynch, while these characteristics may vary from city to city, people often rely on these descriptors when asked to define a place [40].

Roads serve as continuous pathways that connect people from one place to another. They can include streets, rivers, canals, transportation lines, and railway tracks. For many individuals, roads are the most dominant imaginative feature of a space. While facilitating movement within a city, roads also help people observe the relationships between other environmental elements. Edges, like roads, exhibit continuity but serve as differentiating and limiting components, also referred to as barriers, may not be as prominent as roads but as secondary features that many individuals use to organize a city separated from other areas due to their homogeneous structure and are perceived as two-dimensional entities. Intersection points of routes, identified as nodes, are areas where different behaviors are displayed, distinguishing them from other points. Nodes can range from simple focal points, such as a closed square or a corner of a street where a space's physical character or usage intensifies. Nodes, often noticed as the cores of districts, attract attention as focal points and appear in various personalized forms in almost all mental maps. Landmarks, on the other hand, are visually noticeable and provide clues about various characteristics of the surrounding environment, making them easily memorable reference points. However, unlike districts, they are physical objects such as a building, symbol, or mountain that are observed from the outside rather than being "within" a particular space. Some landmarks may include elements of buildings, such as towers and domes, that can be seen from multiple angles or distances, and are perceptible radially, with many small spatial objects surrounding them [70].

The spatial components of landmarks, nodes, edges, districts, and paths that remain in human memory for cities can also be applied to buildings and interior spaces. Nodes can

represent common areas such as entrances and kitchens, while paths can symbolize connecting elements like stairs and corridors. Edges and boundaries encompass dividing elements such as walls and partially dividing features like counters and curtains. Districts reflect the functions, floor plan shapes, and composition of a space. As for landmarks, although their manifestation may vary across different buildings or space typologies, they are typically located at focal points that capture attention, as individuals tend to remember specific focal points in their minds [65].

Studies [3, 71, 72] that investigated how the spatial perception development of children in different age groups is influenced by their interaction with the environment and how the identified spatial characteristics by Piaget and Lynch vary based on children's age, gender, and their families' educational and income levels, provide valuable insights that could be beneficial for the anticipated outcomes of this thesis.

CHAPTER III

CHILDREN'S PHYSICAL ENVIRONMENT REGARDING SCHOOL ENVIRONMENTS

3.1 The Effect of Built Environment on Child Perception and Behavior

Rapoport [28] emphasized that built environments not as spaces or objects but rather as interrelationships in between man-made environments and humans themselves who live and use within the environment. He pointed out three types of relationships about the built environment as follows:

- **Objects and objects relationships:** Such buildings, parks, streets, etc. are planned and arranged according to one another to have harmony between each other as well for the design or continuity of the environments have connections.
- **Objects and people relationships:** This indicates the way of built environment affect the experience and behavior of people. For instance, the floor plan of the hospital can influence patients and workers move within the building space, in addition to that the entrance of the building also can have impact on the perception in a way whether it is daunting or welcoming to the patients or visitors.
- **People and people relationships:** This indicates the way people have interactions with each other within the built environment in terms of socializing. For instance, the design of public square can intrigue the activity of hanging out which creates interaction to socialize in between each other.

3.1.1 Child and City

The urban design and planning of city need to be managed sophisticatedly according to the children's point of view and the involvement of children should be considered in the decision-making processes. Lynch [73] pointed out that the urban design should be associated with the children's needs of playing and learning to facilitate their sensory motors experiences such as hearing sounds, seeing sights, touching textures which stimulate their creativity as well as curiosity. He also highlighted that the urban design should have an environment that provides accessible and safe public areas for children such as playgrounds but most importantly they should be also close to the houses where children live in walking distance.

3.1.2 Child and the Learning Environments

Gandini [74] states that physical environments play vital roles in education for children as they can enhance and shape the experience of learning, in addition to that the physical environments according to the Reggio Emilia approach, brings attention to children in such a way that it facilitates curiosity, creativity and exploration in children with engaging and comfortable environments. The physical environment is also referred to as the "third teacher" which can affect some factors of motivation and mood due to the design of the environment itself, therefore, the design must be done carefully to give importance of shaping children's learning experience for children having supportive space to learn and grow [75].

Studies show that exposure to green spaces and nature have various benefits for children's not only for their health but also for their development as positive impacts on them [76]. Thus, it is important to consider the design of the classroom of children's learning

environments having greenery with plants to give positive effect in the studies related to school environment.



CHAPTER IV

CASE STUDY OF PERCEPTUAL PROCESS OF STUDENTS ABOUT THEIR SCHOOL ENVIRONMENT

4.1 Physical Characteristics of the Case Study Areas

Nişantepe Neighborhood is in the periphery of Istanbul which takes place many lacks opportunities in terms of metropolitan mechanism in the city center of Istanbul and this makes the development of the area slower [2]. Though, this has become an opportunity for the upper- and middle-class to create new living environments to get rid of the urbanization of Istanbul. Nişantepe neighborhood in this case faces many challenges such as infrastructure which creates hardship in accessibility and residential buildings and up until now, it can be asserted that informal housing (*gecekondu*) is almost the most dominant housing production type around the neighborhood. However, in the meantime it can also be seen that some complex houses have started to emerge for the fact that private institutions such as schools being built as well (**Figure 3**).

Since there is gap in terms of infrastructure and socio-economic differences between the residents in the neighborhood, the study conveyed in the location where there is also lack of opportunities for children in the neighborhood. Therefore, as the case study it is determined that Nişantepe Neighborhood is suitable for the comparison study between public and private in two different types of schools: (1) Nişantepe Middle School and (2) Derya Öncü Middle School (**Figure 3**).

The schools are situated near one another, as depicted in Figure 2. They share a common street situated in the middle, while having distinct user profiles but being in the same region. The proximity of the schools is significant for conducting a comparative analysis in this study.

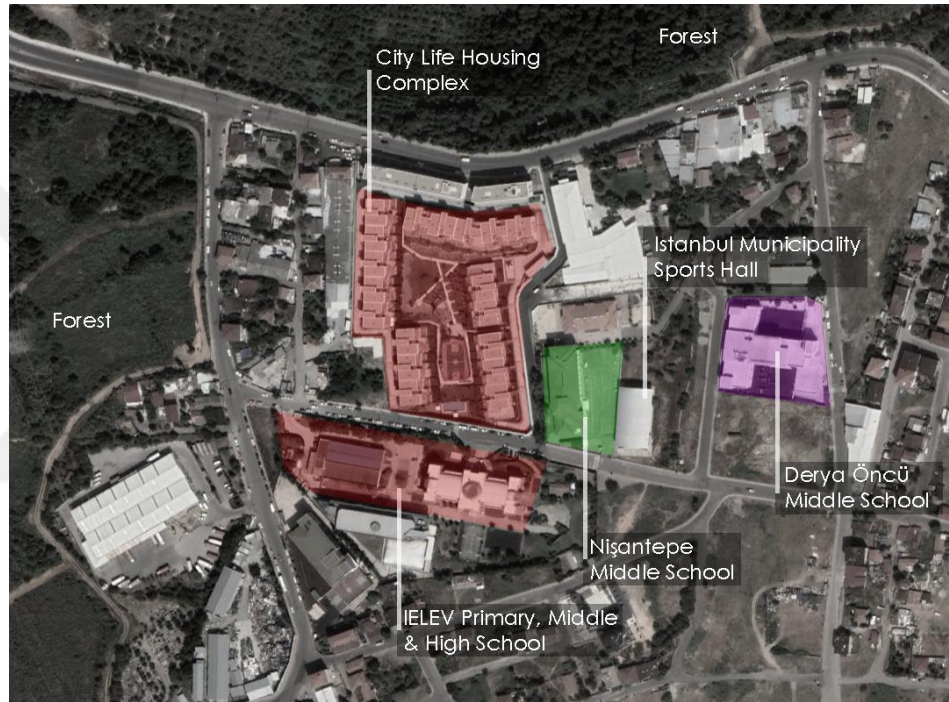


Figure 3: Nişantepe Neighborhood: Environment of the School

The design of the secondary schools plays a crucial role in providing effective learning environments for older students. In the research conducted by Perkins [77] in "Building Type Basics for Elementary and Secondary Schools," the author highlights key design considerations specific to secondary schools, addressing the unique needs and challenges associated with spaces for older students. Flexibility is a crucial aspect emphasized by Perkins [77]. The author stresses the importance of designing adaptable spaces that can accommodate various teaching and learning approaches. This includes providing flexible

classrooms, breakout areas, and collaborative spaces to support diverse instructional methods [77].

In addition to flexibility, the design of specialized spaces is paramount in secondary schools. Perkins [77] discusses the significance of creating specialized areas tailored to specific subjects and activities. These may include science laboratories, technology rooms, art studios, music and drama facilities, and athletic spaces, among others, to cater to the diverse needs of secondary school curricula. The integration of technology is another key aspect highlighted by Perkins [77]. Recognizing the growing importance of technology in education, the author suggests incorporating technology infrastructure and provisions into the design of secondary schools. This encompasses considerations for connectivity, computer labs, multimedia spaces, and the seamless integration of digital resources throughout the campus.

Social spaces also hold considerable importance in secondary schools. Perkins [77] emphasizes the need for well-designed common areas, student lounges, cafeterias, and outdoor gathering spaces that foster social interaction, collaboration, and a sense of community among students. Lastly, the safety and security of students are crucial factors to address in secondary school design. Perkins [77] underscores the significance of incorporating safety measures such as secure entry points, surveillance systems, emergency response planning, and effective circulation patterns to ensure a safe and secure learning environment. By considering these design considerations, architects, designers, and educators can create secondary school environments that are conducive to learning, support educational goals, and cater to the specific needs of older students. In the light of the information regarding the secondary/middle school design principles, both NMS and DMS

students are related to their behavior in this case. Analyses related to their behavior are explained in the following sections of the study.

4.2 The Methodology of the Study

The methodology of the research was consisted of three stages:

First, it was started by the evaluation of the surveys using various types of charts and through descriptive analyses. Besides, the cognitive frequencies revealed by cognitive maps were collected as the dependent variables of the study. Thus, the dependent variables are comprised of gender, number of siblings, education level of parents, the distance between child's house and school, house type, number of rooms, balcony, room, child's own balcony, location of the student's classroom, transportation, sitting location in class, short break location, short break activities, short break friends, long break location, long break activities, long break friends. Besides, the other dependent variables of the study were revealed by the cognitive maps.

Second, it was continued by the evaluation of the spatial configurations of the school using space syntax method, analyzing syntactic parameters regarding the accessibility and the isovist parameters of the school environments. Thus, the independent variables of the study are comprised of syntactic parameters of the two school environments separately which are calculated as the values of integration, visibility, and connectivity.

Lastly, all outputs were collected for the correlations of the dataset obtained from cognitive map drawings with the syntactic and demographic analysis, and the outcomes of the regression analyses were evaluated and discussed. Since this research is based on a

comparative analysis, the correlations between datasets obtained from cognitive mappings, syntactic and demographic analysis were analyzed for significant correlations in the probability level of 0.05 ($p < 0.05$).

4.2.1 Cognitive Mapping as a Method to Obtain Subjective Dataset

The dependent variables of the study were revealed through surveys and cognitive mapping sessions. Thus, the analysis was conducted through a descriptive analysis based on survey data and cognitive map drawings. The survey was given to the schoolteacher and distributed to the students as homework assignments. The participant/student numbers are as follows:

- Nişantepe Middle School: 21 Students (11 male & 10 female)
- Derya Öncü Middle School: 10 Students (5 male & 5 female)

The participants of the study were selected as 7th-grade, 13-year-old students. The reason for choosing this age group is that 13-year-olds are in the formal operational period of their cognitive development, which is relevant to the general intellectual development. Additionally, they are expected to exhibit structured drawings with Euclidian elements [78], as this study aims to explore the differences in their development how they perceive and represent the spatial organization between students from a public and a private school.

4.2.2 Space Syntax as a Method to Obtain Objective Dataset of the School Settings

The study utilizes the space syntax method to find the characteristics of the school buildings and to reveal the independent variable datasets. Thus, this phase of the analysis was started with: (1) the collection of the floor plan drawings from the institution of each school, (2) the floor plan drawings have been transferred to the CAD software, (3) determining the spaces that will be used in the study, and (4) space syntax analysis using Syntax2D software developed by Michigan University, US.

The space syntax method is employed as the analytical method to assess and obtain quantitative data regarding the configuration of space. In the context of the theoretical background of space syntax, the theoretical and methodological base of space syntax is based on the pioneering studies of Hillier starting from the late 1970s. Hillier and Hanson [79] introduced the theory of space syntax, highlighting that organizing spaces in buildings is essentially related to organizing relationships between individuals. According to this theory, the social meanings of spaces can be best expressed through the relationships within the spatial structure. Peponis [80] states that spatial syntax is utilized for defining, expressing, and measuring spatial relationships, providing a systematic framework for evidence-based analysis, and enabling the comparison of environments and their performances.

In their book "The Social Logic of Space" Hillier and Hanson [79] explore both the role of space in constructing social structures and the spatial processes utilized by societies to reproduce these social structures. A society does more than simply occupying an environment. Firstly, society arranges individuals in relation to each other, whether in a

cohesive or fragmented manner; secondly, it organizes spaces, such as buildings, boundaries, roads, and regions. In essence, a society organizes both spaces and individuals.

4.3 Analysis of Data

The collected data from both schools has been analyzed in two ways. Survey analysis and cognitive map analysis. In the following sections the details are mentioned.

4.3.1 Survey Analysis

The responses obtained from the survey were analyzed. The questions consist of two different sections targeting the sociodemographic characteristics of the participants (Appendix I): (1) Questions for Parents, and (2) Questions for Children/Students. Main questions of surveys are as follows:

- Gender, number of siblings, education level of parents, the distance between child's house and school, house type, number of rooms, balcony, child's own room, location of the student's classroom, transportation, sitting location in class, short break location, short break activities, short break friends, long break location, long break activities, long break friends.

Several survey questions, such as the sitting location in class and friendships during short and long breaks, were excluded from the analyses presented below. This decision was made because the focus of the study is on other parameters that are more directly related to the study's outcomes. The excluded questions and their respective explanations are provided in

the figures below. **Figure 4** shows that for both schools the surveys were filled by mother in greater amount than followed by father and then other (could be their siblings or relatives).

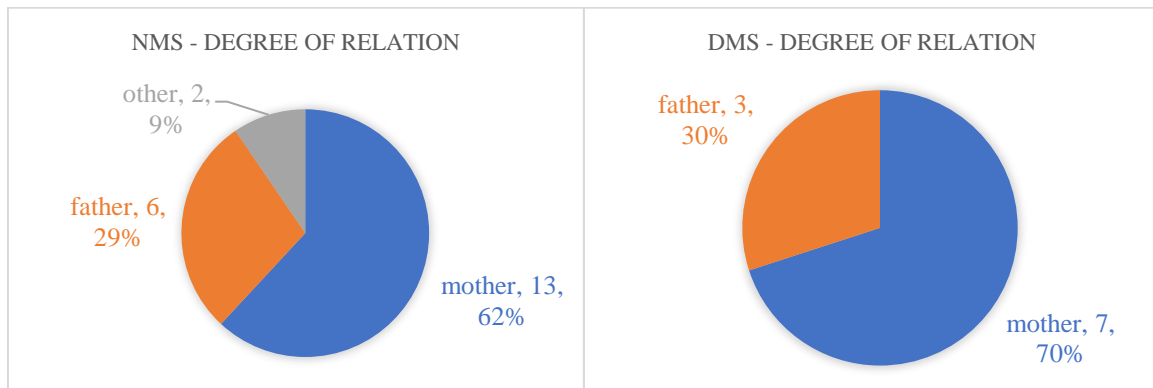


Figure 4: Degree of Relation to Children of both NMS and DMS Students

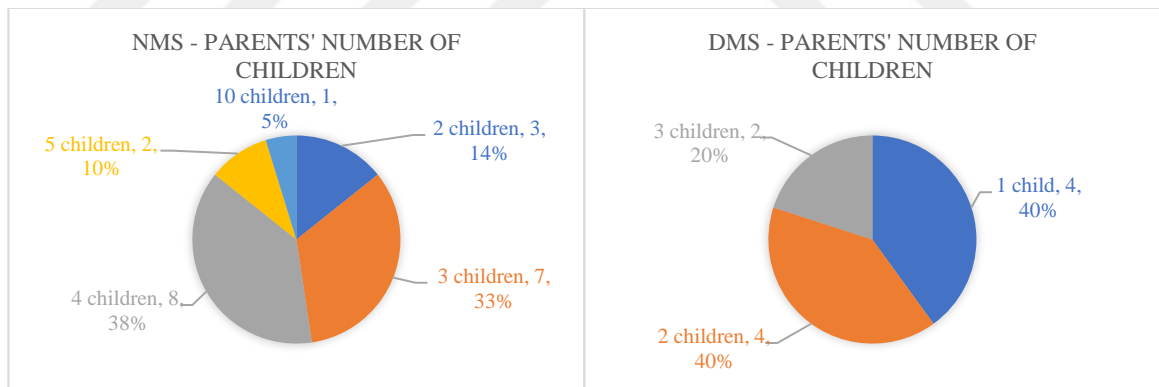


Figure 5: Number of Children Belong to Parents of both NMS and DMS Student

Figure 5 shows that parents of NMS students have more children than parents of DMS students. In other words, although the socioeconomic pattern in Nişantepe Neighborhood is low, the household size in Nişantepe is high. Depending on the fact that the educational level of the society is low, as it is stated in the next graphs, It can be assumed

that the parents of the children of Derya Öncü School having less children than the parents living in Nişantepe, have more competence and income so that they can have planned for the future of the children in terms of education.

As shown in **Figure 6** , parents of DMS students have higher education level which can contribute to the planning of education for their children as it is mentioned above.

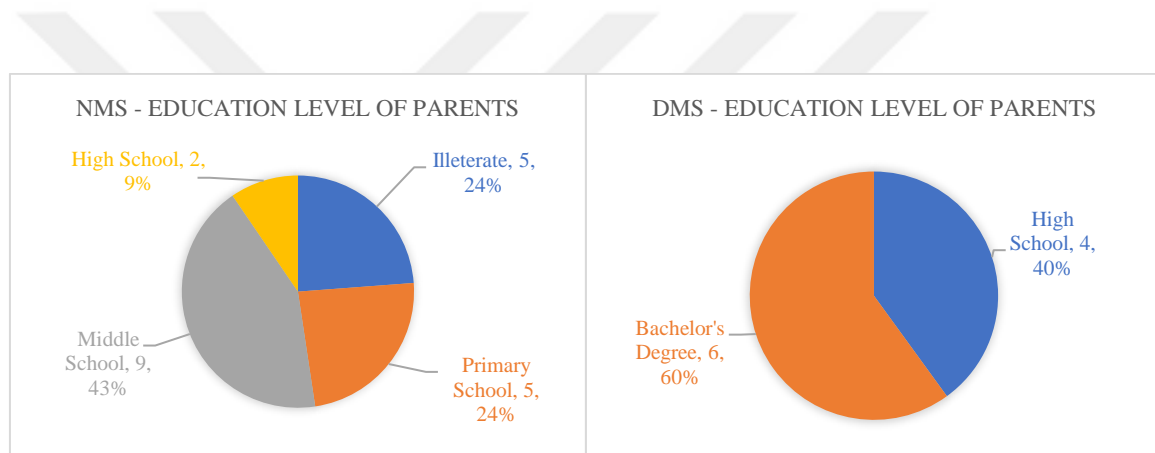


Figure 6: Education Level of Parents of both NMS and DMS Students

In **Figure 7** , it shows that almost all NMS students except one person live in the same neighborhood as their school in Nişantepe Neighborhood, Çekmeköy District. One student who lives in Çatalmeşe Neighborhood uses public transportation to reach school. On the other hand, when we look at the DMS students, they totally reside in different locations. All the students use vehicles either private or such school service. Further information regarding the transport mode will be explained in the following part.

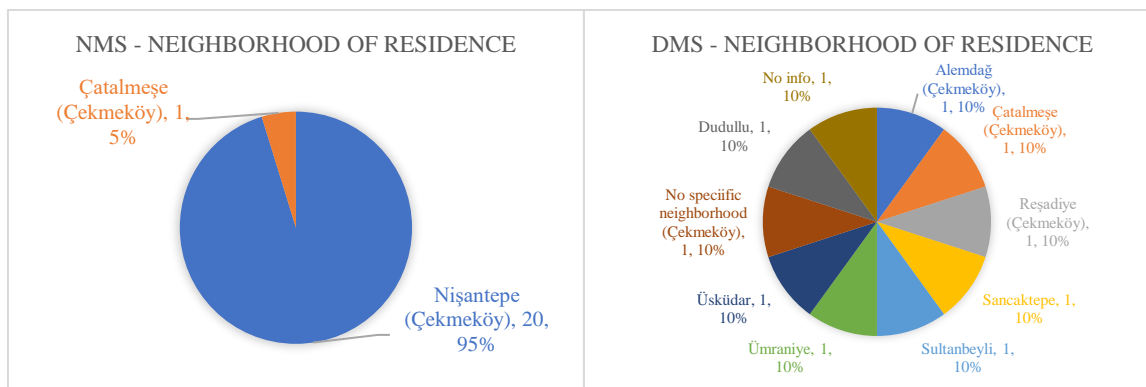


Figure 7: Neighborhood of Residence of both NMS and DMS Students

In **Figure 8** below, students of NMS live in different types of houses but mostly in detached houses (land-registered). However, it can still be seen that some of them live in informal houses named *gecekondu* which shows the socioeconomic level of students. On the other hand, almost all students of DMS live in *gated complex housing*.

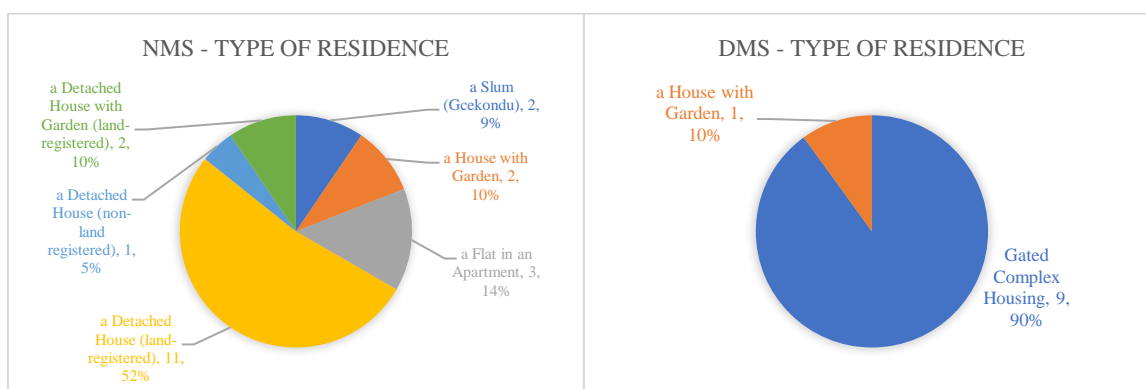


Figure 8: Type of Residence of both NMS and DMS Students

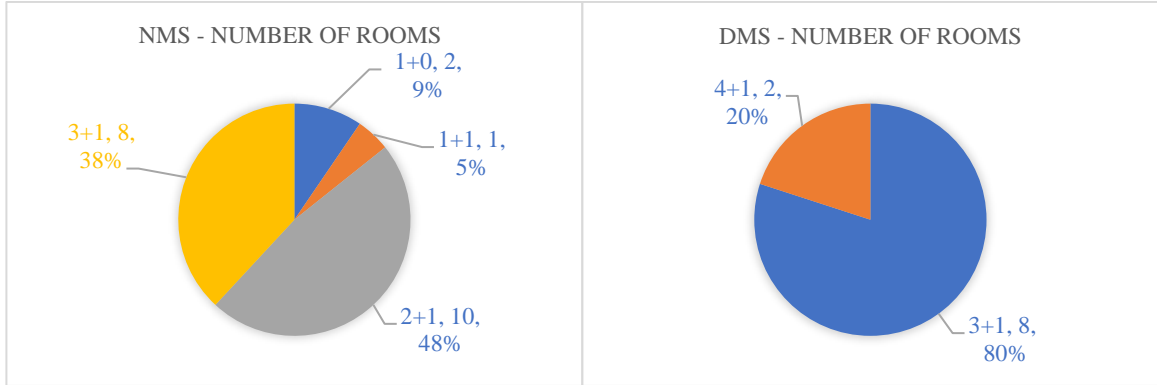


Figure 9: Number of Rooms in Residence of both NMS and DMS Students

In **Figure 9**, the number of rooms for both students of NMS and DMS show difference. The children in NMS live in houses varying between 1+0 and 3+1, while none of the children in DMS live in such houses having 1 room only. It can be seen in the charts below that the children of DMS are dominantly living in such houses having 3 and 4 rooms. This outcome shows that the children of DMS probably have their own room in their houses in the following part.

Figure 10 shows that more than half of students in NMS and all students of DMS have their own rooms. This can relate to their personal space in their house whether they have opportunity to spend time alone in their room. Thus, these graphs below show that the children of DMS are more likely to have a room of their own.

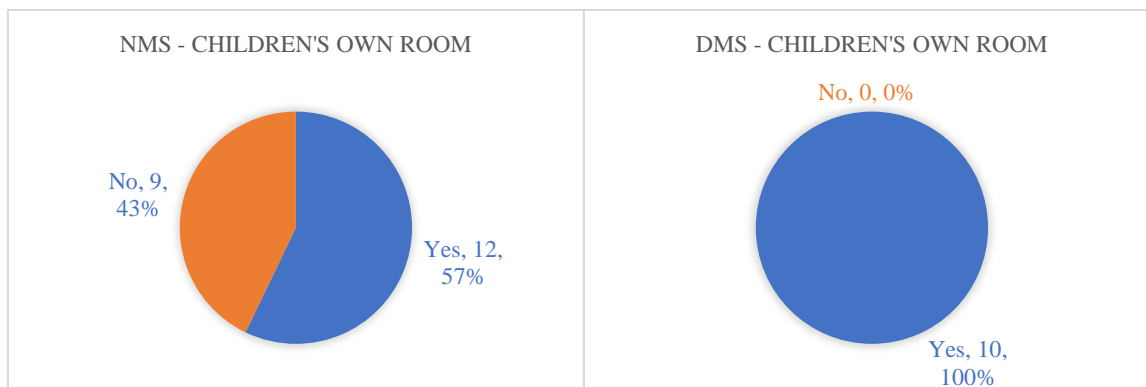


Figure 10: Children's Own Rooms in Residences of both NMS and DMS Students

The number of balconies was also asked to understand if children can see outside or surrounding of their houses. **Figure 11** shows that almost half of NMS students and almost all DMS students have balconies in their houses. However, it is displayed that more than half of the children (57%) in Nişantepe Neighborhood do not have a balcony in their houses.

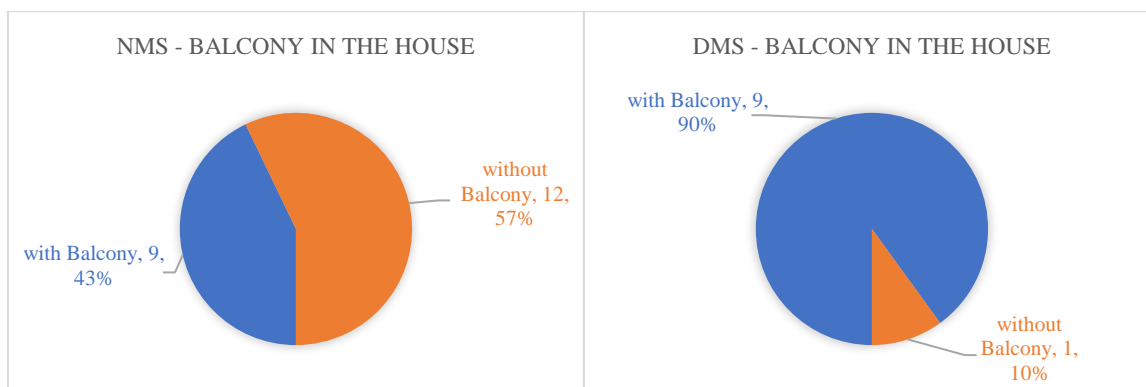


Figure 11: Balcony Situation of Residence of both NMS and DMS Students

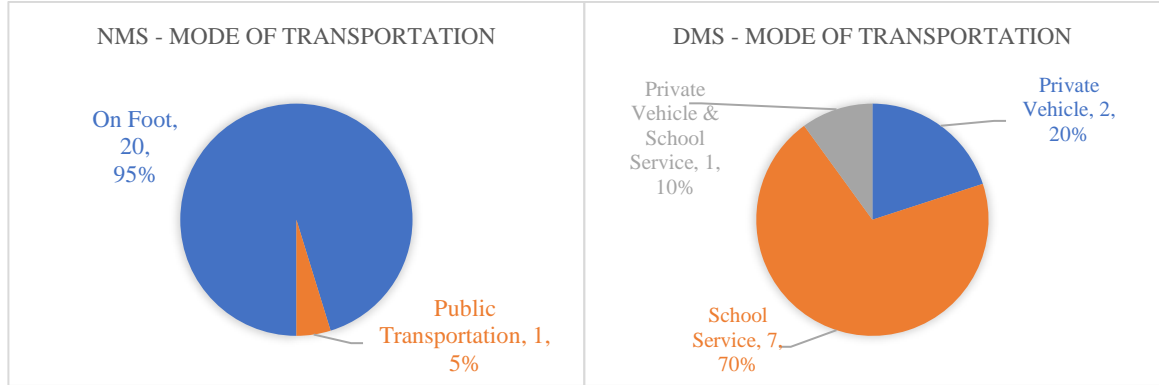


Figure 12: Mode of Transportation of both NMS and DMS Students

As shown in **Figure 12**, the modes of transportation are found to be different from each other. Almost all students of NMS reach their school on foot while only one student reaches the school by public transportation (bus/minibus). On the other hand, all students of DMS reach their schools by vehicle. This result shows that the perceptual knowledge between the children of two schools would have a difference supported by the study of Unlu and Cakir [78]. Although the children traveling by a vehicle are assumed to have a wider urban information about the nearby environmental data related to the school, the children walking to school on foot in Nişantepe are assumed to have a more detailed urban information about the environmental clues around their schools.

As can be seen in **Figure 13**, DMS students spend time with such behaviors like walking activities in corridor, garden, chatting with friends, and sports activities with their friends during short breaks compared to NMS students. However, NMS students spend time with activities such as *eating, reviewing lessons, and listening to music*. It can also be seen that the fact that the NMS students are not interested in sports activities may be due to the fact that their classes are located on the 2nd floor of the building so that they do not

waste their time traveling through the building to outside in their short period of break time. Or it can also be assumed that the students of NMS may not be finding sophisticated sports equipment due to the lacking source of the public school.

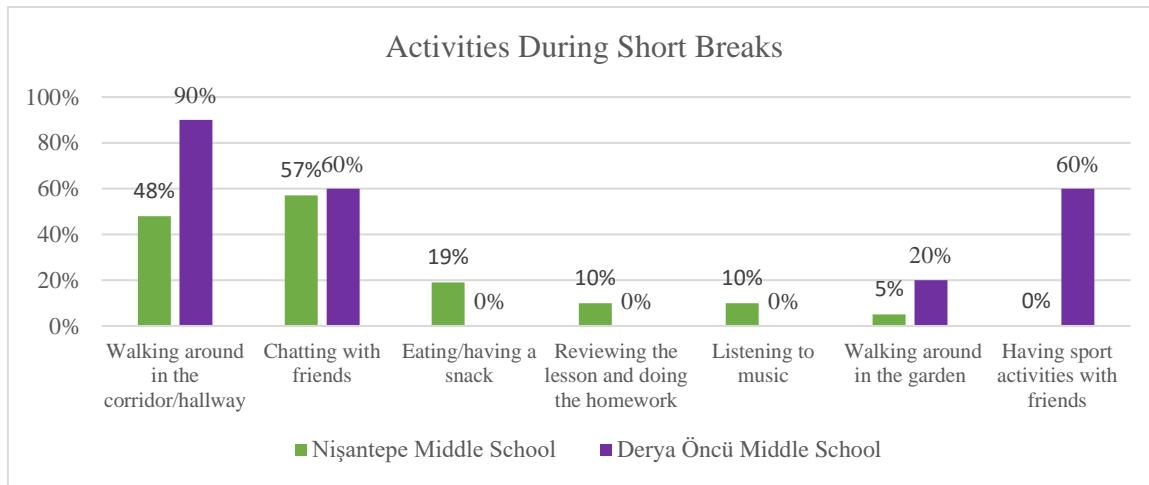


Figure 13: Activities During Short Breaks of both NMS and DMS Students

As can be seen in **Figure 14** that as mentioned above, since the location of the classroom are different: NMS' 7th grade classroom is located on the 3rd floor and DMS' 7th grade classroom is located on the ground floor, the willingness to go outside to garden are significantly different. Explicitly DMS students tend to go to the school garden more than NMS students do. It is revealed that NMS students seem to prefer to stay in the classroom during the short break time.

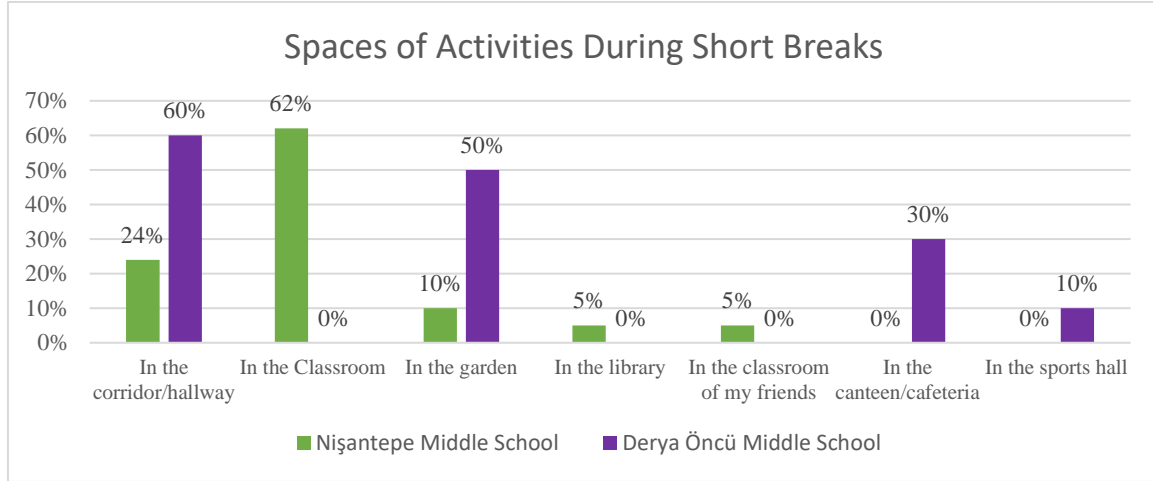


Figure 14: Spaces of Activities During Short Breaks of both NMS and DMS Students

As for the long breaks, **Figure 15** shows that NMS students slightly tend to show more walking behaviors around the corridor than DMS students. Notwithstanding, DMS has more other activities dominantly compared to NMS in terms of physical activity such as walking around in the garden, sport activities with friends or by themselves, chatting with friends, and lastly eating activities. Solely constant/stable activity such reading a book, reviewing lessons, and listening to music are seen in NMS but not in DMS. The fact that more stable activities are observed in NMS students might be related to lower energies of the children due to the undernourishment of them since lunch is not served in the public school and they may not be having adequate amount of food in their lunch boxes.

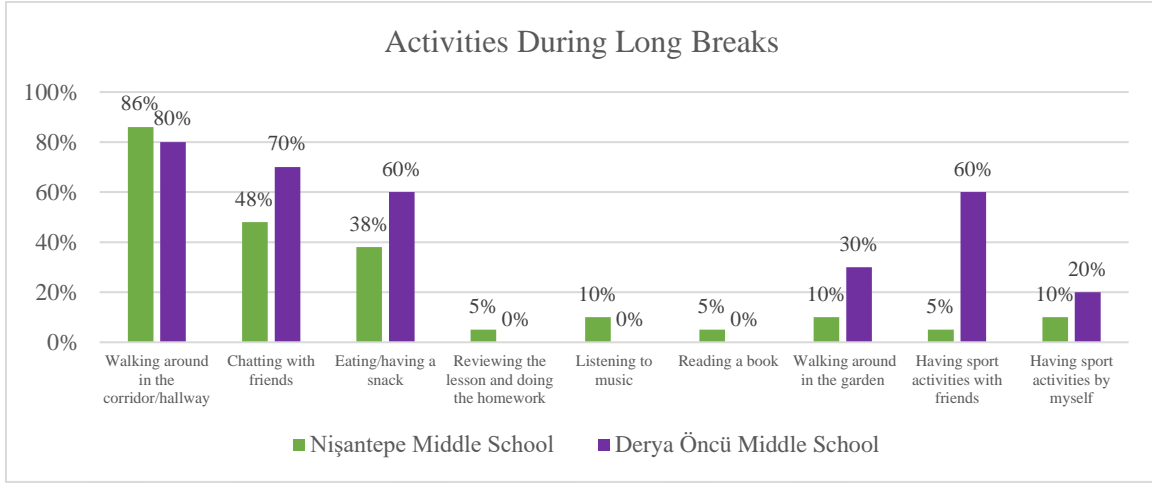


Figure 15: Activities During Long Breaks of both NMS and DMS Student

Again, we can see in **Figure 16** that the spaces of activities of students of NMS are stable compared to the students of DMS. It can be assumed that since DMS only has one classroom of 7th grade, students tend to go out of the classroom more to spend their time. Furthermore, the location of the classroom is on the ground floor which is accessible to the garden directly.

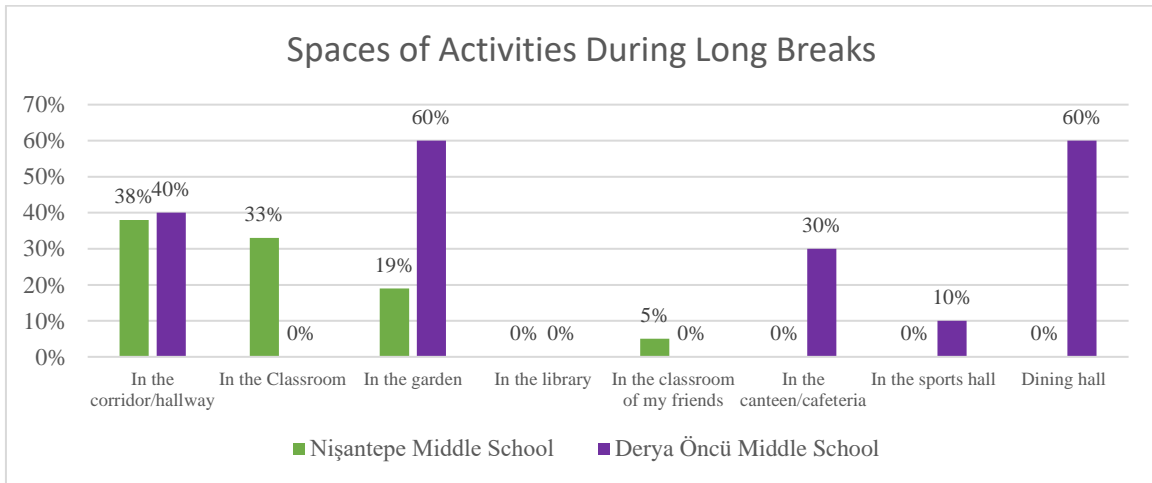


Figure 16: Spaces of Activities During Short Breaks of both NMS and DMS Students

4.3.2 Analysis of Students' Cognitive Maps

Cognitive map drawings were obtained from the 7th grade students of *Nişantepe Middle School* (NMS) and *Derya Öncü Middle School* (DMS) for the comparative analysis in terms of various parameters as follows: (1) whether it has relation to the topic, (2) school representation, (3) nearby environment representation, (4) Lynch's image parameters, and (5) gender. The number of 7th grade students in **NMS is 21** with three branches of classroom (7-A, 7-B, and 7-C) and in **DMS is 10** with solely one branch of classroom.

In the parameters of the analysis there are various subcategories (**Figure 19**) (1) Relation to topic: whether the drawings are done accordingly to the topic required for the study. (2) School representation consists of subcategories: *outdoor school space, indoor school space*. (3) Nearby environment representation: *play attributes, friends, teachers, natural elements, housing representation, and different land uses*. (4) Lynch's image parameters: *landmark, district, node, edge, and path*. (5) gender of students. The frequencies of the cognitive maps were revealed through counting each parameter observed in the drawings of the children and inserted into the analysis as a quantitative value.

There are various elements in each parameter under the subcategories of the parameters. In the school representation the elements searched in the cognitive maps are as follows:

- Outdoor school space: the spaces outside the school building such as garden, play area, sports area, etc.
- Indoor school space: the spaces inside the school building such as classroom, library, conference room, teachers' room, etc.

In **nearby environment representation** the elements searched in the cognitive maps are as follows:

- Play attributes: *toys, play equipment, and pet animals.*
- Friends: *their friends in the class, siblings, or relatives.*
- Teachers
- Natural elements: plants, animals, clouds, sun, etc.
- Housing representation: the representation of any houses or their elements apart from their own school.
- Different land uses: the representation of any part of different land uses such as, market, house, restaurant, etc.

In the **image parameters** the elements searched in the cognitive maps are as follows:

- Landmark: municipality sports hall, Nişantepe forest, market, flag post in the school garden.
- District: the representation that students have zoning the spaces
- Node: the conjunction of the roads/walkways
- Edge: the wall surrounding the school garden, the doors.
- Path: the roads/walkways

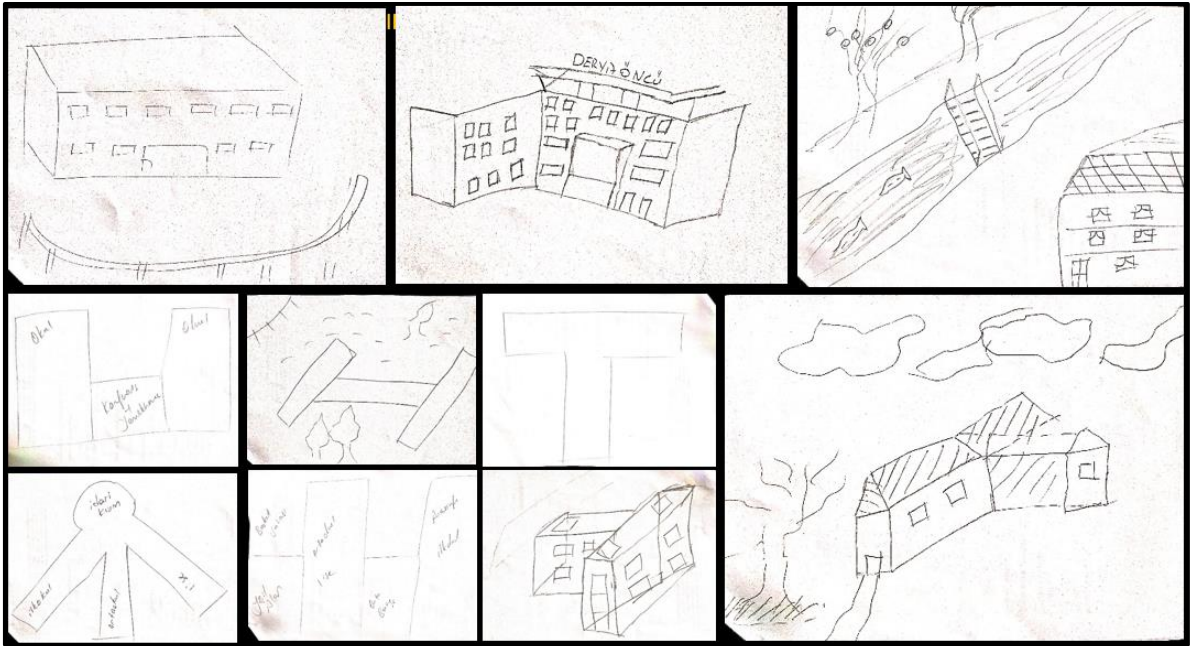


Figure 17: Cognitive Maps of DMS Students (10 students)

In cognitive drawings of both DMS and NMS in **Figure 17** and **Figure 18**, there are some explicit differences in terms of content of imaginary elements. NMS students represented more elements than DMS did. Here, we can assert that 13-year-old students of DMS for example (Figure Y), represented the Euclidian properties of the environment with various depictions in accordance with their age group since the ages above 12, supported with the studies in the literature that they tend to show more representations with mathematical and complex abstractions such perspective drawings [78].

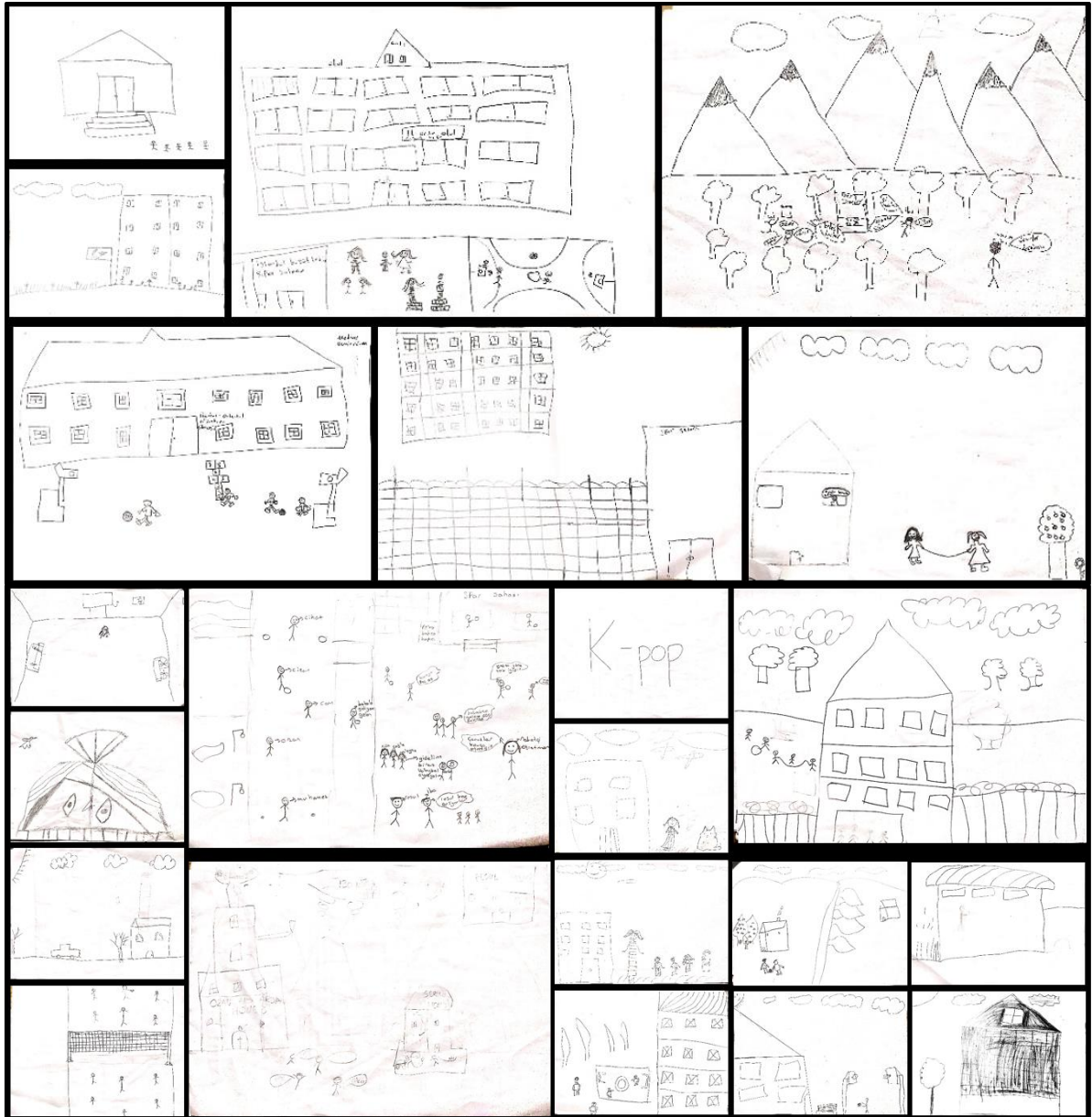


Figure 18: Cognitive Maps of NMS Students (21 students)

4.3.2.1 Descriptive Analysis Based on School Comparison

In the first stage of the analysis, the cognitive map drawings of both NMS and DMS have been compared through descriptive analysis to reveal the differences in the tendencies of two

groups of participants. The analysis consists of various subcategories and elements that need to be observed and analyzed. As can be seen in **Figure 19**, overall parameters are shown comparatively differ from each other. Even though there is a difference in terms of participant numbers between NMS (21 participants) and DMS (10 participants). DMS students' representations show more relation to the topic (100%) than the students of NMS (86%). The students of DMS demonstrated their nearby school environment with outdoor patterns of school environment (90%), the measures of districts (100%), edges (100%) and path (20%) the more. However, the students of NMS demonstrated play attributes (57%), friends (62%), teachers (19%), natural elements (57%), housing (29%), different land uses (43%), and landmarks (5%) the more compared to DMS students (**Figure 19** & **Figure 20**).

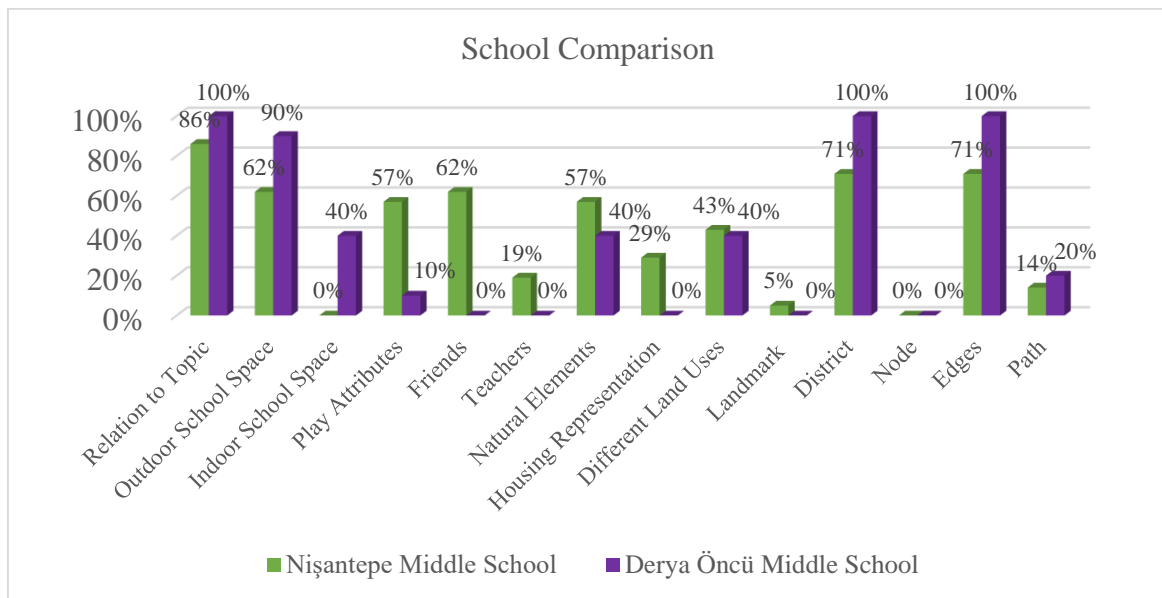


Figure 19: Cognitive representations showing the school comparison

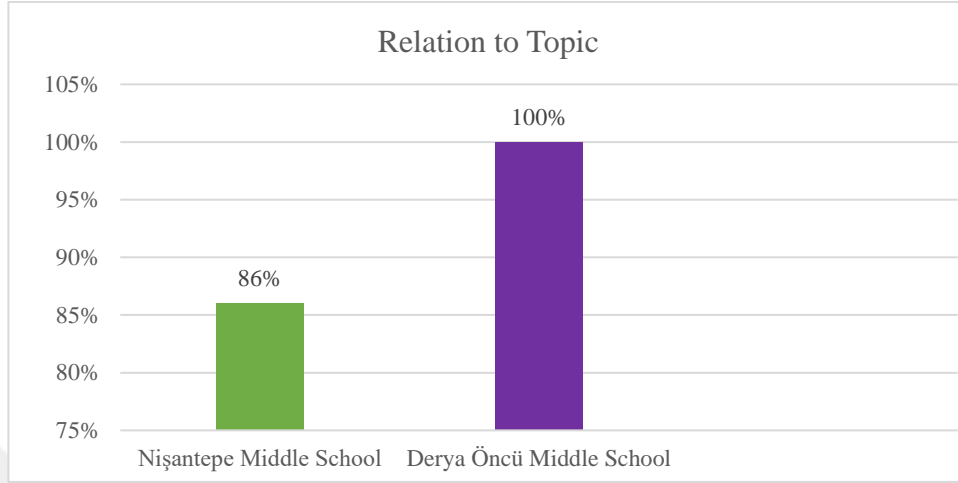


Figure 20: Representations of the relation to the topic

The cognitive drawings in terms of the school representation, **Figure 21** shows that almost all the participants 90% of DMS while 86% of NMS have represented outdoor school space. NMS students have not included any indoor school spaces in the drawings while DMS students have included (40%).

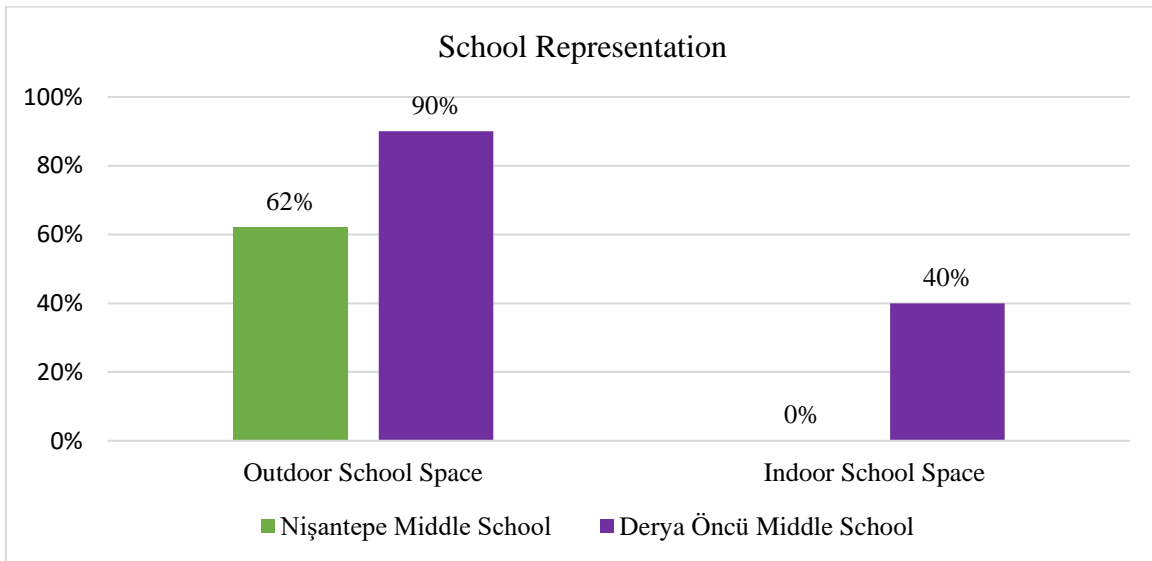


Figure 21: School representation

In **Figure 22**, nearby environment representation shows that NMS has more value than DMS in almost every parameter. NMS seems to be dominant, whilst DMS even has zero value. This can be because NMS students mostly live in the urban setting near the school area, so that they can explore environments which enrich their drawings during their school travels on foot every day. DMS have not included any friends, teachers, and housing representation in the drawing while almost half of NMS students have included them. It seems that considering the play attributes representations, (e.g., toys, play equipment, and pet animals) there is a significant difference which can be related to the fact that the students in NMS tend to have more interaction with other students while DMS do not. In terms of house representation, the students of NMS were observed to have such cognitive maps including their own houses and their friends' houses. This result might be demonstrating the difference about the morphological patterns the children live. The houses that NMS students live in are more closely settled as single houses in the urban setting, while the houses that DMS students live in are settled within a specific distance due to the urban regulations and privacy concerns of the inhabitants.

Figure 23 shows the image parameters that both have slightly different values despite some parameters are not being included in the drawings. Various places have been considered as Nişantepe Neighborhood's landmark (forest, municipality sports hall, markets, food stall/shop), DMS has 0% and NMS has 43% of participants who have done the landmark. Almost all students from both have included district and edge parameters. Some participants have included path parameter, but no one has included node parameter.

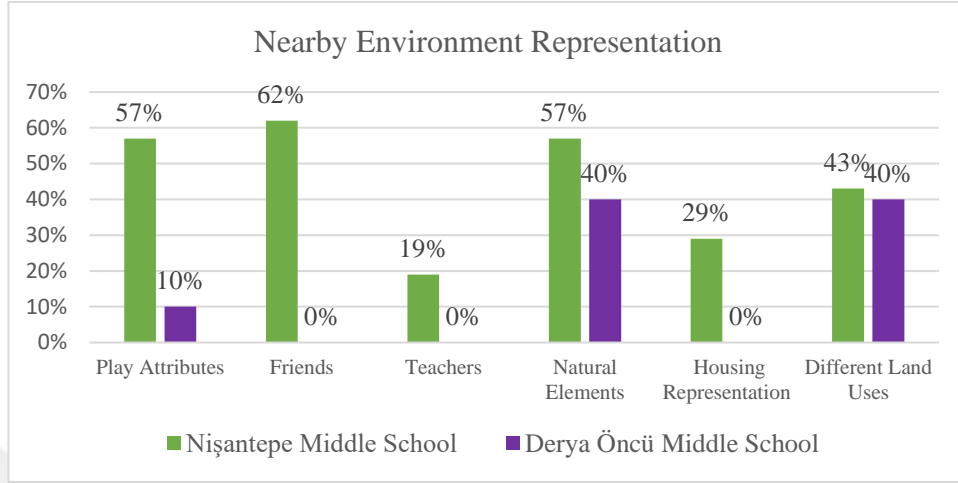


Figure 22: Nearby Environment Representation

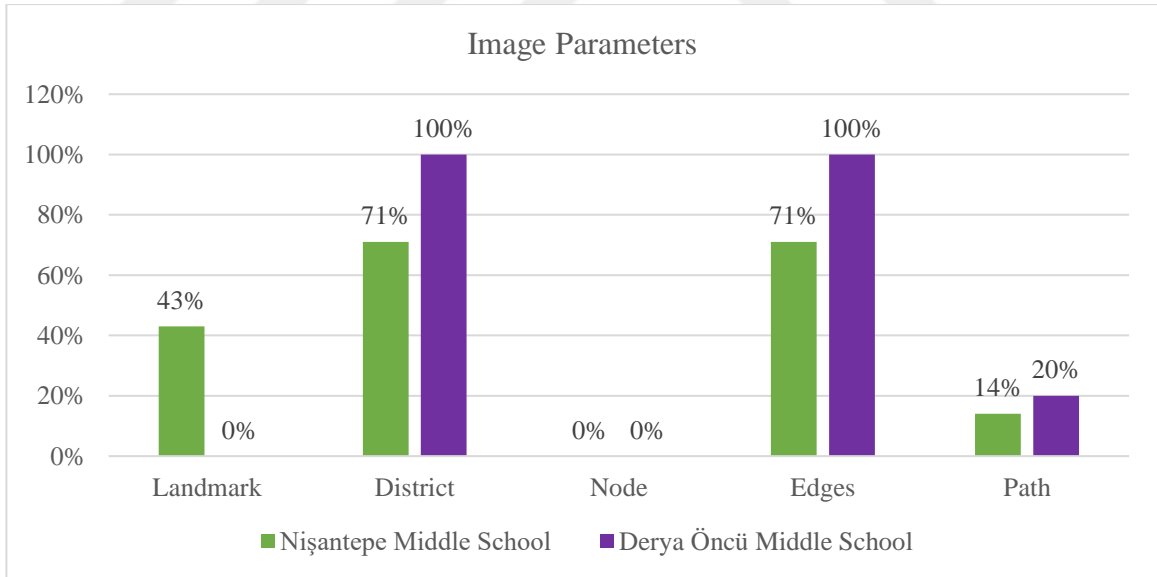


Figure 23: Image Parameters

4.3.2.2 Descriptive Analysis Based on Gender Comparison

In this section, descriptive analyses were differentiated according to the genders. There are **16 Male (M)** and **15 Female (F)** in total **31** participants were conducted in the study. **Figure 24** shows the overall comparison between male and female participants. It seems that both genders have almost close value to each other and have a very slight difference between them in each parameter. **Figure 25** shows that 88% of male and 93% of female participants have almost equal values in terms of the relation to topic in their drawings.

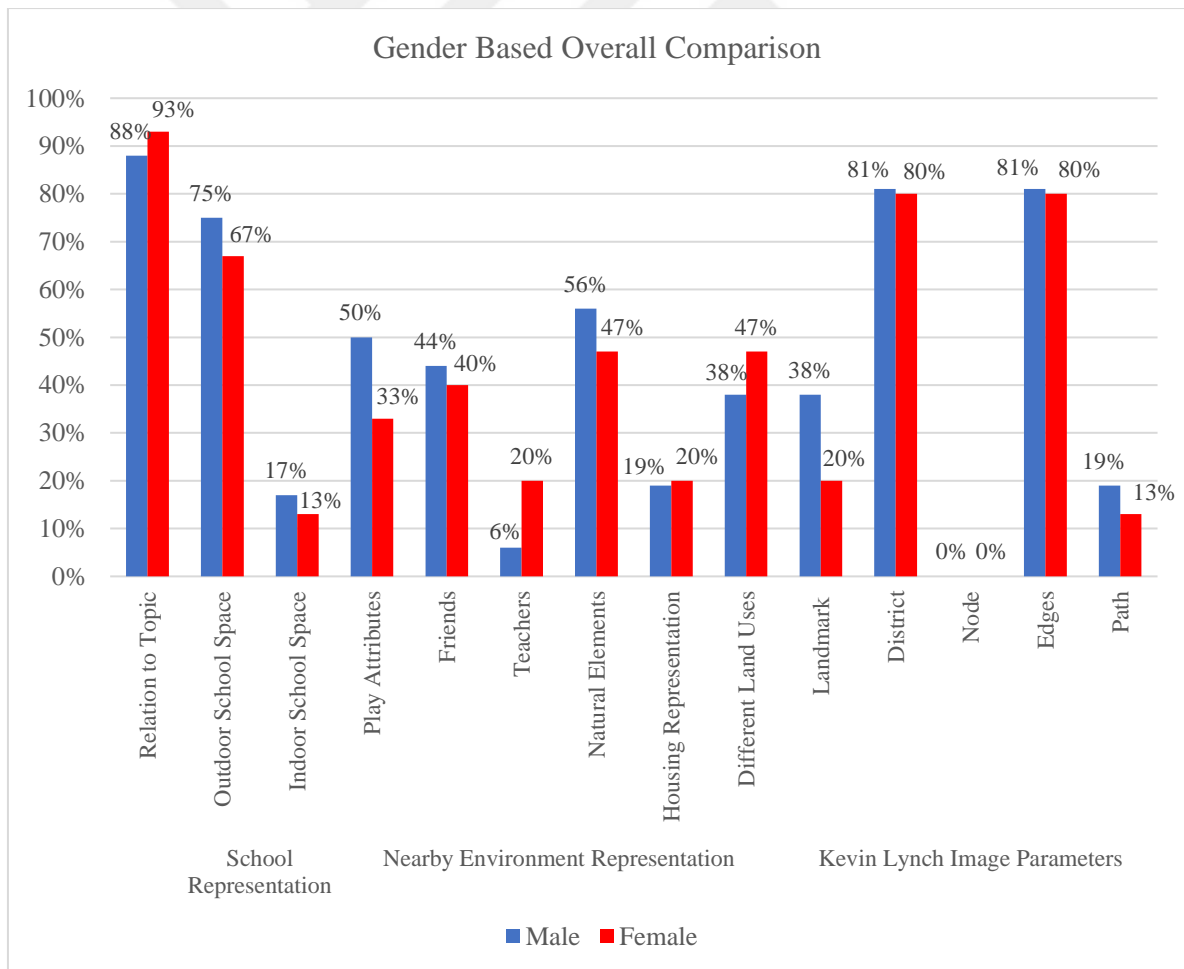


Figure 24: Gender Based Overall Comparison

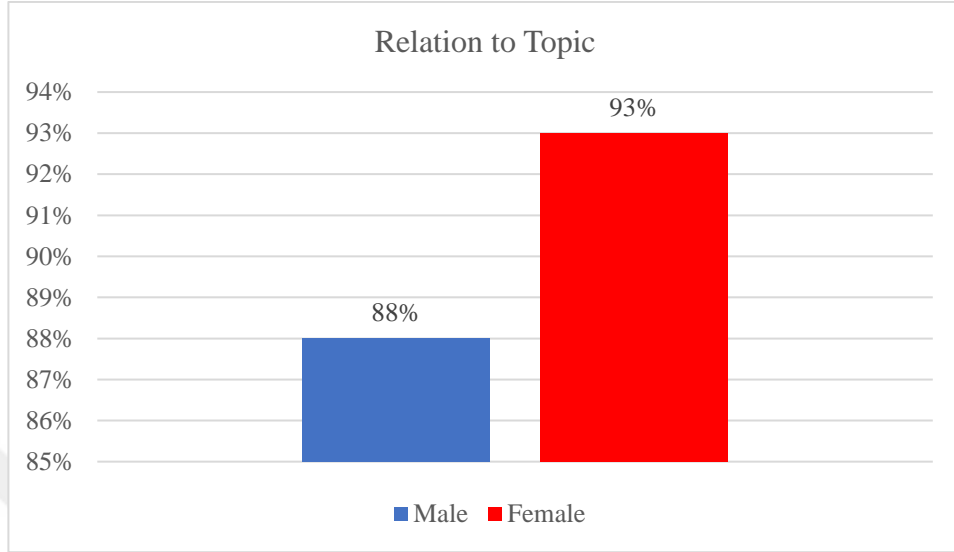


Figure 25: Relation to Topic (Gender Based)

As for the school representation in **Figure 26**, it shows that outdoor school space has drawn in high value with very close number (75% of male and 67% of female) while indoor school space representation is vice-versa.

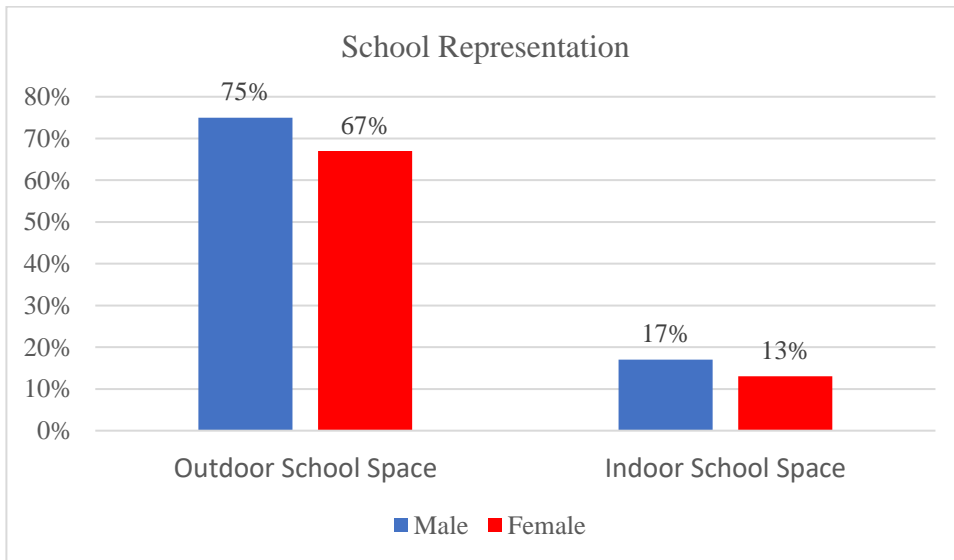


Figure 26: School Representation (Gender Based)

In **Figure 27**, it shows the difference in terms of nearby environment representation as follows: (1) 50% male and 33% female in play attributes, (2) 44% male and 40% female in friends, 6% male and 20% female in teachers, 56% male and 47% female in natural elements, 19% male and 20% female in housing representation, and 38% male and 47% female in different land uses have been included in the drawings which do not reflect any significant differences between them.

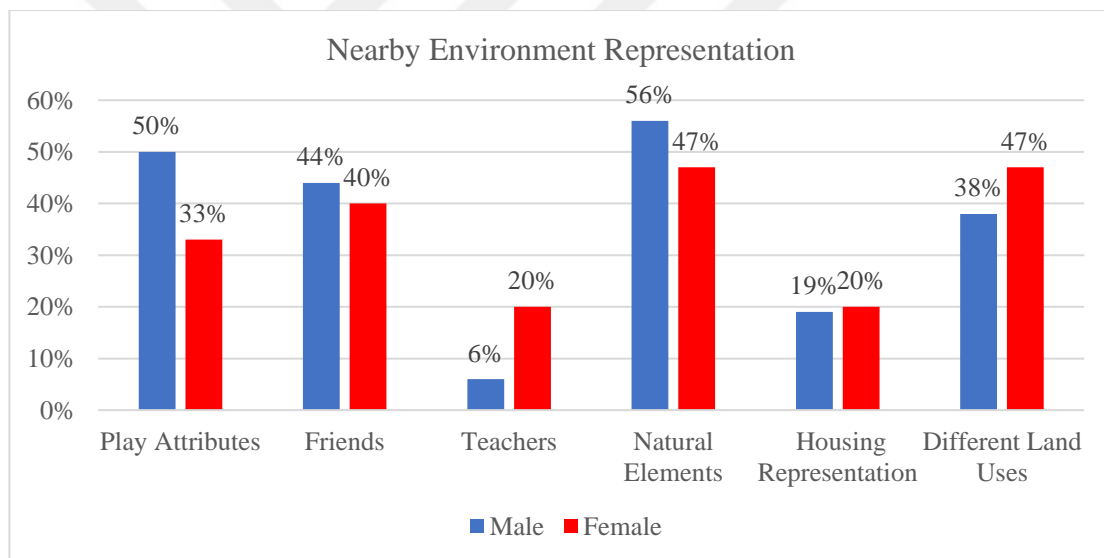


Figure 27: Nearby Environment Representation (Gender Based)

Figure 28 shows image parameters that *landmark* parameter was represented by 38% of male and 20% of female participants. Almost all participants (81% of the males and 80% of the females), included both district and edge parameters in their cognitive map drawings. Some of them have included path (19% male and 13% female), but none of them have included the nodes. However, a study regarding gender differences in primary schools argues that female students have more domestic elements representation while male students have

image parameters of Lynch [70] in their drawings [78]. The results in the analysis could be related to the common aspects of schools which can be considered as the most perceivable elements in their schools since both have almost the same values.

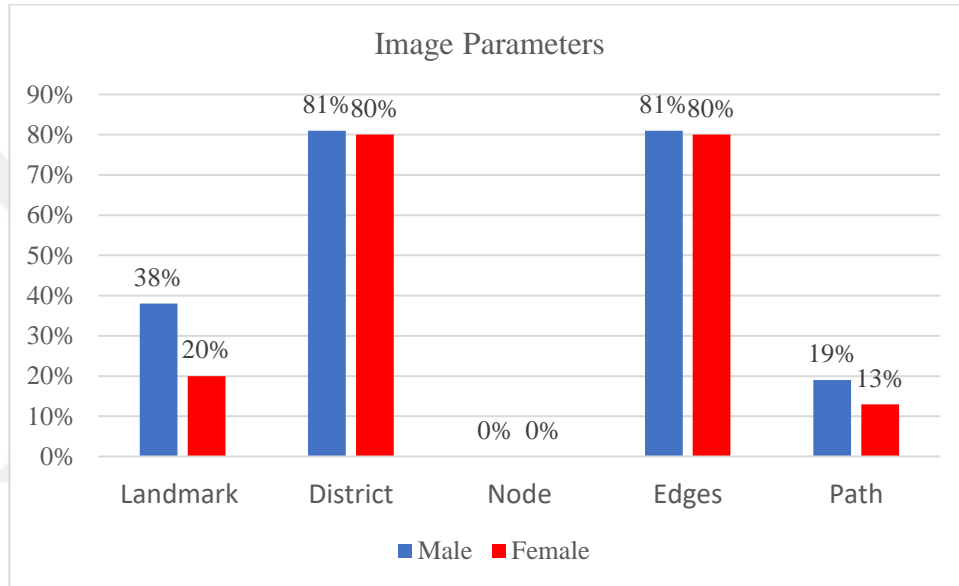


Figure 28: Image Parameters (Gender Based)

4.3.3 Space Syntax Analysis of the Two Schools

In the study, space syntax was used as the method of the analysis, and it is conducted in both public school Nişantepe Middle School (NMS) and private school Derya Öncü Middle School (DMS). As the variables of the analysis, syntactic values are the independent variables and as dependent variables they are the human behaviors which mean students/participants' behaviors. The study consists of two types of syntactic values: (1) Graph Measurands which is in the *Accessibility Analysis* and (2) Isovist Measurands which is in the *Visibility Analysis*.

Graph measurands (accessibility analysis) contain values of *connectivity*, *mean depth*, *integration*, *relative asymmetry*, and *integration-n*. On the other hand, isovist measurands (visibility analysis) contain values of *area*, *perimeter*, *drift*, *occlusivity*, *compactness*, and *circularity*. During the phase of the analysis of the school, the floor plans were drawn on CAD software AutoCAD and then transferred them to the software for the space syntax analysis, Syntax 2D.

As can be seen in **Figure 29**, NMS has only one main entrance to a school area and one entrance for students, but it is different in DMS. In **Figure 30**, it shows that DMS has multiple entrances: two entrances to school area (for high school students and primary-middle school students) and four entrances for students and parents. In detail, two entrances are made for primary and middle school students, one for staff and parent, and the last one is for the high school students (**Figure 30**).

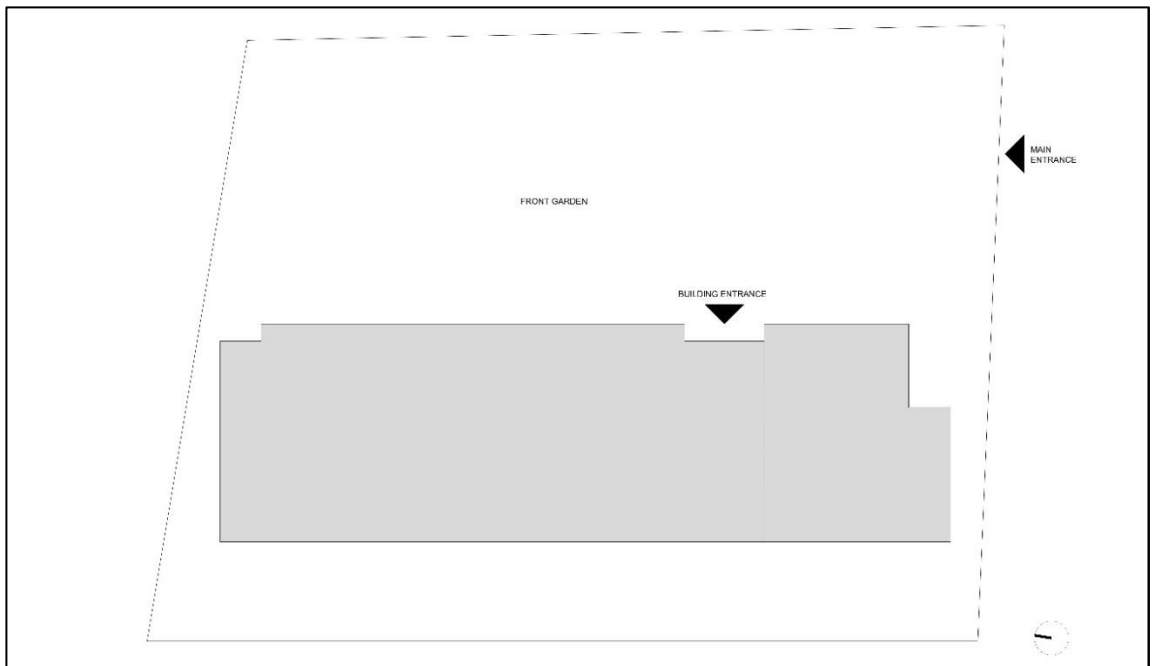


Figure 29: Nişantepe Middle School Site Plan

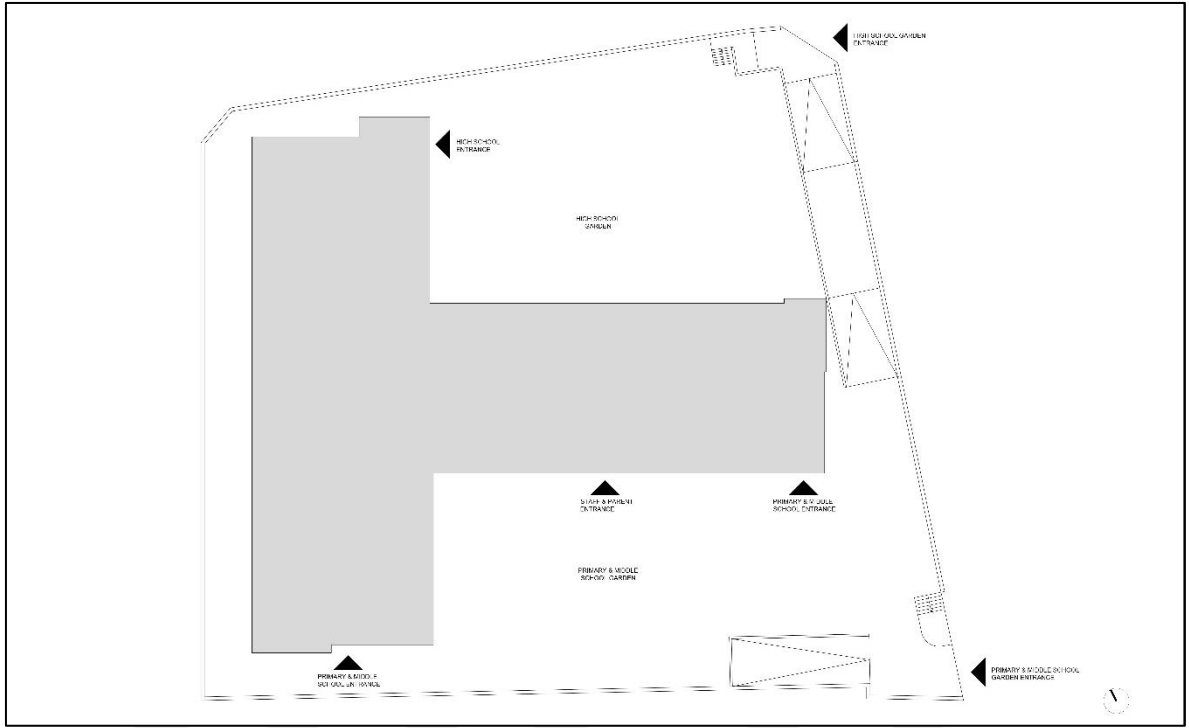


Figure 30: Derya Öncü Middle School Site Plan

While analyzing the schools, not only the indoor areas such as classrooms, toilets, break areas, corridors/halls and library were considered but also outdoor gardens were considered as syntactic parameters (**Figure 31 & Figure 32**).

NMS has three 7th grade classrooms and one garden in the front side of the building for every student in the school (**Figure 31**). On the other hand, DMS has only one 7th grade classroom and two separate gardens: one for high school students and the other one for primary and middle school students (**Figure 32**). However, middle school students prefer to use high school students' garden since it is very close to their classroom (7th grade).

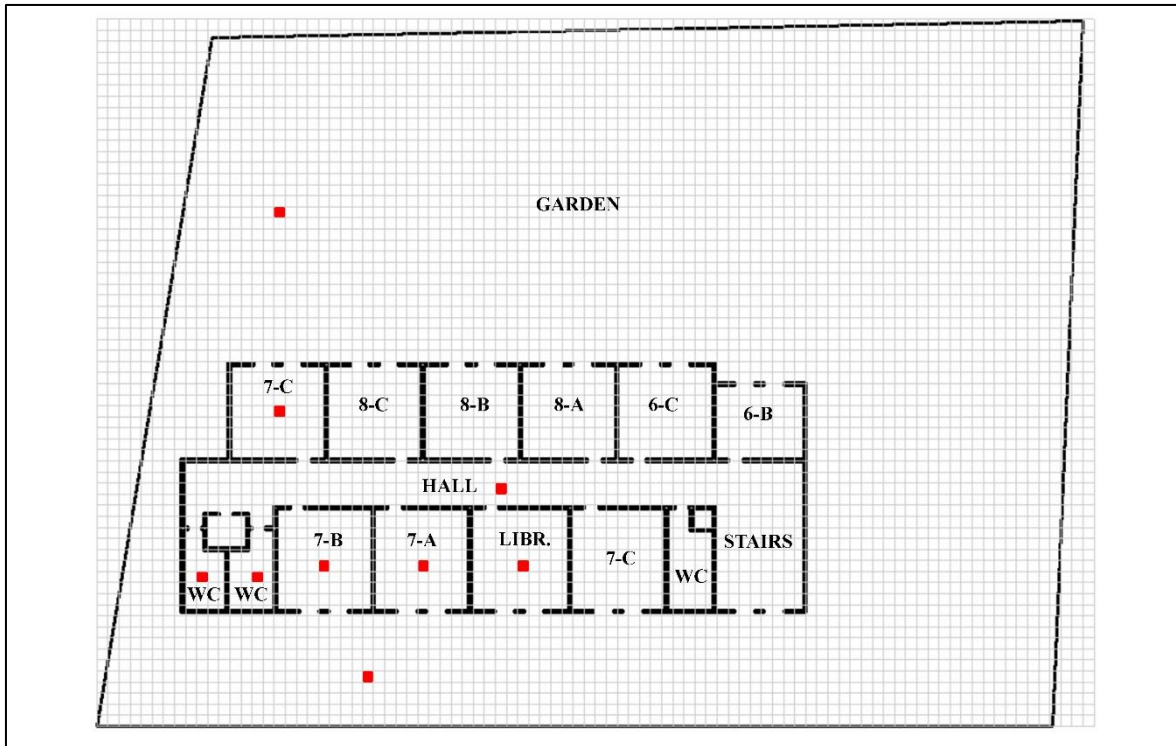


Figure 31: Nişantepe Middle School 7th Grade, 3rd Floor Plan with Syntactic Nodes selected for the analysis

As can be seen from **Figure 31** & **Figure 32**, there are red dots that indicate the syntactic nodes where the points of analysis have been taken. In NMS, the syntactic nodes are selected in the used areas of the participants such as classrooms of their grades (7th), toilets, library, hall/corridor, and garden. In the visibility analysis (isovist measurands), the limit of the observation is the border of the school which is the wall. Therefore, gardens are also considered to be visible areas so that the windows are all open in this analysis. In fact, the used garden is solely the front one and can be seen solely from one classroom. The other two classrooms can only be visible in the back garden, which is not used. Nevertheless, the analysis required equal distribution of visibility through outside from the classrooms and the

gardens seen from classrooms are considered and the average isovist values of both syntactic nodes are calculated in the analysis.

In DMS the syntactic nodes are also located in the used areas for the participants such as classroom, hall, toilets, break area, the area of staircase, and garden (**Figure 32**). The garden of DMS is only one and can be seen from the classroom. The syntactic node has taken from the middle point of the general area (**Figure 32**).

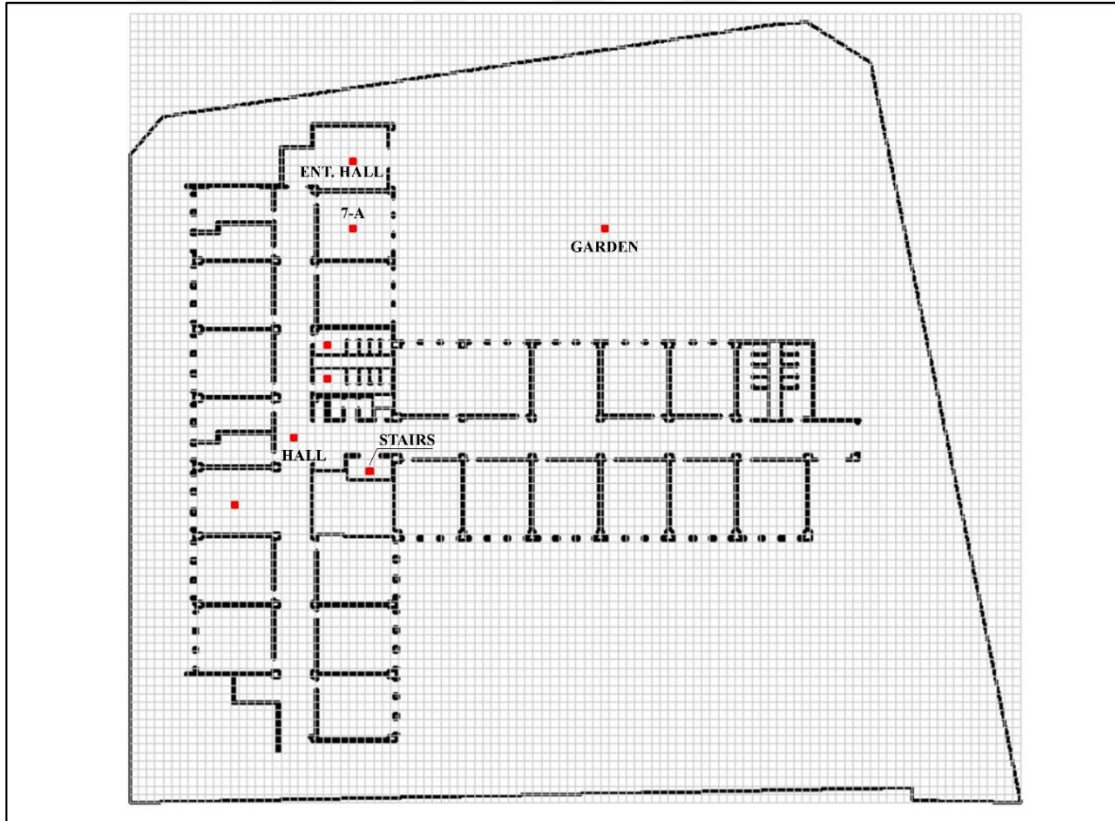


Figure 32: Derya Öncü Middle School 7th Grade 2nd Floor Plan with Syntactic Nodes selected for the analysis

4.3.3.1 Space Syntax Analysis of Nişantepe Middle School (Public)

Figure 33 shows that the connectivity value seems to be high in the conjunction of the classes where the entrances are face to each other. It makes sense that these are the nodes and most connected areas in the space, evidently the value is high. The deepest area in NMS seems to be the toilets of both students/participants and teachers. As mentioned in the connectivity value, it is the same as for the integration value, the well-connected spaces seem to be the same: corridor/hall, where everyone connects here and has active behaviors in the area.

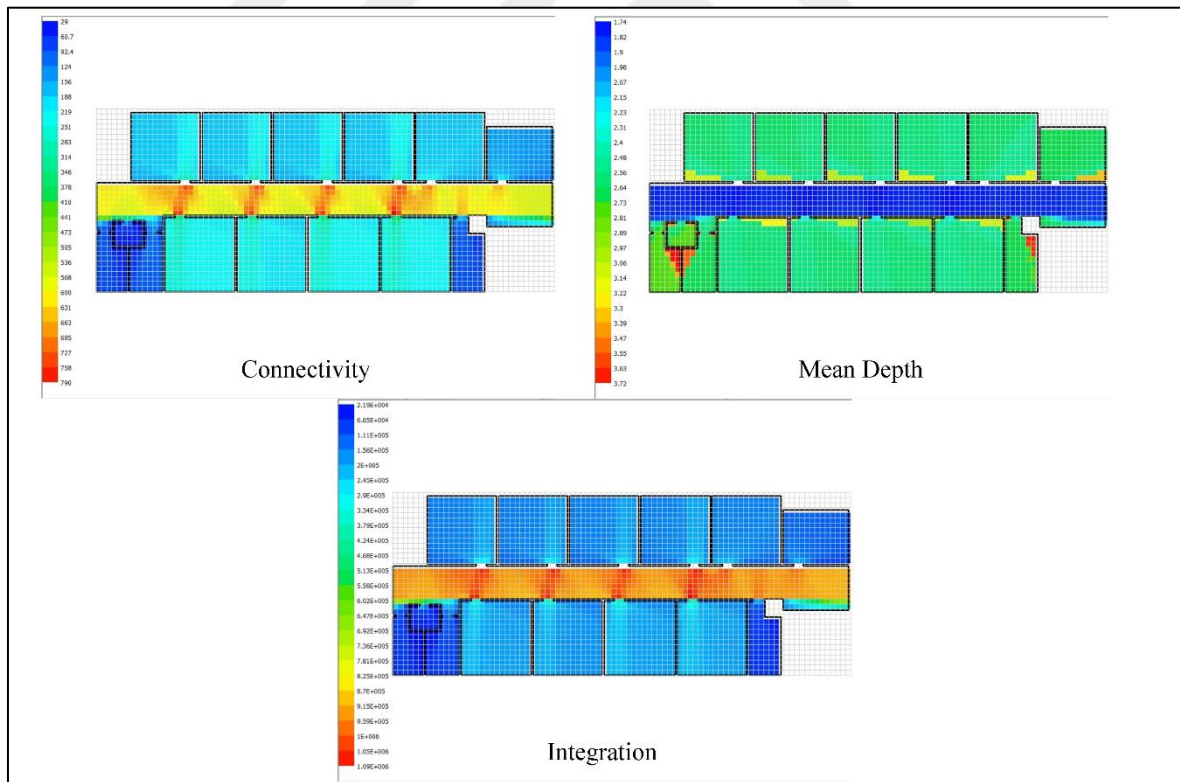


Figure 33: Graph/Accessibility Analysis of Nişantepe Middle School (NMS)

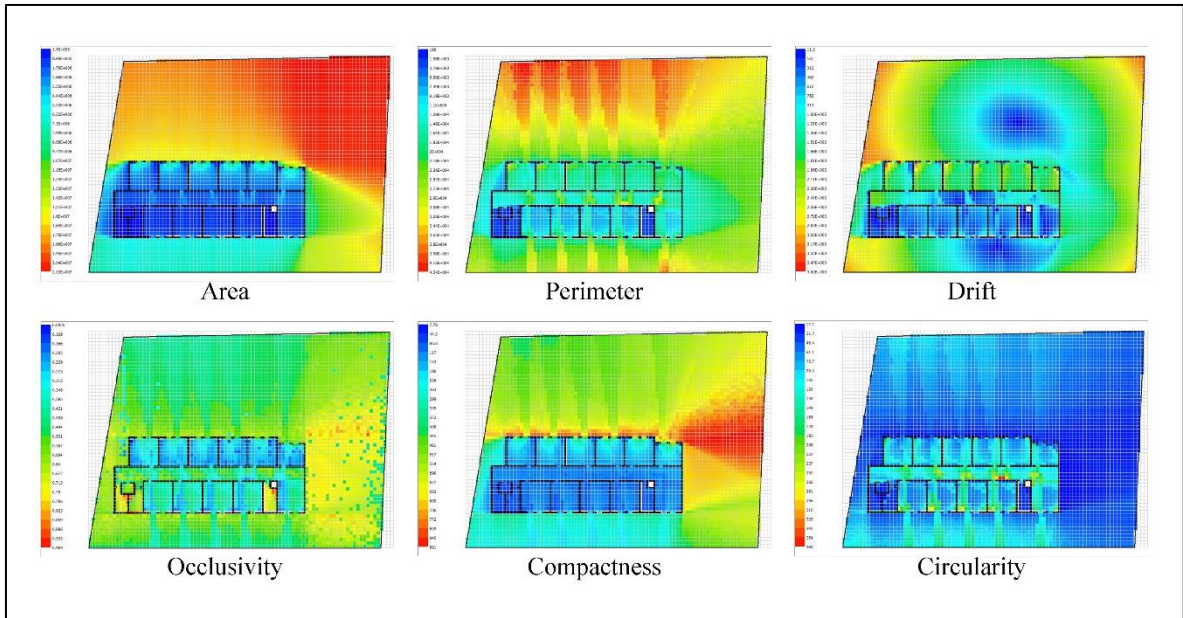


Figure 34: Isovist/Visibility Analysis of Nişantepe Middle School (NMS)

In **Figure 34**, it shows the isovist /visibility analysis of NMS that the most visible is the garden in the entrance of the school area which has the largest area among other spaces of the school. Perimeter shows that in the garden area it seems to be dense with large perimeter value, also can be said that the openness is high. As can be seen in the drift analysis, the blue area which is the center of the garden seems to be dominant with the foot traffic which also means students' activities are dense and the area experiences high frequency of students' movement. In the occlusivity analysis, the occluded area seems to be in the classrooms and can also interpreted as low frequency in movement flow whereas the movement flow has higher frequency outdoor. Compactness shows that from the entrance of the school area to the building which means indeed that area is walkable area in terms of navigation. Therefore, it is in fact the most efficient way to get to the building starting from the entrance.

4.3.3.2 Space Syntax Analysis of Derya Öncü Middle School (Private)

Figure 35 shows the graph/accessibility analysis of the DMS with connectivity, mean depth and integration. In terms of connectivity, the conjunction of the hall which generally is the intersection of paths seems to be high and well connected to each side of the hall. This analysis shows that the node of the hall has high connectivity value. On the other hand, in mean depth we can see that the corner of each entrance of every room has high value, and this means the area is isolated from one location to one another, has low level of experience for users/students, however again, the hall has low mean depth which means that spatial network is well-connected to each space.

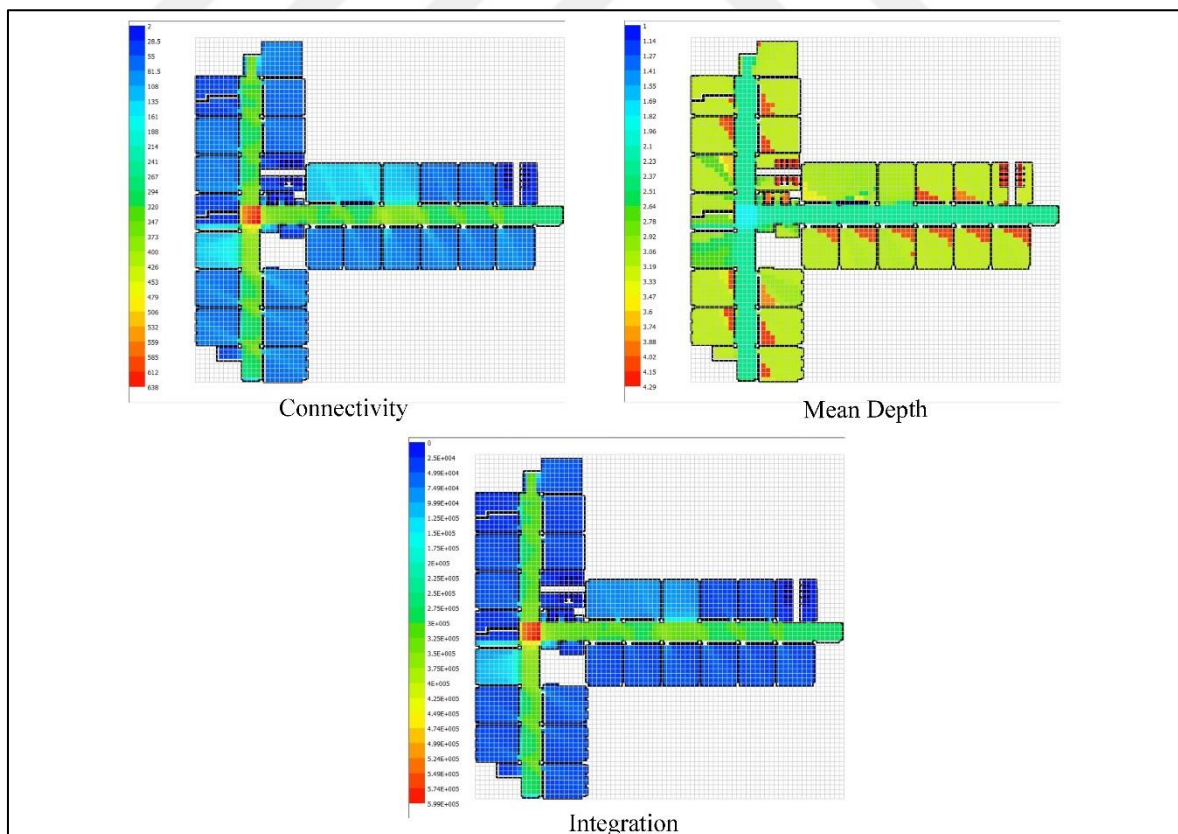


Figure 35: Graph/Accessibility Analysis of Derya Öncü Middle School (DMS)

According to **Figure 36**, isovist area shows that the building's most visible areas are the entrances through the school which can be observed very well from the building itself. Students, therefore, can see through the entrances of the school and at the same time the gardens. The perimeter supports that the most open and accessible space is the garden areas and obviously the most enclosed space is the classrooms inside the building. Again, the drift shows the same result of the most foot traffic in the space which are the gardens, they seem to have low drift value. Occlusivity shows that the highest value is in the back corners of the building. Having high compactness value suggests that the space has an easy access and clear to navigate. The analysis shows that the front façade of the building and gardens relatively have high circularity value for aspect of recognizable form to attract users.

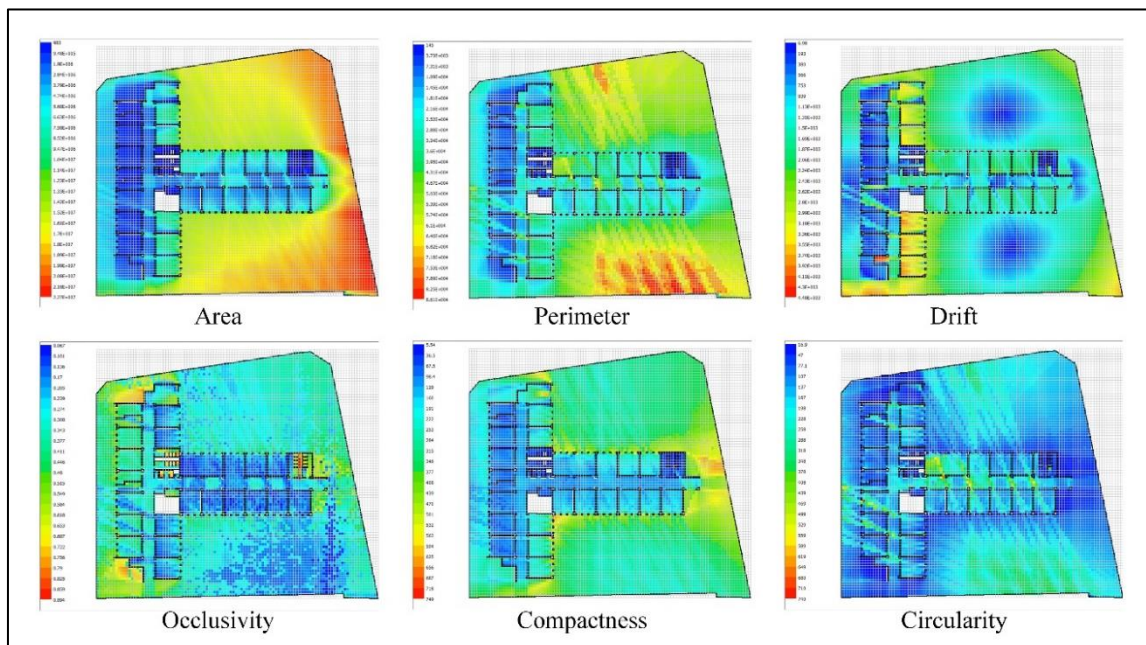


Figure 36: Isovist/Visibility Analysis of Derya Öncü Middle School (DMS)

In the analysis since the usage of some spaces in the cognitive map drawings are also considered as parameters, conference hall in basement 1 floor and dining hall in basement 3 floor are also taken into account to be analyzed for calculation of frequency in the drawings (**Figure 37 & Figure 38**). However, since there are no vital points to interpret and correlate with other parameters, the syntactic analysis of these two layouts are excluded from the study.

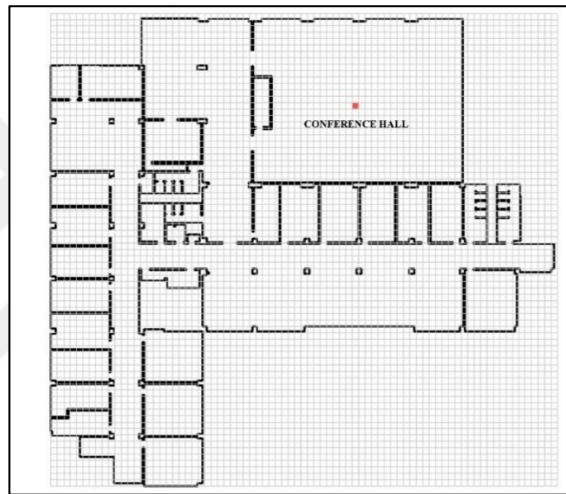


Figure 37: DMS Conference Hall, Basement 1 Floor Plan with Syntactic Node selected for the analysis

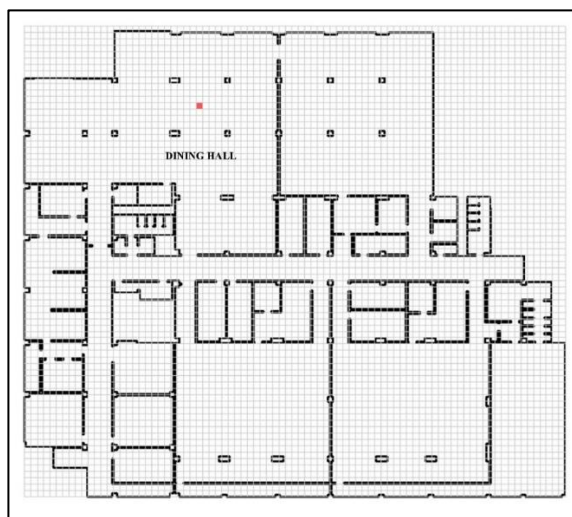


Figure 38: DMS Dining Hall, Basement 3 Floor Plan with the Syntactic Node selected for the analysis

4.3.4 Correlations

In this section, the data related to gender and school type resulted from the surveys and the cognitive data resulted from the drawings of children obtained from Nişantepe Middle School (NMS) and Derya Öncü Middle School (DMS) are statistically analyzed through chi-square and regression tests conducted through SPSS. Since the gender and school type data sets are considered as categoric variables, it is determined that chi-square is suitable for this study. The significant results of the chi-square correlations are examined based on the school type and gender. Moreover, a second type of analyses was conducted for the dependent variables of cognitive mapping and the independent variables of syntactic values. Thus, regression tests are conducted between the numeric variables of cognitive maps and the numerical values of the syntactic analyses.

4.3.4.1 Chi-Square Correlations Based on School Type and Gender

The outputs of cognitive map drawings drawn by students are analyzed as shown in the previous sections through figures and tables. Cognitive map drawings consist of spatial images needed in the study obtained from experiences of students and the representation of them are interpreted in terms of spatial configurations. In this section, results are tested statistically to find significant correlations between each variable based on school type and gender through chi-square using SPSS software. Both statistically significant or not significant results are interpreted and discussed according to the chi-square test results below and specifically significant results are shown in bold texts.

Relation to Topic based on Schools

In this parameter, relation to topic is tested according to the schools and it is observed in a way that the drawings should have included elements of school or its environment. There are several drawings that depicted their own houses solely and they are not considered related to the topic.

Table 1: Chi-square test results based on school type in relation to the representation of the school

	Is it related to school?		Chi-square Test Result
	Yes	No	
NMS	18	3	$p=0.533 > 0.05$
DMS	10	0	Not Significant

The **Table 1**, regarding the relation to the topic which school shows that almost all students of NMS and all students of DMS have done the cognitive map drawings related to the topic. 3 students of NMS have depicted the drawings out of context of the study. Two of them have drawn only their own houses and the other one has drawn an unknown face character in the drawings (**Figure 39**). The result shows that it is statistically not significant, and it cannot be discussed any further



Figure 39: An Example of Out of Context Drawing of a Participant, Participant No.2 of NMS, Male, 7th Grade, 12-year-old

School Representation based on Schools

In the section of school representation parameter, there are sub-categories such as outdoor school space and indoor school space. The drawings are evaluated whether the drawing has elements of outdoor school space such as garden, school entrance door, wall that depicts the border of the school. On the other hand, indoor school space is evaluated according to the inclusions of representations such as classroom, hall, and any other rooms in the school building including restrooms.

Table 2: Chi-square test result based on school type in relation to the representation of the outdoor school environment

	Is outdoor school environment represented?		
	Yes	No	Chi-square Test Result
NMS	13	8	$p=0.205 > 0.05$
DMS	9	1	Not Significant

According to the result above (**Table 2**), 13 students from NMS represented and 8 students have not represented outdoor school environments. 9 students from DMS represented and only 1 student has not represented outdoor school environments. In this case, it can be interpreted that the students of NMS spend more time outside than students of NMS and for that reason the tendency of representing outdoor can be seen much higher than the students of DMS. In the following parameters we see, other results related to outdoor elements and the difference between NMS and DMS can be seen in detail. Since their numbers are not different, the result shows that it is statistically not significant at all.

Table 3: Chi-square test result based on school type in relation to indoor school environment representation

	Is indoor school environment represented?		Chi-square Test Result
	Yes	No	
NMS	0	21	p=0.007 < 0.05
DMS	4	6	Significant

The table above (**Table 3**) shows that all students in NMS have not represented indoor school environments and more than half students of DMS have not represented indoor school environments. The indoor school environment representation in this case is statistically significant because only DMS has a certain value of representation. Indoor space parameter is essentially considered the drawing of school building from the top view or as plan view (**Figure 40**).

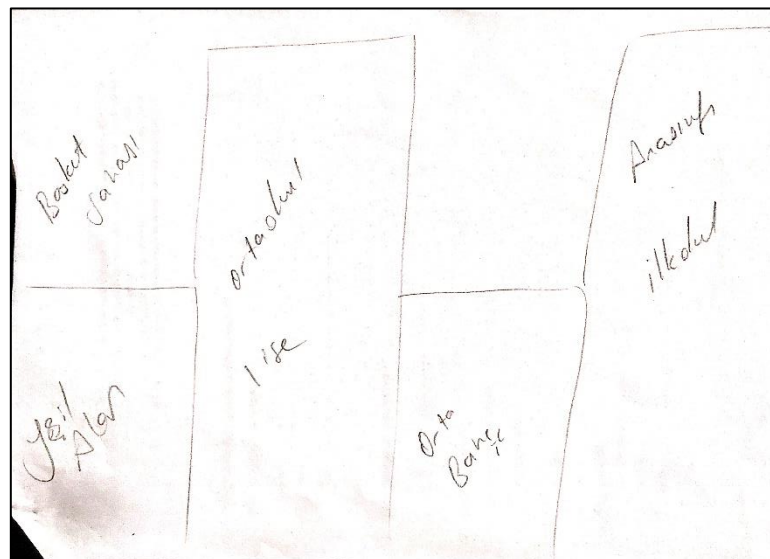


Figure 40: School Building Drawing from the Top, An Example of Indoor Space Representation, Participant No.1 of DMS, Male, 7th Grade, 12-year-old

Nearby Environment Representation based on Schools

In the section of nearby environment representation, various sub-categories of parameters are tested, and these are play attributes, friends and relatives, teachers, natural elements, housing representation, and different land use. Both correlations of DMS and NMS are tested below with each parameter.

Table 4: Chi-square test result based on school type in relation to play attributes representation

	Are play attributes represented?		Chi-square Test Result
	Yes	No	
NMS	12	9	$p=0.20 > 0.05$
DMS	1	9	Not Significant

As can be seen in the table above (**Table 4**), almost half of the students of NMS and almost all the students of DMS have not represented play attributes. It can be interpreted that NMS students tend to spend their time outside both in the garden of school or outside their own houses. Indeed, students in DMS could be spending time in the garden and they could be playing without play attributes as well but since there is no specific reason why the students in DMS have not represented, it seems there is no significant correlation. Though, the result is statistically not significant as expected.

The **Table 5** shows that NMS has more than half of the total student number while DMS has none who has represented friends and/or relatives. In this case, it can be said that NMS students, again according to the previous explanation, they tend to spend their time outside, so they can socialize more than students who mostly live in the gated houses/complex which we can be considered for the students of DMS. Therefore, it is

explicitly obvious that the parameter of friends and/or relatives is statistically significant when the participants of two schools are compared.

Table 5: Chi-square test result based on school type in relation to friends and relatives' representation.

Are friends and relatives represented?			
	Yes	No	Chi-square Test Result
NMS	13	8	p=0.001 < 0.05
DMS	0	10	Significant

In the table below (**Table 6**), the teacher representation seems not to be significant. Since only very few students in NMS and no one in DMS has represented teacher in their cognitive map drawings. In the analysis, teacher representation is considered as represented ones which are the tallest people character in the drawings (

Figure 41). However, it seems that the representation of a teacher is not an important element to be involved in their drawings as can be seen in the number of representations. Though, the test is statistically not significant as can be expected.

Table 6: Chi-square test result based on school type in relation to teacher representation

Are teachers represented?			
	Yes	No	Chi-square Test Result
NMS	4	17	p=0.277 > 0.05
DMS	0	10	Not Significant



Figure 41: An Example of Teacher Representation, A Tall Person Character, Participant No.1 of DMS, Male, 7th Grade, 12-year-old

Natural elements are represented by a little bit more than half of the whole students in NMS and less than half of the whole students in DMS (**Table 7**). There is not much significant difference between NMS and DMS in terms of the number percentage. Therefore, the test shows insignificance. Elements in the drawings that are considered as ‘natural elements’ are plants such as trees, flowers, then animals. Essentially, natural features such as clouds, sun, mountains, oceans, rivers, and forests.

Table 7: Chi-square test result based on school type in relation to natural elements representation

	Are natural elements represented?		Chi-square Test Result
	Yes	No	
NMS	12	9	$p=0.458 > 0.05$
DMS	4	6	Not Significant

Housing unit representation is also statistically not significant for the fact that most of the students in NMS and all of students if DMS have not represented in their drawings (**Table 8**). The feature of housing unit with roof, window or door depiction is considered in this parameter. Some of the students that were considered represented houses of their own and houses of their friends nearby.

Table 8: Chi-square test result based on school type in relation to housing unit representation

	Is any housing unit representation drawn?		Chi-square Test Result
	Yes	No	
NMS	6	15	$p=0.141 > 0.05$
DMS	0	10	Not Significant

As for different land use representation (**Table 9**), the drawings shall have different land use other than their school such as market, restaurant, house, etc. built environment that has different function than their own school. Both NMS and DMS, more than half of the whole students have not represented different land use buildings or any spaces and this resulted as statistically not significant.

Table 9: Chi-square test result based on school type in relation to different land use representation

	Are different land uses represented?		Chi-square Test Result
	Yes	No	
NMS	9	12	$p=1 > 0.05$
DMS	4	6	Not Significant

Kevin Lynch's Image Parameters based on School Type.

In this section, the analysis is conducted based on Lynch's image parameters of landmark, district, node, edge, and path.

When the landmark parameter is considered, the table below (**Table 10**) shows that the students of DMS have not represented any landmark buildings in their drawings while some of students of NMS have represented. Landmark elements/buildings that considered in the parameter are the municipality sports hall, forest in Nişantepe, market, flag post area in the school garden for ceremony. NMS students have represented such buildings that counted in the parameter of landmark. Since there are no students who represented these items in DMS, the result of the test seems to be statistically significant. This shows how students have more perceptual data about the environment, since they travel to school on foot, they have a wider range of built environments that perceived. Therefore, compared to the students of DMS traveling to school by vehicle, students of NMS have much richer features in terms of environmental elements.

Table 10: Chi-square test result based on school type in relation to landmark representation

	Is landmark represented?		Chi-square Test Result
	Yes	No	
NMS	9	12	p=0.030 < 0.05
DMS	0	10	Significant

When the representations of the district parameter are considered, the **Table 11** shows that both schools have convenient numbers of students represented. Only 6 out of 21 Students

of NMS have not represented but overall, it exceeds 50% of the whole students of NMS. On the other hand, all students of DMS have represented district parameter. In that case, there is no specific significance in the correlation between the school type and the district representation. Specification that considered as district was the feature of grouping or zoning in terms of spaces.

Table 11: Chi-square test result based on school type in relation to district representation

	Is district represented?		Chi-square Test Result
	Yes	No	
NMS	15	6	$p=0.141 > 0.05$
DMS	10	0	Not Significant

As can be seen in table below (**Table 12**), students of both NMS and DMS have not represented node in their drawings. Therefore, the test seems to be insignificant. It was expected that students would draw such conjunction of roads, especially from the students of NMS since they have more experience of walking to the school. However, it seems that both have the same result.

Table 12: Chi-square test result based on school type in relation to node representation

	Is node represented?		Chi-square Test Result
	Yes	No	
NMS	0	21	Not Significant
DMS	0	10	

Students of both NMS and DMS have represented edge parameter (**Table 13**), there only 6 out 21 students in NMS have not represented. Specification that is considered was the feature of school area borders such as the walls, fences and doors for entrance and exit. However, the test is statistically not significant as expected.

Table 13: Chi-square test result based on school type in relation to edge representation

	Is edge represented?		Chi-square Test Result
	Yes	No	
NMS	15	6	$p=0.141 > 0.05$
DMS	10	0	Not Significant

In the path parameter table below (**Table 14**), it also shows that the students of both NMS and DMS have similar value in terms of ratio. Therefore, there is no significant value in the test result. Specification for the path was the representation of roads and/or walkways. It was also expected that students of NMS would have high value in this parameter.

Table 14: Chi-square test result based on school type in relation to path representation

	Is path represented?		Chi-square Test Result
	Yes	No	
NMS	3	18	$p=1 > 0.05$
DMS	2	8	Not Significant

Relation to Topic based on Gender Type

Like the tests above, the section below reveals the results of the statistical tests based on the gender type. The **Table 15** shows that almost both gender types have represented

related to the topic of the study except drawings of two students of NMS and a student of DMS. However, there is no significant value in this test.

Table 15: Chi-square test result based on gender type in relation to school

	Is it related to school?		Chi-square Test Result
	Yes	No	
Male	14	2	$p= 1 > 0.05$
Female	14	1	Not Significant

School Representation based on Gender Type

In school representation as for the parameters of both outdoor and indoor school environment (**Table 16 & Table 17**), they have almost identical numbers but do not have significant value in tests.

Table 16: Chi-square test result based on gender type in relation to outdoor school environment representation

	Is outdoor school environment represented?		Chi-square Test Result
	Yes	No	
Male	12	4	$p=0.704 > 0.05$
Female	10	5	Not Significant

Table 17: Chi-square test result based on gender type in relation to indoor school environment representation

	Is indoor school environment represented?		Chi-square Test Result
	Yes	No	
Male	2	14	$p=1 > 0.05$
Female	2	13	Not Significant

Nearby Environment Representation based on Gender Type

In this section, the test is conducted between nearby environment representation parameters below one by one and gender type.

The tables of parameters of ‘play attributes’ and ‘friends and relatives’ according to gender type show that male students have represented more than female students. Since there is no specific reason to be explained and for the fact that the ratio is similar to each other, the test results seem to be insignificant (**Table 18** & **Table 19**).

Table 18: Chi-square test result based on gender type in relation to play attributes representation

Are play attributes represented?			
	Yes	No	Chi-square Test Result
Male	8	8	$p=0.473 > 0.05$
Female	5	10	Not Significant

Table 19: Chi-square test result based on gender type in relation to friends and relatives’ representation

Are friends and relatives represented?			
	Yes	No	Chi-square Test Result
Male	7	9	$p=1 > 0.05$
Female	6	9	Not Significant

In the table below (**Table 20**), the test result in relation to teacher representation shows that female students have more representation than male students. But still, since the ratio is similar it cannot be expected to have significant value in the test.

Table 20: Chi-square test result based on gender type in relation to teacher representation

Are teachers represented?			
	Yes	No	Chi-square Test Result
Male	1	15	$p=0.33 > 0.05$
Female	3	12	Not Significant

In natural elements table below (**Table 21**), this time male students have represented more than female students. Here, again they have a similar ratio and thus the test is statistically not significant.

Table 21: Chi-square test result based on gender type in relation to natural elements representation

Are natural elements represented?			
	Yes	No	Chi-square Test Result
Male	9	7	$p=0.724 > 0.05$
Female	7	8	Not Significant

The table below (**Table 22**) shows that both male students and female students have the same number of representations. Again, since the ratio of both are almost identical the test result is statistically not significant.

Table 22: Chi-square test result based on school type in relation to housing unit representation

Is any housing unit representation drawn?			
	Yes	No	Chi-square Test Result
Male	3	13	$p=1 > 0.05$
Female	3	12	Not Significant

In the land use table below (**Table 23**) shows that female students have more representation than male students. In addition, there is no specific significant value in this test.

Table 23: Chi-square test result based on gender type in relation to different land use representation

	Are different land uses represented?		Chi-square Test Result
	Yes	No	
Male	6	10	$p=0.722 > 0.05$
Female	7	8	Not Significant

Kevin Lynch's Image Parameters based on Gender Type

In this section the correlation test was conducted between Lynch's image parameters and gender type. The results of parameters are explained below.

In landmark representation (**Table 24**) according to gender type below shows that male students have more representation than female students. Despite this, the result of the test is statistically not significant.

Table 24: Chi-square test result based on gender type in relation to landmark representation

	Is landmark represented?		Chi-square Test Result
	Yes	No	
Male	6	10	$p=0.433 > 0.05$
Female	3	12	Not Significant

In district representation below, almost all of the students of both NMS and DMS have represented the district parameter (**Table 25**). However, there is no significant value in the test between district representation and gender type.

Table 25: Chi-square test result based on gender type in relation to district representation

Is district represented?			
	Yes	No	Chi-square Test Result
Male	13	3	$p=1 > 0.05$
Female	12	3	Not Significant

The node parameter table below shows that there are no students who represented it at all. Thus, as expected the result seems to be statistically not significant in the test (**Table 26**).

Table 26: Chi-square test result based on gender type in relation to node representation

Is node represented?			
	Yes	No	Chi-square Test Result
Male	0	16	Not Significant
Female	0	15	

Below in the edge parameter, almost all the students have represented the edge. Like previous tests above since there is no difference in terms of ratio, the test result seems to be statistically not significant (**Table 27**).

Table 27: Chi-square test result based on gender type in relation to edge representation

Is edge represented?			
	Yes	No	Chi-square Test Result
Male	13	3	$p=1 > 0.05$
Female	12	3	Not Significant

Lastly, in path representation according to gender type below shows that almost all the students of both NMS and DMS have not represented except a couple of students have

represented the path parameter in their drawings (**Table 28**). Nevertheless, the test result seems to be statistically not significant.

Table 28: Chi-square test result based on gender type in relation to path representation

	Is path represented?		Chi-square Test Result
	Yes	No	
Male	3	13	$p=1 > 0.05$
Female	2	13	Not Significant

4.3.4.2 Regression Correlations

In this section regression analyses are conducted to find any significant correlations between cognitive frequencies of students at both schools and syntactic values such as isovist measurands and graph measurands. In the regression tests, Pearson correlation values were tested, and some significant values were found ($p < 0.05$).

In **Table 29**, the results of regression tests are shown based on the analyses of NMS students' cognitive frequencies and syntactic values of isovist measurands and graph measurands. As many of the correlations are found to be statistically significant ($p < 0.05$). In the correlations between NMS cognitive frequency and syntactic values, the analyses showed that spatial configurations that are reflected from the cognitive maps, *isovist occlusivity*, *isovist circularity* and *mean depth* are not statistically significant (**Table 29**).

On the other hand, *isovist area* ($p=0.001 < 0.05$), *isovist perimeter* ($p=0.044 < 0.05$), *isovist drift* ($p=0.02 < 0.05$), *isovist compactness* ($p=0.001 < 0.05$), *connectivity*

($p=0.001<0.05$) and *integration* ($p=0.001<0.05$) seem to be statistically significant. In other words, students in NMS have represented the spaces that:

- are the central areas such as school garden and the *most visible* point and the *highest isovist area* value,
- have the longest perimeter and the *highest isovist perimeter* value,
- have the longest drift and the highest isovist perimeter value,
- are the mostly connected from an area to another which have the most connectivity value,
- are mostly integrated areas such as corridors, the highest integration value.

Table 29: Regression test between NMS students' cognitive frequency in cognitive map drawings of space and syntactic values

	r²	p	significance
NMS cognitive frequency and isovist area	0.969	0.001<0.05	SIGNIFICANT
NMS cognitive frequency and isovist perimeter	0.721	0.044<0.05	SIGNIFICANT
NMS cognitive frequency and isovist drift	0.789	0.020<0.05	SIGNIFICANT
NMS cognitive frequency and isovist occlusivity	0.023	0.957>0.05	not significant
NMS cognitive frequency and isovist compactness	0.936	0.001<0.05	SIGNIFICANT
NMS cognitive frequency and isovist circularity	0.036	0.933>0.05	not significant
NMS cognitive frequency and connectivity	0.95	0.001<0.05	SIGNIFICANT
NMS cognitive frequency and mean depth	-0.656	0.078>0.05	not significant
NMS cognitive frequency and integration	1	0.001<0.05	SIGNIFICANT

Table 30: Regression test between DMS students' cognitive frequency in cognitive map drawings of space and syntactic values

	r²	p	significance
DMS cognitive frequency and isovist area	0.749	0.032<0.05	SIGNIFICANT
DMS cognitive frequency and isovist perimeter	0.766	0.027<0.05	SIGNIFICANT
DMS cognitive frequency and isovist drift	-0.315	0.446>0.05	not significant
DMS cognitive frequency and isovist occlusivity	-0.108	0.798>0.05	not significant
DMS cognitive frequency and isovist compactness	0.122	0.773>0.05	not significant
DMS cognitive frequency and isovist circularity	0.52	0.187>0.05	not significant
DMS cognitive frequency and connectivity	0.769	0.026<0.05	SIGNIFICANT
DMS cognitive frequency and mean depth	-0.674	0.067>0.05	not significant
DMS cognitive frequency and integration	-0.313	0.450>0.05	not significant

Table 30 shows DMS students' cognitive frequency and syntactic values of isovist measurands and graph measurands. Many of the correlations are found to be statistically not significant in this school ($p>0.05$). As can be seen from the table below, the correlations between DMS cognitive frequency and syntactic values: *isovist drift*, *isovist occlusivity*, *isovist compactness*, *isovist circularity*, *mean depth* and *integration* seem to be statistically not significant in the test. On the other hand, we can see that some of the syntactic values have significant results such as *isovist area* ($p=0.032<0.05$), *isovist perimeter*

($p=0.027<0.05$) and *connectivity* ($0.026<0.05$). In other words, it can be asserted that students in DMS have represented the spaces that:

- are the central areas such as school garden, the *most visible* point where the *highest isovist area* value is,
- have the longest perimeter and the *highest isovist perimeter* value,
- are mostly integrated areas such as corridors, the highest integration value.

4.3.5 Results of Correlations

The analyses show that DMS and NMS have some common results which are statistically significant in the correlations between students' cognitive frequencies and syntactic values, isovist measurands and graph measurands: (1) isovist area, (2) isovist perimeter and (3) connectivity (**Table 31**).

Table 31: All regression test results that are shown statistically significant between the cognitive frequencies and syntactic values when both schools are compared

	r^2	p	significance
DMS cognitive frequency and isovist area	0.749	0.032<0.05	SIGNIFICANT
DMS cognitive frequency and isovist perimeter	0.766	0.027<0.05	SIGNIFICANT
DMS cognitive frequency and connectivity	0.769	0.026<0.05	SIGNIFICANT
NMS cognitive frequency and isovist area	0.969	0.001<0.05	SIGNIFICANT
NMS cognitive frequency and isovist perimeter	0.721	0.044<0.05	SIGNIFICANT
NMS cognitive frequency and isovist drift	0.789	0.020<0.05	SIGNIFICANT

NMS cognitive frequency and isovist compactness	0.936	0.001<0.05	SIGNIFICANT
NMS cognitive frequency and connectivity	0.95	0.001<0.05	SIGNIFICANT
NMS cognitive frequency and integration	1	0.001<0.05	SIGNIFICANT

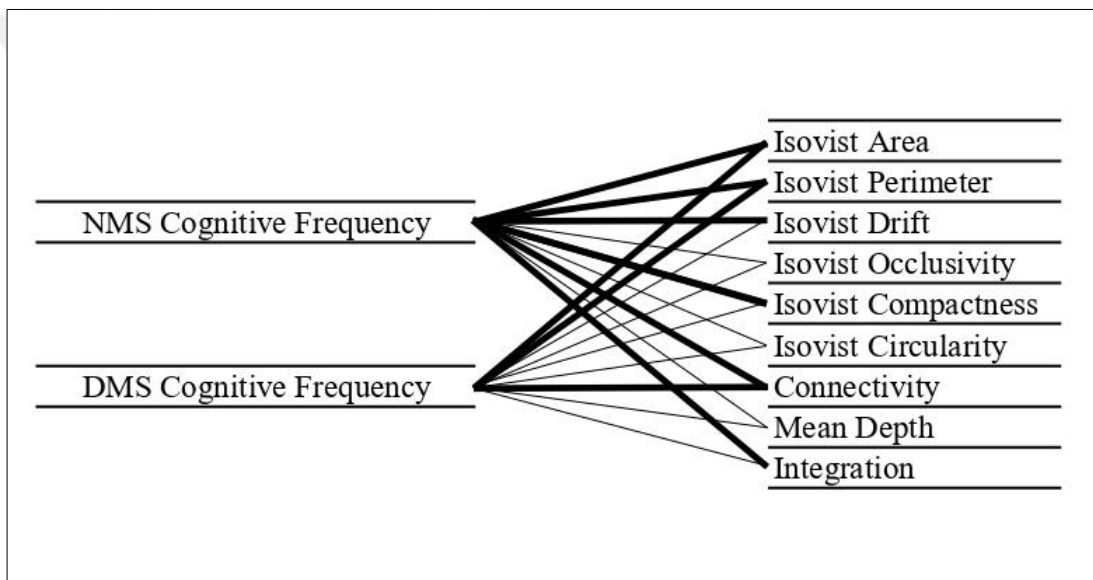


Figure 42: Significant correlations obtained from all regression tests

In the correlations of school type and cognitive mapping representation obtained from chi-square tests (**Table 32 & Figure 42**), three of correlations are seemed to be statistically significant ($p < 0.05$): (1) *indoor school environment*, (2) *friends and relatives*, and (3) *landmark*. However, it cannot be asserted the same way for correlations between the gender type and cognitive mapping representation (**Figure 43**). According to the results gender type have no effect on the cognitive mapping representation at all in both NMS and DMS.

Table 32: Chi-square test results that are statistically significant between school type and cognitive mapping representation

	χ^2	df	p	significance
School type - indoor school environment representation	9.644	1	0.007 < 0.05	SIGNIFICANT
School type - friends and relatives representations	10.661	1	0.001 < 0.05	SIGNIFICANT
School type - landmark representation	6.039	1	0.030 < 0.05	SIGNIFICANT

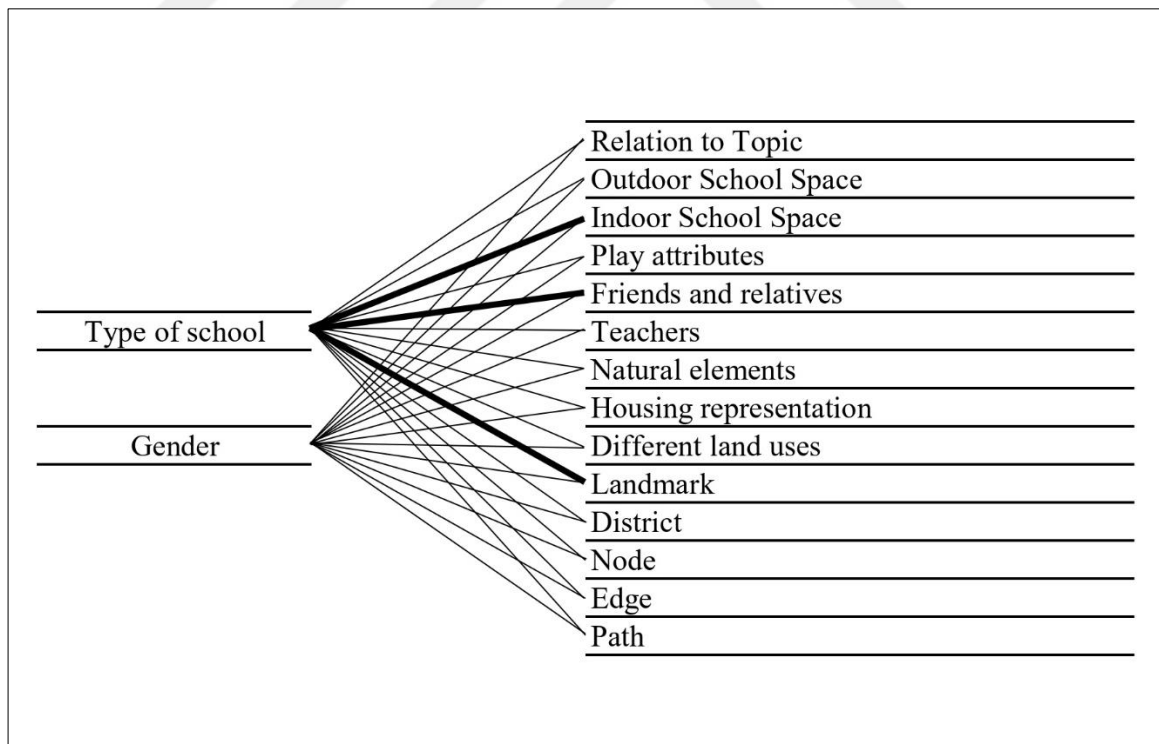


Figure 43: Significant correlations obtained from the chi-square tests

CHAPTER V

CONCLUSION AND DISCUSSION

Through an evidence based approach adopted in this thesis titled “An Analysis of Perceptual Processes of Students About Their School Environment Through Cognitive Mapping: School Environment in Nişantepe Neighborhood”, and depending on the results of the case study conducted within the framework of a comparative methodology the data obtained from NMS and DMS schools were cumulatively evaluated and in the light of all the interpretations about the school environments, has been tried to be discussed as well as to shed light on further studies for the future researchers interested in the school environments.

In the scope of the study, the perceptual processes of middle school 7th grade students (13-year-old) about their school environments have been analyzed by the comparison of two different type of school selected as a public and a private school, which are settled in the same neighborhood: Nişantepe. The study is aimed to comprehend the perceptual processes of students through cognitive mapping and then the spatial layout has been analyzed through *space syntax* method. It can be assessed that this study is based on a comparative correlational analysis that intends to examine the fundamental differences between two schools having students from two diverse socioeconomic status although they go on to their middle school educations in the same neighborhood in Nişantepe.

The case study has not only aimed to find vital outcomes of students’ representation considering their outdoor school environments, but also their indoor school environments. Through the case study conducted, it became possible to understand whether they choose to

spend time in the indoor or outdoor environment of their schools. In this case, the values of representations of image parameters in cognitive maps that displays the *perceptual processes* of the students, have been considered as the frequencies of their *cognitive representations*, and are comparatively evaluated with the *syntactic values* as the independent variables which provided a multi-faceted discussion for planning and programming school environment design particularly.

Within the context of the study, the choice of students about where they spend their time during particular periods (indoor) in their short or long break times have found to be statistically significant ($p=0.007<0.05$) in terms of school type. It is important to underline that Nişantepe Neighborhood is on the outskirts of Istanbul where it consists of different socio-economic backgrounds of people. However, particularly in the center, nearby the school, residential environment or if we can zoom out, urban form, that has not properly developed due to the urban laws and regulations. Upon the urban context of the neighborhood, it is highlighted that the students at the public school Nişantepe Middle School (NMS), who mostly live in Nişantepe Neighborhood nearby the school, seem to have more representation of *play attributes* which can be asserted as active in play in this sense. And it can be seen from the cognitive map output that it is because they spend more time outside.

On the other hand, almost all students at the private school, Derya Öncü Middle School (DMS), live outside the Nişantepe Neighborhood and they have less play attributes representation on cognitive maps compared to NMS. This result might be depending on the type of transportation students go to school since it is an observed fact that the NMS students mostly travel to their school on foot while DMS students mostly travel by vehicles. In this

case, based on the cognitive map drawings, the richness of the perceptual processes in cognitive map regarding their school environment seem to validate it.

The correlations between cognitive frequency and syntactic parameters can be asserted that the parameters of *isovist area*, *isovist perimeter* and *connectivity* of the school environment are found to be significant for both schools and it demonstrates that the students preferred to include to represent the spaces in their cognitive maps where they feel comfortable and actively behave in.

However, to compare, both schools have differences in terms of significant results. NMS have significant results that DMS do not have considering the values of (1) isovist drift, (2) isovist compactness, and (3) integration. The *drift value* shows that NMS student have more spatial network within the school where students move naturally which creates higher levels of flow and activity which in the case of school environment, it can be related to the continuity of students' movements (walking from home) from outside of school through inside of school. *Compactness* shows the importance that the spaces/networks area spatially efficient and seem to be more direct in a way that students' walking activity when they enter the school is directed to the building. It can be underlined that NMS has high level starting point around the entrance of the school border through the school building. In this case, students' continuity of movements can be supportive evidence of the study while assessing their perceptual processes about their school environment.

In this thesis, it is crucial to acknowledge certain limitations that came up due to the COVID-19 pandemic and additional restrictions. One of the main limitations of this thesis emerged from the initial plan of using a *Google Form* as the primary data collection method.

The intention was to conduct a survey and cognitive map drawing online to the middle school students.

To adapt to the circumstances, an alternative approach was adopted. The survey that was initially designed and planned for online administration had to be altered and printed for execution within two available schools – one private school (DMS) and one governmental public school (NMS). The impact of COVID-19 on the overall educational environment was not seen since it was the end of the pandemic situation. The use of masks was not mandatory, and the risk did not exist at the time of the case study. Thus, it was possible to conduct the survey and cognitive mapping sessions face-to-face.

Another limitation of this study was the low participation of numbers, which arose due to the limited number of students in DMS since it only consists of one section of 7th grade class in the school. Despite the low participation numbers, the study still gives valuable insights and clues about the experiences of the included participants. The findings of the study can contribute to a further understanding of the specific context and create hypotheses for further investigations for future researchers.

Nonetheless, this study not only deems that it can be beneficial to further research regarding the perceptions of children about their school environments based on comparisons of their cognitive data *differences* in terms of housing locations, scope of urban context, age groups, spatial configurations, and type of school (public/private), but is also expected to contribute to achieving better designed, planned, and integrated school environments within the urban context of the city.

APPENDIX

APPENDIX A: Letter of Permission for Nişantepe Middle School

APPENDIX B: Letter of Permission for Derya Öncü Middle School

APPENDIX B.1: Ethical Committee Form of Permission

APPENDIX B.2: Ethical Committee Form of Permission

APPENDIX B.3: Ethical Committee Form of Permission

APPENDIX C: Letter of Permission

APPENDIX D: Letter of Permission

APPENDIX E: Letter of Permission

APPENDIX F.1: Chi-square Outputs Obtained from SPSS Sheet-1

APPENDIX F.2: Chi-square Outputs Obtained from SPSS Sheet-2

APPENDIX F.3: Chi-square Outputs Obtained from SPSS Sheet-3

APPENDIX F.4: Chi-square Outputs Obtained from SPSS Sheet-4

APPENDIX F.5: Chi-square Outputs Obtained from SPSS Sheet-5

APPENDIX F.6: Chi-square Outputs Obtained from SPSS Sheet-6

APPENDIX F.7: Chi-square Outputs Obtained from SPSS Sheet-7

APPENDIX G.1: NMS Regression Test Outputs Obtained from SPSS Sheet-1

APPENDIX H.1: DMS Regression Test Outputs Obtained from SPSS Sheet-1

APPENDIX I: Survey template for students and parents

APPENDIX J: Cognitive Map Drawings of NMS Students

APPENDIX K: Cognitive Map Drawings of DMS Students

APPENDIX A: Letter of Permission for Nişantepe Middle School

23/08/2021

ÖZYEGİN ÜNİVERSİTESİ FEN BİLİMLERİ ENSTİTÜSÜ MÜDÜRLÜĞÜNE,

Özyeğin Üniversitesi Fen Bilimleri Enstitüsü, Mimarlık Tezli Yüksek Lisans Programı S010166 numaralı, tez danışmanı olduğum öğrencim FAUZI WIBOWO'nun, "An Analysis of Perceptual Processes of Students About Their School Environment Through Cognitive Mapping: School Environment in Nişantepe Neighborhood" başlıklı yüksek lisans tezinin alan çalışması kapsamında, aşağıda adres ve iletişim bilgileri yer alan, Çekmeköy ilçesine bağlı Nişantepe Ortaokulu ve İELEV Ortaokulu'nda eğitim ve öğrenim görmekte olan ortaokul öğrencileriyle, onların eğitim ve öğretim süreçlerini aksatmamak, öğrencilerinin ebeveynlerinin de rızaları alınmak ve aynı zamanda çocukların bu alan çalışmalarına gönüllü olarak katılmak istemeleri koşuluyla, karşılaştırmalı bir alan çalışması yürütülmesi istenmektedir. Alan çalışmaları kapsamında, öğrencilerin okullarının bulunduğu kentsel ve fiziksel çevrelere ilişkin algılarının, öğrencilerin okul çevrelerine ilişkin yapacakları resimler üzerinden incelenmesi amaçlanmaktadır.

Tez danışmanı olduğum FAUZI WIBOWO'nun, aşağıda iletişim bilgileri verilen 7.sınıf ortaokul öğrencileriyle alan çalışmalarını gerçekleştirebilmeleri için gerekli olan iki farklı dilekçenin, "Nişantepe Ortaokulu" ve "İELEV Ortaokulu"na hitaben hazırlanmasını arz ederim.

Saygılarımla,



Dr. Öğr. Üyesi Nevşet Gül Çanakçıoğlu
Özyeğin Üniversitesi | Mimarlık ve Tasarım Fakültesi
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EK: 16.08.2021 tarihli, 2021/15/05 toplantı numaralı Etik Kurul Belgesi

Nişantepe Ortaokulu
Neriman ZAYİM - School Principal
Nişantepe, Ensar Cd., 34794 Çekmeköy/İstanbul
Phone: [\(0216\) 304 63 55](tel:02163046355)

İELEV Ortaokulu
Ensar Cad. No:4/1 Nişantepe Mah
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Phone: (0216) 304 69 09 E-mail: 125.yil@ielev.k12.tr Fax: (0216) 304 36 34

APPENDIX B: Letter of Permission for Derya Öncü Middle School

17/02/2022

ÖZYEGİN ÜNİVERSİTESİ FEN BİLİMLERİ ENSTİTÜSÜ MÜDÜRLÜĞÜNE,

Özyeğin Üniversitesi Fen Bilimleri Enstitüsü, Mimarlık Tezli Yüksek Lisans Programı S010166 numaralı, tez danışmanı olduğum öğrencim FAUZI WIBOWO'nun, "An Analysis of Perceptual Processes of Students About Their School Environment Through Cognitive Mapping: School Environment in Nişantepe Neighborhood" başlıklı yüksek lisans tezinin alan çalışması kapsamında, aşağıda adres ve iletişim bilgileri yer alan, Çekmeköy ilçesine bağlı **Özel Derya Öncü Ortaokulu**'nda eğitim ve öğrenim görmekte olan ortaokul öğrencileriyle, onların eğitim ve öğretim süreçlerini aksatmamak, öğrencilerinin ebeveynlerinin de rızaları alınmak ve aynı zamanda çocukların bu alan çalışmalarına gönüllü olarak katılmak istemeleri koşuluyla, karşılaştırmalı bir alan çalışması yürütülmesi istenmektedir. Alan çalışmaları kapsamında, öğrencilerin okullarının bulunduğu kentsel ve fiziksel çevrelerine ilişkin algılarının, öğrencilerin okudukları okul çevrelerine ilişkin yapacakları resimler üzerinden incelenmesi amaçlanmaktadır.

Tez danışmanı olduğum FAUZI WIBOWO'nun, aşağıda iletişim bilgileri verilen 7.sınıf ortaokul öğrencileriyle alan çalışmalarını gerçekleştirebilmeleri için gerekli olan dilekçenin, "Çekmeköy Derya Öncü Ortaokulu"na hitaben hazırlanmasını arz ederim.

Saygılarımla,



Dr. Öğr. Üyesi Nevşet Gül Çanakçıoğlu
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EK: 16.08.2021 tarihli, 2021/15/05 toplantı numaralı Etik Kurul Belgesi

Derya Öncü Ortaokulu

Adres: Nişantepe Mah.
Okul Sok. No: 7
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Tel: [216] 939 2525
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E-posta: deryaoncu@deryaoncu.k12.tr

APPENDIX B.1: Ethical Committee Form of Permission



Nişantepe District
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HUMAN RESEARCH ETHICS BOARD MEETING MINUTE

MEETING NO : 2022/03
MEETING DATE : 03.03.2022
APPROVAL CODE : 2022/03/01
MEETING ROOM : Özyeğin University
ATTENDEES : Prof. Dr. G. Canan Ergin
Dr. Sibel Oktar Thomas
Dr. Ceren Hayran Şanlı

HUMAN RESEARCH ETHICS BOARD APPLICATION FORM (FORM A)	
Project Name	An Analysis of Perceptual Processes of Students About Their School Environment Through Cognitive Mapping: School Environment in Nişantepe Neighborhood (Master Thesis in MSc in Architecture)
Project Manager	Fauzi WIBOWO Nevset Gul Canakcioglu, PhD, Assist. Prof. (Thesis Supervisor)
Project Manager's Contact Details	E-mail: fauzi.wibowo@ozu.edu.tr Mobile: +90 534 235 47 17
Key Researchers	Fauzi WIBOWO
Project Term (Start and End Date)	September 2021- June 2022
Project Purpose and Summary	This study aims to analyse the perceptual processes of middle school students particularly 13-year-old, about their school environment by comparing two different types of school and socioeconomic group: one from private school and the other one from public school. Research regarding the spatial configuration of the schools will be analysed through cognitive mapping and space syntax. The research focuses more on how the school environment is perceived and Nişantepe Neighbourhood is determined as the case study environment of the research.
Research Methodology	Through data collections, parents and students will be given an Online Google Document Survey or printed survey to be filled (a link to the survey is provided in the attachment). The parents will answer the questions in the survey regarding their socio-economic situation such as neighbourhood, house types, etc. they live in. Furthermore, since

APPENDIX B.2: Ethical Committee Form of Permission



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this research is based on a voluntary participation, the consent of the of the parents about the participation of their children to participate will be taken in advance. Students of 7th Grade (13-year-old children) will be requested to draw cognitive map drawings with the title of "draw your school and its environment" on an A4 size of paper which will approximately take 15-20 minutes. Then, they are supposed to upload the file on the "upload file" section. The surveys are expected to be given to the Art or Drawing Course teachers (if there is no such course it can be directly given to the parents) in the scope of their homework. Depending on the method of education in the primary schools during the research (online education or offline education). In the case of online education method, the survey will be conducted through Online *Google Survey*. Otherwise, it will be conducted manually by visiting to the schools. In the following step the surveys will be evaluated through SPSS analysis and the drawings will be evaluated according to Piaget's space parameter and the spatial configurations of the schools will be evaluated through Space Syntax method.

- a) The data will be collected from both the students of 7th Grade and their parents.
- b) The method of reaching the participants is conducting an online or offline survey in line with the official decisions by the Ministry of Health due to the pandemic.
- c) Students will not make any physical effort during the research. During the study, no dialogue will be established with the students regarding the change of their cognitive and emotional moods. Therefore, the case study will not affect their physical, emotional, and cognitive status.
- d) The participants will be informed by the school management and teachers before the survey. In addition, the questionnaire form to be filled by the students will first be filled by the child's parent. Since cognitive mapping will be conducted with the children who let their child participate in the study, children will also be informed about the study through their parents.
- e) This research will be based on voluntary participation of the children and will be documented through approval form that will be filled in by the parents.
- f) It is assumed that students will gain awareness about their school and its nearby environment through this study. In addition, this case study can be considered as a useful study process for students, as the students participating in the research participate in a creative study

APPENDIX B.3: Ethical Committee Form of Permission



Nişantepe District
Çekmeköy, İstanbul
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	and thus have the opportunity to express themselves. g) After the participation of the survey, there is no need for feedback since there is no confidential information to be kept from parents and children during the research.
Ethics and Data Management Plan	1) The privacy of the participants will be protected. Responses obtained from the surveys will not contain their names and contact details. The documents obtained from the participants will be named as Participant 1, Participant 2, etc. 2) The information obtained from the surveys will be stored by the researcher on a hard disk. The data will be used for the analysis.
Participants	The study will be conducted at Derya Öncü Middle School (Çekmeköy Campus) and İstanbul-Çekmeköy Nişantepe Primary and Middle School with 7 th Grade students and their parents. Based on the class sections (7/A, 7/B, 7/C, 7/D, etc.), students will be expected to contribute on the drawing of cognitive maps and survey. The parents will only be expected to contribute on the surveys.
Research Budget and Resources	No budget is necessary for this research.

The Project “**An Analysis of Perceptual Processes of Students About Their School Environment Through Cognitive Mapping: School Environment in Nişantepe Neighborhood**” managed by **Fauzi WIBOWO**, a member of the **Graduate School of Engineering** at Özyeğin University has been reviewed.

- Ethical Approval is granted
 Amendment required
 Ethical Approval is declined

Signatures:

Prof. Dr. G. Canan Ergin
Chair

Dr. Sibel Oktar Thomas
Member

Dr. Ceren Hayran Şanlı
Member

APPENDIX C: Letter of Permission



MİMARLIK VE TASARIM FAKÜLTESİ DEKANLIĞI

Tarih: 14/03/2022
Sayı: 94642724-903.07.01-
E.061681



Sayı : E-94642724-903.07.01-061681
Konu : Fauzi Wibowo Alan Çalışması Hk

ÖZYEGİN ÜNİVERSİTESİ REKTÖRLÜĞÜ

Özyeğin Üniversitesi Fen Bilimleri Enstitüsü, Mimarlık Tezli Yüksek Lisans Programı S010166 numaralı öğrencisi Fauzi Wibowo'nun "An Analysis of Perceptual Processes of Students About Their School Environment Through Cognitive Mapping: School Environment in Nişantepe Neighborhood" başlıklı yüksek lisans tezinin alan çalışması kapsamında, Çekmeköy ilçesine bağlı Özel Derya Öncü Ortaokulu'nda öğrenim gören 7. sınıf öğrencileriyle, onların eğitim ve öğretim süreçlerini aksatmamak, öğrencilerin ebeveynlerinin de rızasını almak ve aynı zamanda çocukların bu alan çalışmalarına gönüllü olarak katılmak istemeleri koşuluyla, karşılaştırmalı bir alan çalışması gerçekleştirebilmesi için onayınızı arz ederim.

Saygılarımla,

Prof. Dr. H. Fatih Uğurdağ
Fen Bilimleri Enstitüsü Müdür Vekili

O L U R
Prof. Dr. F. Esra Gençtürk
Rektör

EK:

- 1) Tez Danışmanının FBE'ye dilekçesi-Fauzi Wibowo
- 2) Etik Kurul Belgesi-Fauzi Wibowo

Bu belge güvenli elektronik imza ile imzalanmıştır.

Belge Doğrulama Kodu: 78B75560-6EB7-4795-B490-DFFB1E542B04 Belge Doğrulama Adresi: <https://www.turkiye.gov.tr/ozyegin-universitesi-ebys>

Adres: Nişantepe mah. Orman sok. 34794 Çekmeköy-İstanbul
Telefon No: 02165649089 Faks No: 02165649000
e-Posta: alizer.akgul@ozyegin.edu.tr İnternet Adresi: www.ozyegin.edu.tr
KEP Adresi: ozyeginuniversitesi@hs01.kep.tr



APPENDIX D: Letter of Permission



Tarih: 06/09/2021
Sayı: 44121234-903.07.02-
E.050885



Sayı : E-44121234-903.07.02-050885
Konu : Fauzi Wibowo Alan Çalışması Hk

06/09/2021

T.C.
MİLLÎ EĞİTİM BAKANLIĞI
Nişantepe Ortaokuluna
Çekmeköy-İstanbul

Özyeğin Üniversitesi Fen Bilimleri Enstitüsü, Mimarlık Tezli Yüksek Lisans Programı öğrencisi Fauzi Wibowo'nun "An Analysis of Perceptual Processes of Students About Their School Environment Through Cognitive Mapping: School Environment in Nişantepe Neighborhood" başlıklı yüksek lisans tezinin alan çalışması kapsamında, okulunuzda öğrenim gören 7. sınıf öğrencileriyle, onların eğitim ve öğretim süreçlerini aksatmamak, öğrencilerin ebeveynlerinin de rızasını almak ve aynı zamanda çocukların bu alan çalışmalarına gönüllü olarak katılmak istemeleri koşuluyla, karşılaştırmalı bir alan çalışması yapabilmesi hususunda izin verilmesini rica ederim.

Saygılarımla,

Prof. Dr. F. Esra Gençtürk
Rektör

Ek:

- 1- Fauzi Wibowo-Etik Kurul Raporu
- 2- Fauzi Wibowo-Tez Danışmanı Gül Çanakçıoğlu'nun Dilekçesi
- 3- Fauzi Wibowo-Enstitü onayı

"6698 sayılı Kişisel Verilerin Korunması Kanunu kapsamında kişisel veri/özel nitelikli kişisel veri niteliğini haiz olup ilgili yasal düzenleme gereği kararda açıkça öngörülen haller ve ilginin rızası dışında veriler aktarılamaz ve işlenemez. Verilerin hangi amaçlarla, ne kadar süre için işlendiği ve saklandığı, işleme yöntemi, verileri kime hangi amaçlarla aktardığınız ve verinin korunması için alınması zorunlu olan önlemler ve Kanun ve ikincil mevzuattan kaynaklanan tüm yükümlülükler tarafınıza aittir"

Bu belge güvenli elektronik imza ile imzalanmıştır.

Belge Doğrulama Kodu: 01955305-1D32-481F-BD0F-A8F5C19BA249 Belge Doğrulama Adresi: <https://www.turkiye.gov.tr/ozyegin-uni-versitesi-ebys>

Adres: Nişantepe Mah. Orman Sok. No:34-36 Çekmeköy-İstanbul
Telefon No: 02165649557 Faks No: 02165649000
e-Posta: asena.dere@ozyegin.edu.tr İnternet Adresi: www.ozyegin.edu.tr
KEP Adresi: ozyeginuniversitesi@hs01.kep.tr

Ayrıntılı bilgi için: Betül Asena DERE
Yazı İşleri Yöneticisi
Telefon No: 02165649557



APPENDIX E: Letter of Permission



Tarih: 16/03/2022
Sayı: 44121234-903.07.02-
E.062051



Sayı : E-44121234-903.07.02-062051
Konu : Fauzi Wibowo Alan Çalışması Hk

16/03/2022

T.C.
MİLLİ EĞİTİM BAKANLIĞI
Özel Derya Öncü Ortaokulu
Çekmeköy-istanbul

Üniversitemiz Fen Bilimleri Enstitüsü, Mimarlık Tezli Yüksek Lisans Programı S010166 numaralı öğrencisi Fauzi Wibowo'nun "An Analysis of Perceptual Processes of Students About Their School Environment Through Cognitive Mapping: School Environment in Nişantepe Neighborhood" başlıklı yüksek lisans tezinin alan çalışması kapsamında, okulunuzda öğrenim gören 7. sınıf öğrencileriyle, onların eğitim ve öğretim süreçlerini aksatmamak, öğrencilerin ebeveynlerinin de rızasını almak ve aynı zamanda çocukların bu alan çalışmalarına gönüllü olarak katılmak istemeleri koşuluyla, karşılaştırmalı bir alan çalışması yapabilmesi hususunda izin verilmesini rica ederim.

Saygılarımla,

Prof. Dr. F. Esra Gençtürk
Rektör

Ek:

- 1- Fauzi Wibowo-Etik Kurul Raporu
- 2- Fauzi Wibowo-Tez Danışmanı Nevşet Gül Çanakçıoğlu'nun Dilekçesi
- 3- Fauzi Wibowo-Enstitü onayı

"6698 sayılı Kişisel Verilerin Korunması Kanunu kapsamında kişisel veri/özel nitelikli kişisel veri niteliğini haiz olup ilgili yasal düzenleme gereği kanunda açıkça öngörülen haller ve ilginin rızası dışında veriler aktarılmaz ve işlenemez. Verilerin hangi amaçlarla, ne kadar süre için işlendiği ve saklandığı, işleme yöntemi, verileri kime hangi amaçlarla aktardığımız ve verinin korunması için alınması zorunlu olan önlemler ve Kanun ve ikincil mevzuattan kaynaklanan tüm yükümlülükler tarafınıza aittir"

Bu belge güvenli elektronik imza ile imzalanmıştır.

Belge Doğrulama Kodu:
ECLEB3AA-770B-46C8-8149-BA1DBE909276

Belge Doğrulama Adresi: <https://www.turkiye.gov.tr/ozyegin-uni-versitesi-ebys>

Adres: Nişantepe Mah. Orman Sok. No:34-36 Çekmeköy-İstanbul
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e-Posta: asena.dere@ozyegin.edu.tr İnternet Adresi: www.ozyegin.edu.tr
KEP Adresi: ozyeginuniversitesi@hs01.kep.tr

Ayrıntılı bilgi için: Betül Asena DERE
Yazı İşleri Yöneticisi
Telefon No: 02165649557



APPENDIX F.1: Chi-square Outputs Obtained from SPSS Sheet-1

Case Processing Summary						
	Valid		Cases Missing		Total	
	N	Percent	N	Percent	N	Percent
What is the code of the school? * Is it related to school?	31	96.9%	1	3.1%	32	100.0%

What is the code of the school? * Is it related to school? Crosstabulation				
Count		Is it related to school?		Total
		Yes	No	
What is the code of the school?	NMS	18	3	21
	DMS	10	0	10
Total		28	3	31

Chi-Square Tests					
	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1.582 ^a	1	.209		
Continuity Correction ^b	.369	1	.543		
Likelihood Ratio	2.487	1	.115		
Fisher's Exact Test				.533	.298
Linear-by-Linear Association	1.531	1	.216		
N of Valid Cases	31				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is .57.
b. Computed only for a 2x2 table

Case Processing Summary						
	Valid		Cases Missing		Total	
	N	Percent	N	Percent	N	Percent
What is the code of the school? * Is outdoor school env represented?	31	96.9%	1	3.1%	32	100.0%

What is the code of the school? * Is outdoor school env represented? Crosstabulation				
Count		Is outdoor school env represented?		Total
		Yes	No	
What is the code of the school?	NMS	13	8	21
	DMS	9	1	10
Total		22	9	31

Chi-Square Tests					
	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2.595 ^a	1	.107		
Continuity Correction ^b	1.411	1	.235		
Likelihood Ratio	2.939	1	.086		
Fisher's Exact Test				.205	.116
Linear-by-Linear Association	2.512	1	.113		
N of Valid Cases	31				

a. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 2.90.
b. Computed only for a 2x2 table

Case Processing Summary						
	Valid		Cases Missing		Total	
	N	Percent	N	Percent	N	Percent
What is the code of the school? * Is indoor school env represented?	31	96.9%	1	3.1%	32	100.0%

What is the code of the school? * Is indoor school env represented? Crosstabulation				
Count		Is indoor school env represented?		Total
		Yes	No	
What is the code of the school?	NMS	0	21	21
	DMS	4	6	10
Total		4	27	31

Chi-Square Tests					
	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	9.644 ^a	1	.002		
Continuity Correction ^b	6.414	1	.011		
Likelihood Ratio	10.281	1	.001		
Fisher's Exact Test				.007	.007
Linear-by-Linear Association	9.333	1	.002		
N of Valid Cases	31				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 1.29.
b. Computed only for a 2x2 table

Case Processing Summary						
	Valid		Cases Missing		Total	
	N	Percent	N	Percent	N	Percent
What is the code of the school? * Are play attributes represented?	31	96.9%	1	3.1%	32	100.0%

What is the code of the school? * Are play attributes represented? Crosstabulation				
Count		Are play attributes represented?		Total
		Yes	No	
What is the code of the school?	NMS	12	9	21
	DMS	1	9	10
Total		13	18	31

Chi-Square Tests					
	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	6.183 ^a	1	.013		
Continuity Correction ^b	4.398	1	.036		
Likelihood Ratio	6.981	1	.008		
Fisher's Exact Test				.020	.015
Linear-by-Linear Association	5.984	1	.014		
N of Valid Cases	31				

a. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 4.19.
b. Computed only for a 2x2 table

APPENDIX F.2: Chi-square Outputs Obtained from SPSS Sheet-2

	Case Processing Summary					
	Valid		Cases Missing		Total	
	N	Percent	N	Percent	N	Percent
What is the code of the school? * Are friends and relatives represented?	31	96.9%	1	3.1%	32	100.0%

Count		What is the code of the school? * Are friends and relatives represented? Crosstabulation			Total
		Are friends and relatives represented?			
		Yes	No		
What is the code of the school?	NMS	13	8	21	
	DMS	0	10	10	
Total		13	18	31	

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	10.661 ^a	1	.001		
Continuity Correction ^b	8.271	1	.004		
Likelihood Ratio	14.255	1	<.001		
Fisher's Exact Test				.001	<.001
Linear-by-Linear Association	10.317	1	.001		
N of Valid Cases	31				

a. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 4.19.
b. Computed only for a 2x2 table

	Case Processing Summary					
	Valid		Cases Missing		Total	
	N	Percent	N	Percent	N	Percent
What is the code of the school? * Are teachers represented?	31	96.9%	1	3.1%	32	100.0%

Count		What is the code of the school? * Are teachers represented? Crosstabulation			Total
		Are teachers represented?			
		Yes	No		
What is the code of the school?	NMS	4	17	21	
	DMS	0	10	10	
Total		4	27	31	

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2.187 ^a	1	.139		
Continuity Correction ^b	.820	1	.365		
Likelihood Ratio	3.391	1	.066		
Fisher's Exact Test				.277	.190
Linear-by-Linear Association	2.116	1	.146		
N of Valid Cases	31				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 1.29.
b. Computed only for a 2x2 table

	Case Processing Summary					
	Valid		Cases Missing		Total	
	N	Percent	N	Percent	N	Percent
What is the code of the school? * Are natural elements represented?	31	96.9%	1	3.1%	32	100.0%

Count		What is the code of the school? * Are natural elements represented? Crosstabulation			Total
		Are natural elements represented?			
		Yes	No		
What is the code of the school?	NMS	12	9	21	
	DMS	4	6	10	
Total		16	15	31	

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.797 ^a	1	.372		
Continuity Correction ^b	.258	1	.611		
Likelihood Ratio	.800	1	.371		
Fisher's Exact Test				.458	.306
Linear-by-Linear Association	.771	1	.380		
N of Valid Cases	31				

a. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 4.84.
b. Computed only for a 2x2 table

	Case Processing Summary					
	Valid		Cases Missing		Total	
	N	Percent	N	Percent	N	Percent
What is the code of the school? * Is any housing units representation drawn?	31	96.9%	1	3.1%	32	100.0%

Count		What is the code of the school? * Is any housing units representation drawn? Crosstabulation			Total
		Is any housing units representation drawn?			
		Yes	No		
What is the code of the school?	NMS	6	15	21	
	DMS	0	10	10	
Total		6	25	31	

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	3.543 ^a	1	.060		
Continuity Correction ^b	1.949	1	.163		
Likelihood Ratio	5.335	1	.021		
Fisher's Exact Test				.141	.074
Linear-by-Linear Association	3.429	1	.064		
N of Valid Cases	31				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 1.94.
b. Computed only for a 2x2 table

APPENDIX F.3: Chi-square Outputs Obtained from SPSS Sheet-3

	Case Processing Summary					
	Valid		Cases Missing		Total	
	N	Percent	N	Percent	N	Percent
What is the code of the school? * Are different land uses represented?	31	96.9%	1	3.1%	32	100.0%

Count	What is the code of the school? * Are different land uses represented? Crosstabulation				
			Are different land uses represented?		Total
			Yes	No	
What is the code of the school?	NMS	9	12	21	
	DMS	4	6	10	
Total		13	18	31	

Chi-Square Tests					
	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.023 ^a	1	.880		
Continuity Correction ^b	.000	1	1.000		
Likelihood Ratio	.023	1	.880		
Fisher's Exact Test				1.000	.597
Linear-by-Linear Association	.022	1	.882		
N of Valid Cases	31				

a. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 4.19.
b. Computed only for a 2x2 table

	Case Processing Summary					
	Valid		Cases Missing		Total	
	N	Percent	N	Percent	N	Percent
What is the code of the school? * Is landmark represented?	31	96.9%	1	3.1%	32	100.0%

Count	What is the code of the school? * Is landmark represented? Crosstabulation				
			Is landmark represented?		Total
			Yes	No	
What is the code of the school?	NMS	9	12	21	
	DMS	0	10	10	
Total		9	22	31	

Chi-Square Tests					
	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	6.039 ^a	1	.014		
Continuity Correction ^b	4.138	1	.042		
Likelihood Ratio	8.669	1	.003		
Fisher's Exact Test				.030	.015
Linear-by-Linear Association	5.844	1	.016		
N of Valid Cases	31				

a. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 2.50.
b. Computed only for a 2x2 table

	Case Processing Summary					
	Valid		Cases Missing		Total	
	N	Percent	N	Percent	N	Percent
What is the code of the school? * Is district represented?	31	96.9%	1	3.1%	32	100.0%

Count	What is the code of the school? * Is district represented? Crosstabulation				
			Is district represented?		Total
			Yes	No	
What is the code of the school?	NMS	15	6	21	
	DMS	10	0	10	
Total		25	6	31	

Chi-Square Tests					
	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	3.543 ^a	1	.060		
Continuity Correction ^b	1.849	1	.163		
Likelihood Ratio	5.335	1	.021		
Fisher's Exact Test				.141	.074
Linear-by-Linear Association	3.429	1	.064		
N of Valid Cases	31				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 1.94.
b. Computed only for a 2x2 table

	Case Processing Summary					
	Valid		Cases Missing		Total	
	N	Percent	N	Percent	N	Percent
What is the code of the school? * Is node represented?	31	96.9%	1	3.1%	32	100.0%

Count	What is the code of the school? * Is node represented? Crosstabulation				
			Is node represented?		Total
			No	Yes	
What is the code of the school?	NMS	21	21		
	DMS	10	10		
Total		31	31		

Chi-Square Tests	
	Value
Pearson Chi-Square	. ^a
N of Valid Cases	31

a. No statistics are computed because Is node represented? is a constant.

	Case Processing Summary					
	Valid		Cases Missing		Total	
	N	Percent	N	Percent	N	Percent
What is the code of the school? * Is node represented?	31	96.9%	1	3.1%	32	100.0%

Count	What is the code of the school? * Is node represented? Crosstabulation				
			Is node represented?		Total
			No	Yes	
What is the code of the school?	NMS	21	21		
	DMS	10	10		
Total		31	31		

Chi-Square Tests	
	Value
Pearson Chi-Square	. ^a
N of Valid Cases	31

a. No statistics are computed because Is node represented? is a constant.

APPENDIX F.4: Chi-square Outputs Obtained from SPSS Sheet-4

Case Processing Summary						
	Valid		Cases Missing		Total	
	N	Percent	N	Percent	N	Percent
What is the code of the school? * Is edge represented?	31	96.9%	1	3.1%	32	100.0%

What is the code of the school? * Is edge represented? Crosstabulation				
Count		Is edge represented?		Total
		Yes	No	
		What is the code of the school?	NMS	
	DMS	10	0	10
Total		25	6	31

Chi-Square Tests					
	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	3.543 ^a	1	.060		
Continuity Correction ^b	1.949	1	.163		
Likelihood Ratio	5.335	1	.021		
Fisher's Exact Test				.141	.074
Linear-by-Linear Association	3.429	1	.064		
N of Valid Cases	31				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 1.94.
b. Computed only for a 2x2 table

Case Processing Summary						
	Valid		Cases Missing		Total	
	N	Percent	N	Percent	N	Percent
What is the code of the school? * Is path represented?	31	96.9%	1	3.1%	32	100.0%

What is the code of the school? * Is path represented? Crosstabulation				
Count		Is path represented?		Total
		Yes	No	
		What is the code of the school?	NMS	
	DMS	2	8	10
Total		5	26	31

Chi-Square Tests					
	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.164 ^a	1	.686		
Continuity Correction ^b	.000	1	1.000		
Likelihood Ratio	.159	1	.690		
Fisher's Exact Test				1.000	.529
Linear-by-Linear Association	.158	1	.691		
N of Valid Cases	31				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 1.61.
b. Computed only for a 2x2 table

Case Processing Summary						
	Valid		Cases Missing		Total	
	N	Percent	N	Percent	N	Percent
What is the gender type? * Is it related to school?	31	96.9%	1	3.1%	32	100.0%

What is the gender type? * Is it related to school? Crosstabulation				
Count		Is it related to school?		Total
		Yes	No	
		What is the gender type?	Male	
	Female	14	1	15
Total		28	3	31

Chi-Square Tests					
	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.301 ^a	1	.583		
Continuity Correction ^b	.000	1	1.000		
Likelihood Ratio	.308	1	.579		
Fisher's Exact Test				1.000	.525
Linear-by-Linear Association	.292	1	.589		
N of Valid Cases	31				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 1.45.
b. Computed only for a 2x2 table

Case Processing Summary						
	Valid		Cases Missing		Total	
	N	Percent	N	Percent	N	Percent
What is the gender type? * Is outdoor school env represented?	31	96.9%	1	3.1%	32	100.0%

What is the gender type? * Is outdoor school env represented? Crosstabulation				
Count		Is outdoor school env represented?		Total
		Yes	No	
		What is the gender type?	Male	
	Female	10	5	15
Total		22	9	31

Chi-Square Tests					
	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.261 ^a	1	.609		
Continuity Correction ^b	.013	1	.908		
Likelihood Ratio	.261	1	.609		
Fisher's Exact Test				.704	.454
Linear-by-Linear Association	.253	1	.615		
N of Valid Cases	31				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 4.35.
b. Computed only for a 2x2 table

APPENDIX F.5: Chi-square Outputs Obtained from SPSS Sheet-5

	Case Processing Summary					
	Valid		Cases Missing		Total	
	N	Percent	N	Percent	N	Percent
What is the gender type? * Is indoor school env represented?	31	96.9%	1	3.1%	32	100.0%

What is the gender type? * Is indoor school env represented? Crosstabulation				
Count		Is indoor school env represented?		Total
		Yes	No	
What is the gender type?	Male	2	14	16
	Female	2	13	15
Total		4	27	31

Chi-Square Tests					
	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.005 ^a	1	.945		
Continuity Correction ^b	.000	1	1.000		
Likelihood Ratio	.005	1	.945		
Fisher's Exact Test				1.000	.675
Linear-by-Linear Association	.005	1	.946		
N of Valid Cases	31				

a. 2 cells (.65%) have expected count less than 5. The minimum expected count is 1.94.
b. Computed only for a 2x2 table

	Case Processing Summary					
	Valid		Cases Missing		Total	
	N	Percent	N	Percent	N	Percent
What is the gender type? * Are play attributes represented?	31	96.9%	1	3.1%	32	100.0%

What is the gender type? * Are play attributes represented? Crosstabulation				
Count		Are play attributes represented?		Total
		Yes	No	
What is the gender type?	Male	8	8	16
	Female	5	10	15
Total		13	18	31

Chi-Square Tests					
	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.893 ^a	1	.347		
Continuity Correction ^b	.331	1	.565		
Likelihood Ratio	.889	1	.346		
Fisher's Exact Test				.473	.283
Linear-by-Linear Association	.855	1	.355		
N of Valid Cases	31				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 6.29.
b. Computed only for a 2x2 table

	Case Processing Summary					
	Valid		Cases Missing		Total	
	N	Percent	N	Percent	N	Percent
What is the gender type? * Are friends and relatives represented?	31	96.9%	1	3.1%	32	100.0%

What is the gender type? * Are friends and relatives represented? Crosstabulation				
Count		Are friends and relatives represented?		Total
		Yes	No	
What is the gender type?	Male	7	9	16
	Female	6	9	15
Total		13	18	31

Chi-Square Tests					
	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.045 ^a	1	.833		
Continuity Correction ^b	.000	1	1.000		
Likelihood Ratio	.045	1	.832		
Fisher's Exact Test				1.000	.561
Linear-by-Linear Association	.043	1	.835		
N of Valid Cases	31				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 6.29.
b. Computed only for a 2x2 table

	Case Processing Summary					
	Valid		Cases Missing		Total	
	N	Percent	N	Percent	N	Percent
What is the gender type? * Are teachers represented?	31	96.9%	1	3.1%	32	100.0%

What is the gender type? * Are teachers represented? Crosstabulation				
Count		Are teachers represented?		Total
		Yes	No	
What is the gender type?	Male	1	15	16
	Female	3	12	15
Total		4	27	31

Chi-Square Tests					
	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1.302 ^a	1	.254		
Continuity Correction ^b	.366	1	.545		
Likelihood Ratio	1.348	1	.246		
Fisher's Exact Test				.333	.275
Linear-by-Linear Association	1.260	1	.262		
N of Valid Cases	31				

a. 2 cells (6.5%) have expected count less than 5. The minimum expected count is 1.94.
b. Computed only for a 2x2 table

APPENDIX F.6: Chi-square Outputs Obtained from SPSS Sheet-6

Case Processing Summary						
	Valid		Cases Missing		Total	
	N	Percent	N	Percent	N	Percent
What is the gender type? * Are natural elements represented?	31	96.9%	1	3.1%	32	100.0%

What is the gender type? * Are natural elements represented? Crosstabulation				
Count		Are natural elements represented?		Total
		Yes	No	
What is the gender type?	Male	9	7	16
	Female	7	8	15
Total		16	15	31

Chi-Square Tests					
	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.285 ^a	1	.594		
Continuity Correction ^b	.030	1	.862		
Likelihood Ratio	.285	1	.593		
Fisher's Exact Test				.724	.431
Linear-by-Linear Association	.276	1	.600		
N of Valid Cases	31				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 7.26.
b. Computed only for a 2x2 table

Case Processing Summary						
	Valid		Cases Missing		Total	
	N	Percent	N	Percent	N	Percent
What is the gender type? * Is any housing units representation drawn?	31	96.9%	1	3.1%	32	100.0%

What is the gender type? * Is any housing units representation drawn? Crosstabulation				
Count		Is any housing units representation drawn?		Total
		Yes	No	
What is the gender type?	Male	3	13	16
	Female	3	12	15
Total		6	25	31

Chi-Square Tests					
	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.008 ^a	1	.930		
Continuity Correction ^b	.000	1	1.000		
Likelihood Ratio	.008	1	.930		
Fisher's Exact Test				1.000	.641
Linear-by-Linear Association	.008	1	.931		
N of Valid Cases	31				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 2.90.
b. Computed only for a 2x2 table

Case Processing Summary						
	Valid		Cases Missing		Total	
	N	Percent	N	Percent	N	Percent
What is the gender type? * Are different land uses represented?	31	96.9%	1	3.1%	32	100.0%

What is the gender type? * Are different land uses represented? Crosstabulation				
Count		Are different land uses represented?		Total
		Yes	No	
What is the gender type?	Male	6	10	16
	Female	7	8	15
Total		13	18	31

Chi-Square Tests					
	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.267 ^a	1	.605		
Continuity Correction ^b	.023	1	.879		
Likelihood Ratio	.267	1	.605		
Fisher's Exact Test				.722	.439
Linear-by-Linear Association	.259	1	.611		
N of Valid Cases	31				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 6.29.
b. Computed only for a 2x2 table

Case Processing Summary						
	Valid		Cases Missing		Total	
	N	Percent	N	Percent	N	Percent
What is the gender type? * Is landmark represented?	31	96.9%	1	3.1%	32	100.0%

What is the gender type? * Is landmark represented? Crosstabulation				
Count		Is landmark represented?		Total
		Yes	No	
What is the gender type?	Male	6	10	16
	Female	3	12	15
Total		9	22	31

Chi-Square Tests					
	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1.151 ^a	1	.283		
Continuity Correction ^b	.458	1	.499		
Likelihood Ratio	1.169	1	.280		
Fisher's Exact Test				.433	.250
Linear-by-Linear Association	1.114	1	.291		
N of Valid Cases	31				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 4.35.
b. Computed only for a 2x2 table

APPENDIX F.7: Chi-square Outputs Obtained from SPSS Sheet-7

	Case Processing Summary					
	Valid		Cases Missing		Total	
	N	Percent	N	Percent	N	Percent
What is the gender type? * Is district represented?	31	96.9%	1	3.1%	32	100.0%

Count	What is the gender type? * Is district represented? Crosstabulation			
		Is district represented?		Total
		Yes	No	
What is the gender type?	Male	13	3	16
	Female	12	3	15
Total		25	6	31

	Chi-Square Tests				
	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.008 ^a	1	.930		
Continuity Correction ^b	.000	1	1.000		
Likelihood Ratio	.008	1	.930		
Fisher's Exact Test				1.000	.641
Linear-by-Linear Association	.008	1	.931		
N of Valid Cases	31				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 2.90.
b. Computed only for a 2x2 table

	Case Processing Summary					
	Valid		Cases Missing		Total	
	N	Percent	N	Percent	N	Percent
What is the gender type? * Is node represented?	31	96.9%	1	3.1%	32	100.0%

Count	What is the gender type? * Is node represented? Crosstabulation			
		Is node represented?		Total
		No	Total	
What is the gender type?	Male	16	16	
	Female	15	15	
Total		31	31	

	Value
Pearson Chi-Square	. ^a
N of Valid Cases	31

a. No statistics are computed because Is node represented? is a constant.

	Case Processing Summary					
	Valid		Cases Missing		Total	
	N	Percent	N	Percent	N	Percent
What is the gender type? * Is edge represented?	31	96.9%	1	3.1%	32	100.0%

Count	What is the gender type? * Is edge represented? Crosstabulation			
		Is edge represented?		Total
		Yes	No	
What is the gender type?	Male	13	3	16
	Female	12	3	15
Total		25	6	31

	Chi-Square Tests				
	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.008 ^a	1	.930		
Continuity Correction ^b	.000	1	1.000		
Likelihood Ratio	.008	1	.930		
Fisher's Exact Test				1.000	.641
Linear-by-Linear Association	.008	1	.931		
N of Valid Cases	31				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 2.90.
b. Computed only for a 2x2 table

	Case Processing Summary					
	Valid		Cases Missing		Total	
	N	Percent	N	Percent	N	Percent
What is the gender type? * Is path represented?	31	96.9%	1	3.1%	32	100.0%

Count	What is the gender type? * Is path represented? Crosstabulation			
		Is path represented?		Total
		Yes	No	
What is the gender type?	Male	3	13	16
	Female	2	13	15
Total		5	26	31

	Chi-Square Tests				
	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.168 ^a	1	.682		
Continuity Correction ^b	.000	1	1.000		
Likelihood Ratio	.169	1	.681		
Fisher's Exact Test				1.000	.532
Linear-by-Linear Association	.163	1	.687		
N of Valid Cases	31				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 2.42.
b. Computed only for a 2x2 table

APPENDIX G.1: NMS Regression Test Outputs Obtained from SPSS Sheet-1

Correlations			
		COGNITVEF FREQUENCY	ISOVISTAREA
COGNITVEF FREQUENCY	Pearson Correlation	1	.969**
	Sig. (2-tailed)		<.001
	N	8	8
ISOVISTAREA	Pearson Correlation	.969**	1
	Sig. (2-tailed)	<.001	
	N	8	8

** . Correlation is significant at the 0.01 level (2-tailed).

Correlations			
		COGNITVEF FREQUENCY	ISOVISTPERI METER
COGNITVEF FREQUENCY	Pearson Correlation	1	.721*
	Sig. (2-tailed)		.044
	N	8	8
ISOVISTPERI METER	Pearson Correlation	.721*	1
	Sig. (2-tailed)	.044	
	N	8	8

*. Correlation is significant at the 0.05 level (2-tailed).

Correlations			
		COGNITVEF FREQUENCY	ISOVISTDRIF T
COGNITVEF FREQUENCY	Pearson Correlation	1	.789*
	Sig. (2-tailed)		.020
	N	8	8
ISOVISTDRIF T	Pearson Correlation	.789*	1
	Sig. (2-tailed)	.020	
	N	8	8

*. Correlation is significant at the 0.05 level (2-tailed).

Correlations			
		COGNITVEF FREQUENCY	ISOVISTOCCL USIVITY
COGNITVEF FREQUENCY	Pearson Correlation	1	.023
	Sig. (2-tailed)		.957
	N	8	8
ISOVISTOCCL USIVITY	Pearson Correlation	.023	1
	Sig. (2-tailed)	.957	
	N	8	8

Correlations			
		COGNITVEF FREQUENCY	ISOVISTCOM PACTNESS
COGNITVEF FREQUENCY	Pearson Correlation	1	.936**
	Sig. (2-tailed)		<.001
	N	8	8
ISOVISTCOM PACTNESS	Pearson Correlation	.936**	1
	Sig. (2-tailed)	<.001	
	N	8	8

** . Correlation is significant at the 0.01 level (2-tailed).

Correlations			
		COGNITVEF FREQUENCY	ISOVISTCIRC ULARITY
COGNITVEF FREQUENCY	Pearson Correlation	1	.036
	Sig. (2-tailed)		.933
	N	8	8
ISOVISTCIRC ULARITY	Pearson Correlation	.036	1
	Sig. (2-tailed)	.933	
	N	8	8

Correlations			
		COGNITVEF FREQUENCY	CONNECTIV ITY
COGNITVEF FREQUENCY	Pearson Correlation	1	.950**
	Sig. (2-tailed)		<.001
	N	8	8
CONNECTIV ITY	Pearson Correlation	.950**	1
	Sig. (2-tailed)	<.001	
	N	8	8

** . Correlation is significant at the 0.01 level (2-tailed).

Correlations			
		COGNITVEF FREQUENCY	MEANDEPTH
COGNITVEF FREQUENCY	Pearson Correlation	1	-.656
	Sig. (2-tailed)		.078
	N	8	8
MEANDEPTH	Pearson Correlation	-.656	1
	Sig. (2-tailed)	.078	
	N	8	8

Correlations			
		COGNITVEF FREQUENCY	INTEGRATIO N
COGNITVEF FREQUENCY	Pearson Correlation	1	1.000**
	Sig. (2-tailed)		<.001
	N	8	8
INTEGRATIO N	Pearson Correlation	1.000**	1
	Sig. (2-tailed)	<.001	
	N	8	8

** . Correlation is significant at the 0.01 level (2-tailed).

APPENDIX H.1: DMS Regression Test Outputs Obtained from SPSS Sheet-1

Correlations			
		COGNITIVF REQUENCY	ISOVISTAREA
COGNITIVFREQUENCY	Pearson Correlation	1	.749 [*]
	Sig. (2-tailed)		.032
	N	8	8
ISOVISTAREA	Pearson Correlation	.749 [*]	1
	Sig. (2-tailed)	.032	
	N	8	8

*. Correlation is significant at the 0.05 level (2-tailed).

Correlations			
		COGNITIVF REQUENCY	ISOVISTPERI METER
COGNITIVFREQUENCY	Pearson Correlation	1	.766 [*]
	Sig. (2-tailed)		.027
	N	8	8
ISOVISTPERIMETER	Pearson Correlation	.766 [*]	1
	Sig. (2-tailed)	.027	
	N	8	8

*. Correlation is significant at the 0.05 level (2-tailed).

Correlations			
		COGNITIVF REQUENCY	ISOVISTDRIF T
COGNITIVFREQUENCY	Pearson Correlation	1	-.315
	Sig. (2-tailed)		.447
	N	8	8
ISOVISTDRIFT	Pearson Correlation	-.315	1
	Sig. (2-tailed)	.447	
	N	8	8

Correlations			
		COGNITIVF REQUENCY	ISOVISTOCCL USIVITY
COGNITIVFREQUENCY	Pearson Correlation	1	-.108
	Sig. (2-tailed)		.798
	N	8	8
ISOVISTOCCLUSIVITY	Pearson Correlation	-.108	1
	Sig. (2-tailed)	.798	
	N	8	8

Correlations			
		COGNITIVF REQUENCY	ISOVISTCOM PACTNESS
COGNITIVFREQUENCY	Pearson Correlation	1	.122
	Sig. (2-tailed)		.773
	N	8	8
ISOVISTCOMPACTNESS	Pearson Correlation	.122	1
	Sig. (2-tailed)	.773	
	N	8	8

Correlations			
		COGNITIVF REQUENCY	ISOVISTCIRC ULARITY
COGNITIVFREQUENCY	Pearson Correlation	1	.520
	Sig. (2-tailed)		.187
	N	8	8
ISOVISTCIRCULARITY	Pearson Correlation	.520	1
	Sig. (2-tailed)	.187	
	N	8	8

Correlations			
		COGNITIVF REQUENCY	CONNECTIVI TY
COGNITIVFREQUENCY	Pearson Correlation	1	.769 [*]
	Sig. (2-tailed)		.026
	N	8	8
CONNECTIVITY	Pearson Correlation	.769 [*]	1
	Sig. (2-tailed)	.026	
	N	8	8

*. Correlation is significant at the 0.05 level (2-tailed).

Correlations			
		COGNITIVF REQUENCY	MEANDEPTH
COGNITIVFREQUENCY	Pearson Correlation	1	-.674
	Sig. (2-tailed)		.067
	N	8	8
MEANDEPTH	Pearson Correlation	-.674	1
	Sig. (2-tailed)	.067	
	N	8	8

Correlations			
		COGNITIVF REQUENCY	INTEGRATIO N
COGNITIVFREQUENCY	Pearson Correlation	1	-.313
	Sig. (2-tailed)		.450
	N	8	8
INTEGRATION	Pearson Correlation	-.313	1
	Sig. (2-tailed)	.450	
	N	8	8

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APPENDIX I: Survey template for students and parents

<p>Veli Anketi</p> <p>Bu anket, Özyeğin Üniversitesi Fen Bilimleri Enstitüsü Yüksek Lisans Mimarlık Bölümünde öğrenci olan Fauzi Wibowo tarafından bilimsel amaçlı olarak yapılan bir çalışmadır. Çalışma sonucunda elde edilen bilgiler akademik amaçlı tez ve makalelerde kullanılabilir. Anket ve çizim çalışmasında elde edilen bilgiler, yayın aşamasında anketi cevaplayan ve çizim yapan kişinin isim bilgisi ile sunulmayacaktır. Katkımdan dolayı çok teşekkür ederim. (Velinin tahmini cevaplama süresi 3 dakika, çocuğun da 3 dakika)</p> <p>* Gerekli</p> <p>1. Çocuğunuzla olan yakınlık dereceniz nedir? *</p> <p>Yalnızca bir şıkki işaretleyin.</p> <p><input type="radio"/> Anne <input type="radio"/> Baba <input type="radio"/> Diğer: _____</p> <p>2. Sahip olduğunuz çocuk sayısı? *</p> <p>_____</p> <p>3. Eğitim düzeyiniz? *</p> <p>Yalnızca bir şıkki işaretleyin.</p> <p><input type="radio"/> Oku-yazar değilim <input type="radio"/> İlkokul <input type="radio"/> Orta Okul <input type="radio"/> Lise <input type="radio"/> Üniversite <input type="radio"/> Yüksek Lisans <input type="radio"/> Doktora <input type="radio"/> Diğer: _____</p>	<p>4. Hangi semtte yaşıyorsunuz? *</p> <p>_____</p> <p>5. Ne tür bir evde yaşıyorsunuz? (Birden çok seçenek işaretleyebilirsiniz) *</p> <p>Uygun olanların tümünü işaretleyin.</p> <p><input type="checkbox"/> Müstaklil Ev (Tapu Kaydı Olmayan) <input type="checkbox"/> Müstaklil Ev (Tapu Kaydı Olan) <input type="checkbox"/> Apartman Dairesi <input type="checkbox"/> Site İçerisinde <input type="checkbox"/> Balkonlu/Teraslı <input type="checkbox"/> Bahçeli <input type="checkbox"/> Güvenlikli</p> <p>Diğer: <input type="checkbox"/> _____</p> <p>6. Evinizin oda sayısı nedir? *</p> <p>Yalnızca bir şıkki işaretleyin.</p> <p><input type="radio"/> 1+0 <input type="radio"/> 1+1 <input type="radio"/> 2+1 <input type="radio"/> 3+1 <input type="radio"/> 4+1 <input type="radio"/> 4+2 <input type="radio"/> Diğer: _____</p> <p>7. Evinizde balkon veya terasınız mevcut mu? *</p> <p>Yalnızca bir şıkki işaretleyin.</p> <p><input type="radio"/> Evet <input type="radio"/> Hayır</p>
<p>8. Çocuğunuzun kendine ait bir odası var mı? *</p> <p>Yalnızca bir şıkki işaretleyin.</p> <p><input type="radio"/> Var <input type="radio"/> Yok</p> <p>9. Çocuğunuzun odasında balkon mevcut mu? *</p> <p>Yalnızca bir şıkki işaretleyin.</p> <p><input type="radio"/> Evet <input type="radio"/> Hayır</p> <p>Açıklama</p> <p>Yüksek Lisans Tezi üzerinde yapılacak olan bu bilimsel araştırmanın verilerinde de çocuğunuzdan istenilen mini anket ve çizim faaliyetleri yapılacaktır. Çocuğunuzun anketi ve çizim çalışmasının kendisi yapması araştırma aşamasında oldukça önemlidir. Bundan dolayı herhangi bir yardımda bulunmamamız his edilmektedir. Çizim alanında çocuğunuzunuzun gözlemlerinizde herhangi bir sakınca bulunmamaktadır.</p> <p>10. Ben ve çocuğum, katıldığımız bu ankettten istediğimiz zaman vazgeçme hakkına sahip olduğumuzu ve bu ankete verdiğimiz yanıtların ve çocuğumuzun yapacağı çizim çalışmasının bilimsel amaçlı bir çalışmada kullanılacağını biliyor ve çalışmaya gönüllü olarak katılmayı kabul ediyorum. *</p> <p>Uygun olanların tümünü işaretleyin.</p> <p><input type="checkbox"/> Evet, Kabul ediyorum.</p> <p>Çocuk Anketi! Soruları yanıtlaman 3 dakika sürecek olup, hemen ardından bir çizim çalışması yapman beklenmektedir. Bu anket sonunda herhangi bir notlandırma olmayacaktır. Şimdiden teşekkür ederim. :)</p> <p>11. Yaş *</p> <p>_____</p>	<p>12. Cinsiyet *</p> <p>Yalnızca bir şıkki işaretleyin.</p> <p><input type="radio"/> Kız <input type="radio"/> Erkek</p> <p>13. Sınıf ve Şube *</p> <p>Yalnızca bir şıkki işaretleyin.</p> <p><input type="radio"/> S/A <input type="radio"/> S/B <input type="radio"/> S/C <input type="radio"/> S/D <input type="radio"/> S/E <input type="radio"/> S/F <input type="radio"/> S/G <input type="radio"/> S/H <input type="radio"/> S/I <input type="radio"/> Diğer: _____</p> <p>14. Evinizden okula nasıl ulaşıyorsunuz? *</p> <p>Yalnızca bir şıkki işaretleyin.</p> <p><input type="radio"/> Yürüyerek <input type="radio"/> Scooter ile <input type="radio"/> Bisiklet ile <input type="radio"/> Toplu taşıma aracı ile (otobüs, minibus, vb.) <input type="radio"/> Okul servisi ile <input type="radio"/> Ailemin özel aracı ile <input type="radio"/> Diğer: _____</p>

15. Sınıfın içinde nerede oturuyorsun? *

Yalnızca bir şıkki işaretleyin.

- Pencere kenarındaki sıra düzeni
 Ortadaki sıra düzeni
 Kapı tarafındaki sıra düzeni

16. Kısa teneffüslerde çoğunlukla nerede zaman geçiriyorsun? *

Yalnızca bir şıkki işaretleyin.

- Sınıfta
 Diğer arkadaşlarının sınıflarında
 Koridorda
 Kütüphanede
 Kulüp odasında
 Ön bahçede
 Arka bahçede
 Yeşil alanda
 Spor sahasında
 Kantinde / Kafeteryada
 Diğer: _____

17. Kısa teneffüslerde çoğunlukla ne tür aktiviteler yapıyorsunuz? (Birden çok seçenek işaretleyebilirsiniz) *

Uygun olanların tümünü işaretleyin.

- Ders tekrarı, ödev yapmak
 Müzik dinlemek
 Kitap okumak
 Koridorda dolaşmak
 Bahçede gezinti yapmak
 Yemek yemek, atıştırma yapmak
 Arkadaşlarıyla sohbet
 Bireysel spor aktivitesi (ip atlama, top sektirme, vb.)
 Arkadaşlarla spor aktivitesi
 Kulüp aktiviteleri

18. Kısa teneffüslerde çoğunlukla kaç kişilik gruplar dahilinde zaman geçiriyorsun? *

Yalnızca bir şıkki işaretleyin.

- Tek başıma
 2-3 kişi
 3-6 Kişi
 6'dan fazla kişi

19. Uzun teneffüste (öğle teneffüsünde) çoğunlukla nerede zaman geçiriyorsun? *

Yalnızca bir şıkki işaretleyin.

- Sınıfta
 Diğer arkadaşlarının sınıflarında
 Koridorda
 Kütüphanede
 Kulüp odasında
 Ön bahçede
 Arka bahçede
 Yeşil alanda
 Spor sahasında
 Kantinde / Kafeteryada
 Yemekhanede
 Diğer: _____

20. Uzun teneffüste (öğle teneffüsünde) çoğunlukla ne tür aktiviteler yapıyorsunuz? (Birden çok seçenek işaretleyebilirsiniz) *

Uygun olanların tümünü işaretleyin.

- Ders tekrarı, ödev yapmak
 Müzik dinlemek
 Kitap okumak
 Koridorda dolaşmak
 Bahçede gezinti yapmak
 Yemek yemek, atıştırma yapmak
 Arkadaşlarıyla sohbet
 Bireysel spor aktivitesi (ip atlama, top sektirme, vb.)
 Arkadaşlarla spor aktivitesi
 Kulüp aktiviteleri

21. Uzun teneffüste (öğle teneffüsünde) çoğunlukla kaç kişilik gruplar dahilinde zaman geçiriyorsun? *

Yalnızca bir şıkki işaretleyin.

- Tek başıma
 2-3 kişi
 3-6 Kişi
 6'dan fazla kişi

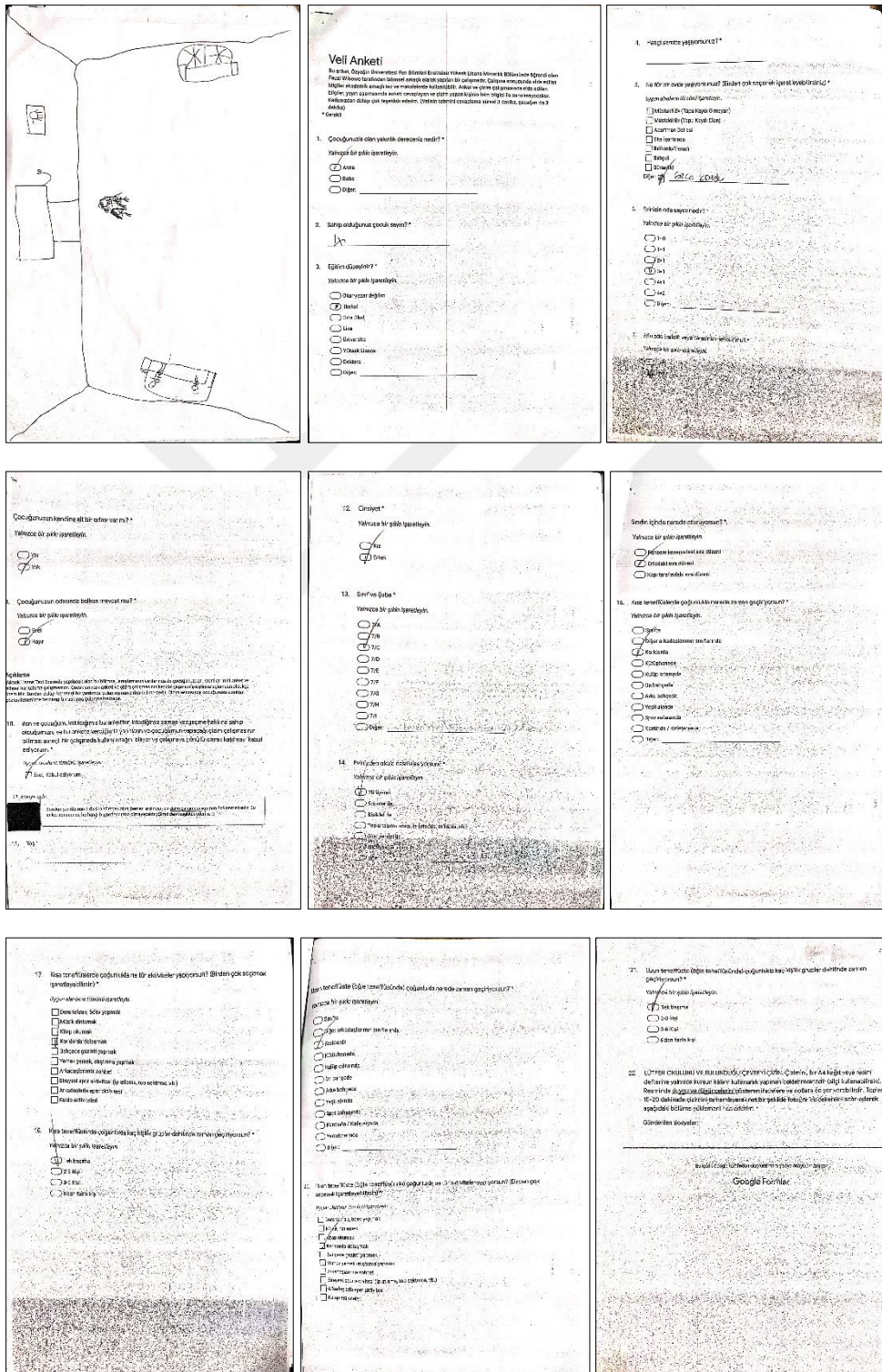
22. LÜTFEN OKULUNU VE BULUNDUĞU ÇEVREYİ ÇİZİN. Çizimini, bir A4 kağıt veya resim defterine yalnızca kuruşun kalem kullanarak yapman beklenmektedir (siliği kullanabilirsiniz). Resminde duygu ve duşuncelelerini gösteren ifadeleri ve notlara da yer verebilirsiniz. Toplamda 15-20 dakikada çizimini tamamlayarak net bir şekilde fotoğrafını çekerek / scan ederek aşağıdaki bölüme yüklemeni rica ederim. *

Gönderilen dosyalar:

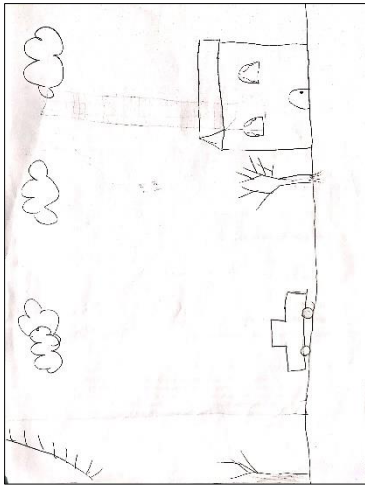
Bu çenik Google tarafından oluşturulmuş ve yayınlanmıştır.

Google Formlar

APPENDIX J: Cognitive Map Drawings of NMS Students



Participant 1: Male student, 12-year-old, 7-C.



Veli Anketi

Bu anket, çocuğunuzun okullarındaki öğretmenler tarafından hazırlanmıştır. Çocuğunuzun okullarındaki öğretmenler tarafından hazırlanmıştır. Çocuğunuzun okullarındaki öğretmenler tarafından hazırlanmıştır. Çocuğunuzun okullarındaki öğretmenler tarafından hazırlanmıştır.

1. Çocuğunuzun okullarındaki öğretmenler tarafından hazırlanmıştır. Çocuğunuzun okullarındaki öğretmenler tarafından hazırlanmıştır. Çocuğunuzun okullarındaki öğretmenler tarafından hazırlanmıştır. Çocuğunuzun okullarındaki öğretmenler tarafından hazırlanmıştır.

2. Çocuğunuzun okullarındaki öğretmenler tarafından hazırlanmıştır. Çocuğunuzun okullarındaki öğretmenler tarafından hazırlanmıştır. Çocuğunuzun okullarındaki öğretmenler tarafından hazırlanmıştır. Çocuğunuzun okullarındaki öğretmenler tarafından hazırlanmıştır.

3. Çocuğunuzun okullarındaki öğretmenler tarafından hazırlanmıştır. Çocuğunuzun okullarındaki öğretmenler tarafından hazırlanmıştır. Çocuğunuzun okullarındaki öğretmenler tarafından hazırlanmıştır. Çocuğunuzun okullarındaki öğretmenler tarafından hazırlanmıştır.

4. Hangi sınıfta okuyoruz? *
Çocukların sınıfı

5. Ne tür bir evde yaşıyoruz? (Birden çok seçeneği işaretleyebilirsiniz) *

6. Evinizin ve sizin neyi? *
Yalnızca bir kişi işaretleyin.

7. Evinizin neyi? *
Yalnızca bir kişi işaretleyin.

8. Çocuğunuzun kendisi ait bir odası varmı? *
Yalnızca bir kişi işaretleyin.

9. Çocuğunuzun odasının boyutu neyi? *
Yalnızca bir kişi işaretleyin.

10. Çocuğunuzun odasının boyutu neyi? *
Yalnızca bir kişi işaretleyin.

11. Çocuğunuzun odasının boyutu neyi? *
Yalnızca bir kişi işaretleyin.

12. Çocuğunuzun odasının boyutu neyi? *
Yalnızca bir kişi işaretleyin.

13. Sınıf ve Sınıf *
Yalnızca bir kişi işaretleyin.

14. Çocuğunuzun odasının boyutu neyi? *
Yalnızca bir kişi işaretleyin.

15. Çocuğunuzun odasının boyutu neyi? *
Yalnızca bir kişi işaretleyin.

16. Çocuğunuzun odasının boyutu neyi? *
Yalnızca bir kişi işaretleyin.

17. Çocuğunuzun odasının boyutu neyi? *
Yalnızca bir kişi işaretleyin.

17. Çocuğunuzun odasının boyutu neyi? *
Yalnızca bir kişi işaretleyin.

18. Çocuğunuzun odasının boyutu neyi? *
Yalnızca bir kişi işaretleyin.

19. Çocuğunuzun odasının boyutu neyi? *
Yalnızca bir kişi işaretleyin.

20. Çocuğunuzun odasının boyutu neyi? *
Yalnızca bir kişi işaretleyin.

21. Çocuğunuzun odasının boyutu neyi? *
Yalnızca bir kişi işaretleyin.

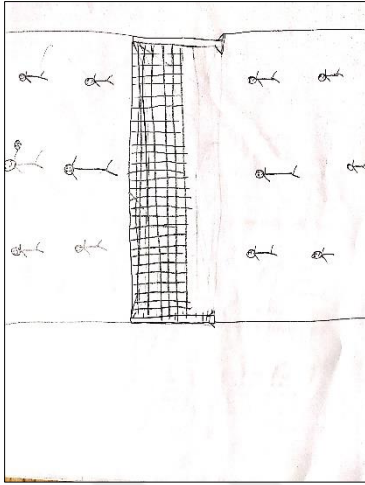
22. Çocuğunuzun odasının boyutu neyi? *
Yalnızca bir kişi işaretleyin.

23. Çocuğunuzun odasının boyutu neyi? *
Yalnızca bir kişi işaretleyin.

24. Çocuğunuzun odasının boyutu neyi? *
Yalnızca bir kişi işaretleyin.

25. Çocuğunuzun odasının boyutu neyi? *
Yalnızca bir kişi işaretleyin.

Participant 3: Female student, 13-year-old, 7-C.



Veli Anketi

Bu anket, öğrenci davranışları, başarıları, öğrenim durumları, sosyal ilişkileri, aile ortamı, öğretmen davranışları, okul ortamı hakkında bilgi edinmek için hazırlanmıştır. Anketin amacı, öğrencilerin öğrenim hayatlarındaki sorunlarını tespit etmek ve bu sorunların giderilmesine yardımcı olmaktır. Anketin sonuçları, öğrencilerin öğrenim hayatlarındaki sorunlarını tespit etmek ve bu sorunların giderilmesine yardımcı olmaktır.

1. Çocuklarınızın okula gelme durumları nedir? **Yalnızca bir şeye işaretleyiniz.**

Zamanında
 Erken
 Geç

2. Sizin okullarınızın geçme durumu nedir? **3**

3. Öğretmen davranışları nedir? **Yalnızca bir şeye işaretleyiniz.**

Çok iyi
 İyi
 Orta
 Zayıf
 Çok zayıf
 Diğer

4. Hangi dersleri yapıyorsunuz? **İngilizce, Türkçe**

5. Ne tür bir evde yaşıyorsunuz? (Büden çok aşırı değilse belirtiniz) **Ortalık**

Kentsel (Yapı Kaliteli Olmayan)
 Kentsel (Yapı Kaliteli Olan)
 Kırsal
 Kentsel/Çarşı
 Diğer

6. Evlilikte ada sayısı nedir? **Yalnızca bir şeye işaretleyiniz.**

0
 1
 2
 3
 4
 5
 Diğer

7. Evlilikte bakıcı veya bakıcılar var mı? **Yalnızca bir şeye işaretleyiniz.**

Evet
 Hayır

8. Çocuklarınızın okula gelme altı yaşta mı? **Yalnızca bir şeye işaretleyiniz.**

Evet
 Hayır

9. Çocuklarınızın okula gelme zamanı nedir? **Yalnızca bir şeye işaretleyiniz.**

Erken
 Orta
 Geç

Açıklama:
 0-6 yaş arası çocukların okula gelmesi zorunludur. 6-7 yaş arası çocukların okula gelmesi zorunludur. 7-12 yaş arası çocukların okula gelmesi zorunludur. 12-18 yaş arası çocukların okula gelmesi zorunludur.

10. Ben ve çocuğum, kardeşim bu anketten sonuçlarına zaman zaman bakacağım. Sizin okullarınızın ve bu anketten sonuçlarına bakacağım zaman zaman bakacağım. Sizin okullarınızın ve bu anketten sonuçlarına bakacağım zaman zaman bakacağım. Sizin okullarınızın ve bu anketten sonuçlarına bakacağım zaman zaman bakacağım.

11. Yaş 12.

12. Cinsiyet **Yalnızca bir şeye işaretleyiniz.**

Erkek
 Kadın

13. Anne ve baba **Yalnızca bir şeye işaretleyiniz.**

Ya
 Yaşlı
 Orta
 Genç
 Diğer

14. Evlilikte okul nasıl oluyor? **Yalnızca bir şeye işaretleyiniz.**

İyi
 Orta
 Zayıf
 Çok zayıf
 Diğer

15. Sizin içinde nerede oturuyorsunuz? **Yalnızca bir şeye işaretleyiniz.**

Pencere kenarında
 Orta
 Kapı kenarında

16. Kız öğrencilerde çoğunlukla nerede zaman geçiriyorsunuz? **Yalnızca bir şeye işaretleyiniz.**

Sınıf
 Diğer etkinlik alanlarında
 Koridor
 Kütüphane
 Müzik odasında
 Diğer
 Ara bahçe
 Yemekhanesi
 Spor alanlarında
 Kafe / Kafeletinde
 Diğer

17. Kız öğrencilerde çoğunlukla ne tür aktiviteler yapıyorlar? (Birden çok seçmek mümkündür.)

Okuma
 Yazma
 Çizim
 Müzik
 Spor
 Diğer

18. Kız öğrencilerde çoğunlukla ne tür gruplar oluşturulmuş? (Birden çok seçmek mümkündür.)

Tek kişilik
 2 kişilik
 3 kişilik
 Diğer

19. Kız öğrencilerde çoğunlukla ne tür aktiviteler yapıyorlar? (Birden çok seçmek mümkündür.)

Okuma
 Yazma
 Çizim
 Müzik
 Spor
 Diğer

20. Kız öğrencilerde çoğunlukla ne tür gruplar oluşturulmuş? (Birden çok seçmek mümkündür.)

Tek kişilik
 2 kişilik
 3 kişilik
 Diğer

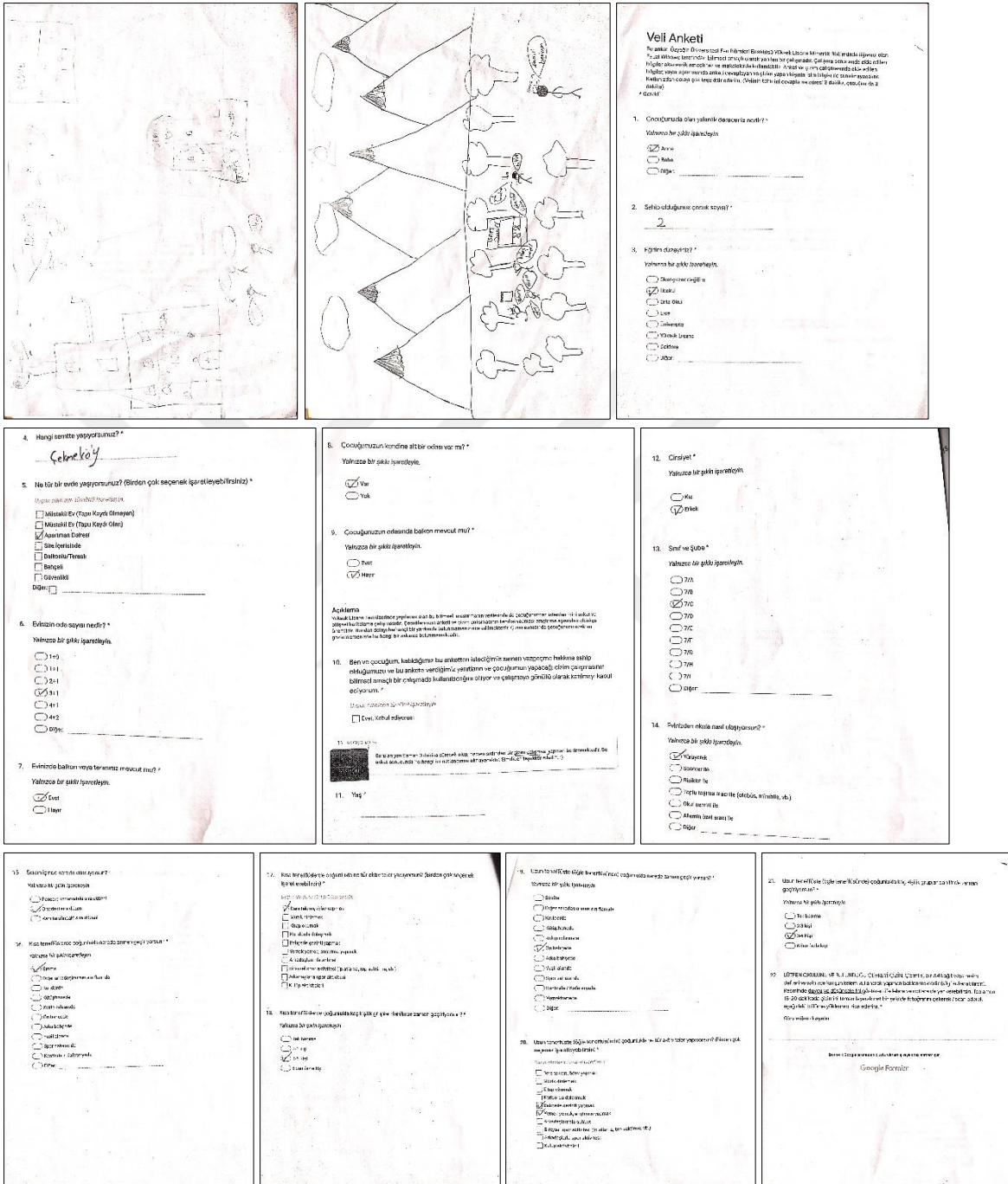
21. Kız öğrencilerde çoğunlukla ne tür aktiviteler yapıyorlar? (Birden çok seçmek mümkündür.)

Okuma
 Yazma
 Çizim
 Müzik
 Spor
 Diğer

22. Kız öğrencilerde çoğunlukla ne tür gruplar oluşturulmuş? (Birden çok seçmek mümkündür.)

Tek kişilik
 2 kişilik
 3 kişilik
 Diğer

Participant 4: Male student, 12-year-old, 7-C.



Participant 7: Male student, 12-year-old, 7-C.

Veli Anketi
Bu anket, çocukların ve velilerinin bilimsel süreçleri öğrenme ve öğretme süreçleri hakkında görüşlerini ifade etmelerine olanak sağlar. Anketin amacı, çocukların bilimsel süreçleri öğrenme ve öğretme süreçleri hakkında görüşlerini ifade etmelerine olanak sağlamaktır. Anketin sonuçları, bilimsel süreçleri öğretme ve öğrenme süreçleri hakkında kararlar alınırken kullanılacaktır. Anketin sonuçları, bilimsel süreçleri öğretme ve öğrenme süreçleri hakkında kararlar alınırken kullanılacaktır. Anketin sonuçları, bilimsel süreçleri öğretme ve öğrenme süreçleri hakkında kararlar alınırken kullanılacaktır.

1. Çocuklarınızın en çok merak ettikleri sorular nedir?
Yalnızca bir gök ismiyle yazınız.
 Hava
 Bulut
 Diğer: _____

2. Sıhplı çocukların çocuklarıyla ilgili merak ettikleri sorular nedir?
 Okul hayatı hakkında
 Sağlık hakkında
 Sosyal hayatı hakkında
 Diğer: _____

3. Farklı alanlardaki merak ettikleri sorular nedir?
Yalnızca bir gök ismiyle yazınız.
 Okul hayatı hakkında
 Sağlık hakkında
 Sosyal hayatı hakkında
 Diğer: _____

4. Hangi bilim dalı ilgilerinizi çeker?
 Matematik (Yeni Kapsam Öğretimi)
 Fizik (Yeni Kapsam Öğretimi)
 Kimya (Yeni Kapsam Öğretimi)
 Biyoloji (Yeni Kapsam Öğretimi)
 Diğer: _____

5. Ne tür bir bilim dalı ilgilerinizdir? (Bilim çok sayarak işaretleyebilirsiniz)
Üçün en azından üçünü işaretleyiniz.
 Matematik (Yeni Kapsam Öğretimi)
 Fizik (Yeni Kapsam Öğretimi)
 Kimya (Yeni Kapsam Öğretimi)
 Biyoloji (Yeni Kapsam Öğretimi)
 Diğer: _____

6. Bilimsel süreçler hakkında merak ettikleri sorular nedir?
Yalnızca bir gök ismiyle yazınız.
 1-8
 1-1
 2-1
 3-1
 4-2
 Diğer: _____

7. Bilimsel süreçler hakkında merak ettikleri sorular nedir?
Yalnızca bir gök ismiyle yazınız.
 Evet
 Hayır

8. Çocuklarınızın en çok merak ettikleri sorular nedir?
Yalnızca bir gök ismiyle yazınız.
 Hava
 Bulut

9. Çocuklarınızın en çok merak ettikleri sorular nedir?
Yalnızca bir gök ismiyle yazınız.
 Evet
 Hayır

10. Bilimsel süreçler hakkında merak ettikleri sorular nedir?
Yalnızca bir gök ismiyle yazınız.
 Evet
 Hayır

11. Diğer: _____

12. Bilimsel süreçler hakkında merak ettikleri sorular nedir?
Yalnızca bir gök ismiyle yazınız.
 Evet
 Hayır

13. Sınıflar ve diğer: _____

14. Bilimsel süreçler hakkında merak ettikleri sorular nedir?
Yalnızca bir gök ismiyle yazınız.
 Evet
 Hayır

15. Bilimsel süreçler hakkında merak ettikleri sorular nedir?
Yalnızca bir gök ismiyle yazınız.
 Evet
 Hayır

16. Bilimsel süreçler hakkında merak ettikleri sorular nedir?
Yalnızca bir gök ismiyle yazınız.
 Evet
 Hayır

17. Bilimsel süreçler hakkında merak ettikleri sorular nedir?
Yalnızca bir gök ismiyle yazınız.
 Evet
 Hayır

18. Bilimsel süreçler hakkında merak ettikleri sorular nedir?
Yalnızca bir gök ismiyle yazınız.
 Evet
 Hayır

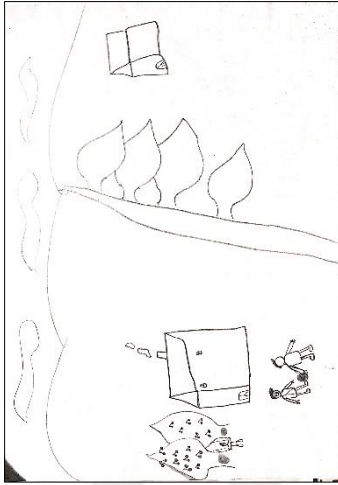
19. Bilimsel süreçler hakkında merak ettikleri sorular nedir?
Yalnızca bir gök ismiyle yazınız.
 Evet
 Hayır

20. Bilimsel süreçler hakkında merak ettikleri sorular nedir?
Yalnızca bir gök ismiyle yazınız.
 Evet
 Hayır

21. Bilimsel süreçler hakkında merak ettikleri sorular nedir?
Yalnızca bir gök ismiyle yazınız.
 Evet
 Hayır

22. Bilimsel süreçler hakkında merak ettikleri sorular nedir?
Yalnızca bir gök ismiyle yazınız.
 Evet
 Hayır

Participant 12: Male student, 12-year-old, 7-B.



Velî Anketi

Bu anketin amacı, öğrencilerin okullarındaki teknoloji kullanımını ve bu teknoloji kullanımının öğrenimlerine etkisini belirlemektir. Anketin amacı, öğrencilerin teknoloji kullanımını ve bu teknoloji kullanımının öğrenimlerine etkisini belirlemektir. Anketin amacı, öğrencilerin teknoloji kullanımını ve bu teknoloji kullanımının öğrenimlerine etkisini belirlemektir.

1. Öğrenim için teknolojiyi kullanırsınız mı?
Yalnızca bir seçenek işaretleyiniz.
 Evet
 Hayır
 Bazen

2. Sınıf çalışmaları için teknolojiyi kullanırsınız mı?
 Evet
 Hayır
 Bazen

3. Öğretmeniniz teknolojiyi kullanır mı?
Yalnızca bir seçenek işaretleyiniz.
 Her zaman kullanmaz
 Bazen kullanır
 Hiç kullanmaz
 Her zaman kullanır
 Hiç kullanmaz
 Her zaman kullanır

4. Hangi sınıfa katılıyorsunuz?

5. Ne tür bir sınıf yapıyorsunuz? (Birden çok seçeneğe işaretleyebilirsiniz)
Yalnızca bir seçenek işaretleyiniz.
 İnternet (Eğitim için) kullanıyorum
 Akıllı Tahta (Eğitim için) kullanıyorum
 Akıllı Tahta (Eğitim için) kullanıyorum
 Akıllı Tahta (Eğitim için) kullanıyorum
 Akıllı Tahta (Eğitim için) kullanıyorum
 Akıllı Tahta (Eğitim için) kullanıyorum

6. Evde kaç tane bilgisayar var?
Yalnızca bir seçenek işaretleyiniz.
 1
 2
 3
 4
 5
 6
 7
 8
 Diğer: _____

7. Evde kaç tane tablet var?
Yalnızca bir seçenek işaretleyiniz.
 1
 2
 3
 4
 5
 6
 7
 8
 Diğer: _____

8. Çocuğunuzun kendine ait bir odası var mı?
Yalnızca bir seçenek işaretleyiniz.
 Evet
 Hayır

9. Çocuğunuzun odasında balkon mevcut mü?
Yalnızca bir seçenek işaretleyiniz.
 Evet
 Hayır

Açıklama
Bu anketin amacı, öğrencilerin okullarındaki teknoloji kullanımını ve bu teknoloji kullanımının öğrenimlerine etkisini belirlemektir. Anketin amacı, öğrencilerin teknoloji kullanımını ve bu teknoloji kullanımının öğrenimlerine etkisini belirlemektir. Anketin amacı, öğrencilerin teknoloji kullanımını ve bu teknoloji kullanımının öğrenimlerine etkisini belirlemektir.

10. Ben ve çocuğum, teknolojiyi bu anketin amacı, öğrencilerin okullarındaki teknoloji kullanımını ve bu teknoloji kullanımının öğrenimlerine etkisini belirlemektir. Anketin amacı, öğrencilerin teknoloji kullanımını ve bu teknoloji kullanımının öğrenimlerine etkisini belirlemektir. Anketin amacı, öğrencilerin teknoloji kullanımını ve bu teknoloji kullanımının öğrenimlerine etkisini belirlemektir.

11. Yaş

12. Cinsiyet
Yalnızca bir seçenek işaretleyiniz.
 Erkek
 Kadın

13. Sınıf ve Sınıf
Yalnızca bir seçenek işaretleyiniz.
 7/A
 7/B
 7/C
 7/D
 7/E
 7/F
 7/G
 7/H
 7/I
 Diğer: _____

14. Sınıfınızda hangi teknoloji kullanılıyor?
Yalnızca bir seçenek işaretleyiniz.
 Akıllı Tahta
 Akıllı Tahta
 Akıllı Tahta
 Akıllı Tahta
 Akıllı Tahta
 Akıllı Tahta
 Akıllı Tahta
 Akıllı Tahta
 Akıllı Tahta
 Akıllı Tahta

15. Sınıfınızda hangi teknoloji kullanılıyor?
Yalnızca bir seçenek işaretleyiniz.
 Akıllı Tahta
 Akıllı Tahta
 Akıllı Tahta
 Akıllı Tahta
 Akıllı Tahta
 Akıllı Tahta
 Akıllı Tahta
 Akıllı Tahta
 Akıllı Tahta
 Akıllı Tahta

16. Kızlar sınıfınızda teknolojiyi nasıl kullanıyorsunuz?
Yalnızca bir seçenek işaretleyiniz.
 Her zaman kullanıyorum
 Bazen kullanıyorum
 Hiç kullanmıyorum
 Her zaman kullanıyorum
 Bazen kullanıyorum
 Hiç kullanmıyorum
 Her zaman kullanıyorum
 Bazen kullanıyorum
 Hiç kullanmıyorum

17. Kızlar sınıfınızda teknolojiyi nasıl kullanıyorsunuz?
Yalnızca bir seçenek işaretleyiniz.
 Her zaman kullanıyorum
 Bazen kullanıyorum
 Hiç kullanmıyorum
 Her zaman kullanıyorum
 Bazen kullanıyorum
 Hiç kullanmıyorum
 Her zaman kullanıyorum
 Bazen kullanıyorum
 Hiç kullanmıyorum

18. Kızlar sınıfınızda teknolojiyi nasıl kullanıyorsunuz?
Yalnızca bir seçenek işaretleyiniz.
 Her zaman kullanıyorum
 Bazen kullanıyorum
 Hiç kullanmıyorum
 Her zaman kullanıyorum
 Bazen kullanıyorum
 Hiç kullanmıyorum
 Her zaman kullanıyorum
 Bazen kullanıyorum
 Hiç kullanmıyorum

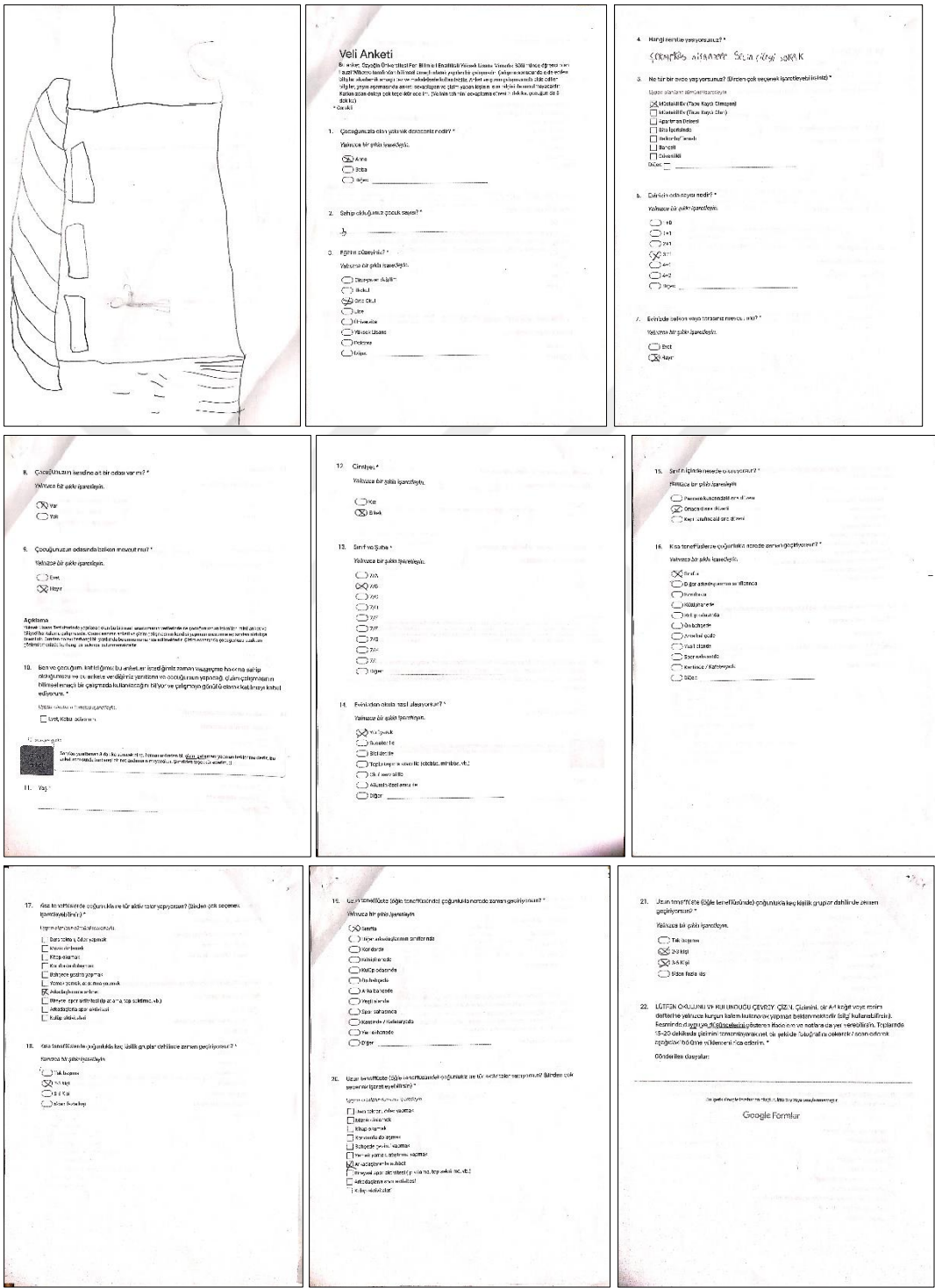
19. Kızlar sınıfınızda teknolojiyi nasıl kullanıyorsunuz?
Yalnızca bir seçenek işaretleyiniz.
 Her zaman kullanıyorum
 Bazen kullanıyorum
 Hiç kullanmıyorum
 Her zaman kullanıyorum
 Bazen kullanıyorum
 Hiç kullanmıyorum
 Her zaman kullanıyorum
 Bazen kullanıyorum
 Hiç kullanmıyorum

20. Kızlar sınıfınızda teknolojiyi nasıl kullanıyorsunuz?
Yalnızca bir seçenek işaretleyiniz.
 Her zaman kullanıyorum
 Bazen kullanıyorum
 Hiç kullanmıyorum
 Her zaman kullanıyorum
 Bazen kullanıyorum
 Hiç kullanmıyorum
 Her zaman kullanıyorum
 Bazen kullanıyorum
 Hiç kullanmıyorum

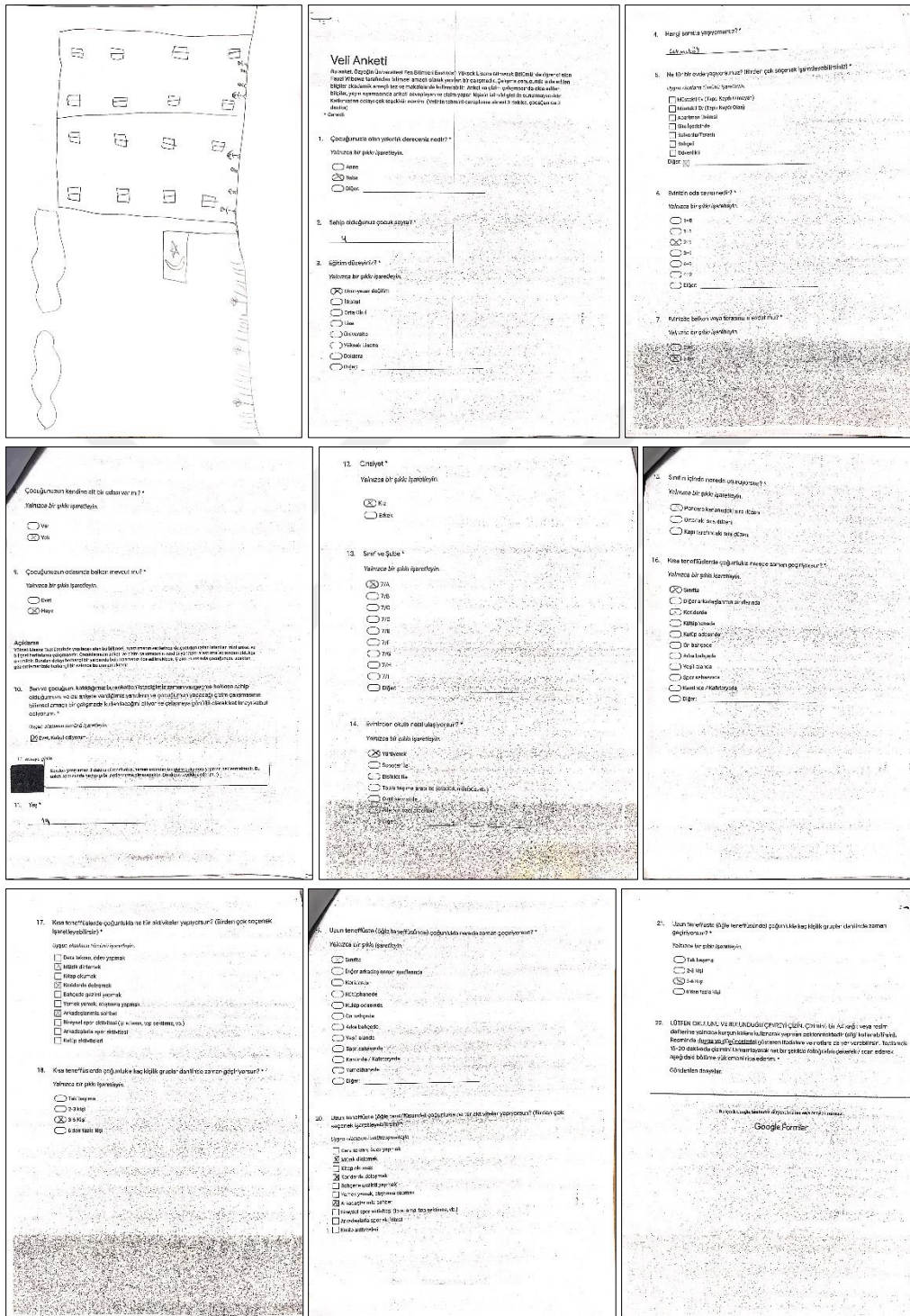
21. Kızlar sınıfınızda teknolojiyi nasıl kullanıyorsunuz?
Yalnızca bir seçenek işaretleyiniz.
 Her zaman kullanıyorum
 Bazen kullanıyorum
 Hiç kullanmıyorum
 Her zaman kullanıyorum
 Bazen kullanıyorum
 Hiç kullanmıyorum
 Her zaman kullanıyorum
 Bazen kullanıyorum
 Hiç kullanmıyorum

22. Kızlar sınıfınızda teknolojiyi nasıl kullanıyorsunuz?
Yalnızca bir seçenek işaretleyiniz.
 Her zaman kullanıyorum
 Bazen kullanıyorum
 Hiç kullanmıyorum
 Her zaman kullanıyorum
 Bazen kullanıyorum
 Hiç kullanmıyorum
 Her zaman kullanıyorum
 Bazen kullanıyorum
 Hiç kullanmıyorum

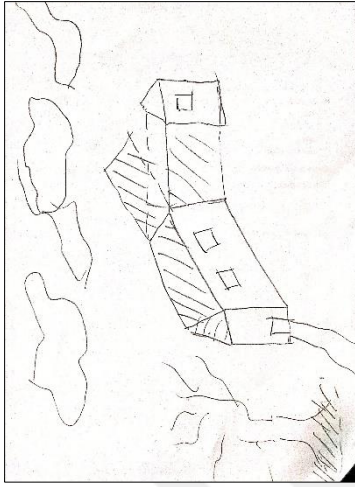
Participant 13: Male student, 12-year-old, 7-B.



Participant 14: Male student, 12-year-old, 7-B.



Participant 18: Female student, 14-year-old, 7-A.



Veli Anketi

Bu anket, Özyeğin Üniversitesi Fen Bilimleri Fakültesi Yabancı Dil ve İstatistik Bölümünde öğrenim gören Fazıl Wibowo tarafından geliştirilmiştir. Anketin amacı, öğrencilerin aileleriyle olan ilişkileri ve aileleriyle olan iletişimi anlamaktır. Anketin amacı, öğrencilerin aileleriyle olan ilişkileri ve aileleriyle olan iletişimi anlamaktır. Anketin amacı, öğrencilerin aileleriyle olan ilişkileri ve aileleriyle olan iletişimi anlamaktır.

1. Çocuğunuzun okula gittiği ders sayısı nedir? *
Yalnızca bir şık işaretleyin.
 A) 1
 B) 2
 C) 3
Diğer: _____

2. Sahip olduğunuz çocuk sayısı? *

3. Eğitimi düzeyiniz? *
Yalnızca bir şık işaretleyin.
 A) Ortaokul
 B) Lise
 C) Ortaokul
 D) Lise
 E) Üniversite
 F) Yüksek Lisans
 G) Doktora
 Diğer: _____

4. Hangi semtte yaşıyorsunuz? *

5. Ne tür bir evde yaşıyorsunuz? (Birden çok seçenek işaretleyebilirsiniz) *
Uygun olanları işaretleyiniz.
 Mülkiyeti Eri (Tapu Kaydı Olmayan)
 Mülkiyeti Eri (Tapu Kaydı Olan)
 Apartman Dairesi
 İskele Katında
 Balıkçılar/Teniseç
 Bahçeli
 Güvenli
Diğer: _____

6. Evinizin orta sayısı nedir? *
Yalnızca bir şık işaretleyin.
 1-10
 11-20
 21-30
 31-40
 41-50
 51-60
 Diğer: _____

7. Evinizde balkon veya terasınız mevcut mu? *
Yalnızca bir şık işaretleyin.
 Evet
 Hayır

Çocuğunuzun kendine ait bir odası var mı? *
Yalnızca bir şık işaretleyin.
 Evet
 Yok

9. Çocuğunuzun odasında balkon mevcut mu? *
Yalnızca bir şık işaretleyin.
 Evet
 Hayır

Açıklama
Bu anketin amacı, öğrencilerin aileleriyle olan ilişkileri ve aileleriyle olan iletişimi anlamaktır. Anketin amacı, öğrencilerin aileleriyle olan ilişkileri ve aileleriyle olan iletişimi anlamaktır. Anketin amacı, öğrencilerin aileleriyle olan ilişkileri ve aileleriyle olan iletişimi anlamaktır.

10. Ben ve çocuğum, katıldığımız bu anketten yararlandığımız zaman yaşadığımız haklara sahip olduğumuzun ve bu haklara sahip olduğumuzun ve çocuğumuzun yaşadığı diğer haklarının bilimsel olarak değerlendirilmesini istiyoruz. Bu hakların değerlendirilmesini istiyoruz. Bu hakların değerlendirilmesini istiyoruz.

11. Yaş *

12. Cinsiyet *
Yalnızca bir şık işaretleyin.
 Erkek
 Kadın

13. Sınıf ve Şube *
Yalnızca bir şık işaretleyin.
 Z1A
 Z1B
 Z1C
 Z1D
 Z1E
 Z1F
 Z1G
 Z1H
 Z1I
 Diğer: _____

14. Evinizin okula nasıl ulaşıyorsunuz? *
Yalnızca bir şık işaretleyin.
 Yürüyerek
 Bisikletle
 Otobüsle
 Biriyle
 Kendi aracınızla
 Diğer: _____

Sizin için en önemli olan nedir? *
Yalnızca bir şık işaretleyin.
 Finansal konularla ilgili
 Ortaklık kurma
 Kararlar hakkında

16. Kısır ilişkilerde çocuğunuzla nerede zaman geçiyorsunuz? *
Yalnızca bir şık işaretleyin.
 Sadece
 Diğer arkadaşlarımızla birlikte
 Karantena
 Kullandığımız
 Dinlenirken
 Akşam saatlerinde
 Öğleden sonra
 Karantena / Kafeteryada
 Diğer: _____

17. Kısır ilişkilerde çocuğunuzla ne tür aktiviteler yapıyorsunuz? (Birden çok seçenek işaretleyebilirsiniz) *
Uygun olanları işaretleyiniz.
 Ders okuma, ödev yapmak
 Müzik dinlemek
 Kitap okumak
 Karantena
 Bahçede gezmek
 Yemek yapmak, alışveriş yapmak
 Akademi konularını konuşmak
 Sizi düşünmek (bu anketin, tapu kaydı, vs.)
 Karantena dışı aktiviteler
 Kullandığımız

18. Kısır ilişkilerde çocuğunuzla kaç kişilik gruplar dahilinde zaman geçiyorsunuz? *
Yalnızca bir şık işaretleyin.
 1-2 kişi
 3-4 kişi
 5-6 kişi
 7-8 kişi

Uzun ilişkilerde çocuğunuzla ne tür aktiviteler yapıyorsunuz? (Birden çok seçenek işaretleyebilirsiniz) *
Yalnızca bir şık işaretleyin.
 Ders okuma, ödev yapmak
 Müzik dinlemek
 Kitap okumak
 Karantena
 Bahçede gezmek
 Yemek yapmak, alışveriş yapmak
 Akademi konularını konuşmak
 Sizi düşünmek (bu anketin, tapu kaydı, vs.)
 Karantena dışı aktiviteler
 Kullandığımız

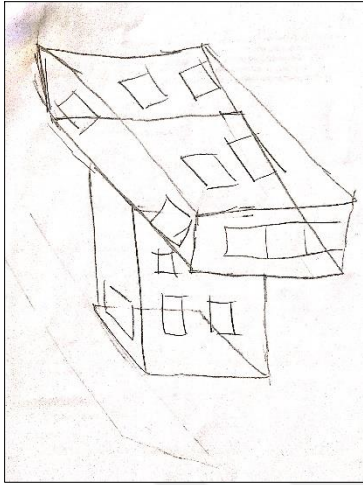
20. Uzun ilişkilerde çocuğunuzla ne tür aktiviteler yapıyorsunuz? (Birden çok seçenek işaretleyebilirsiniz) *
Uygun olanları işaretleyiniz.
 Ders okuma, ödev yapmak
 Müzik dinlemek
 Kitap okumak
 Karantena
 Bahçede gezmek
 Yemek yapmak, alışveriş yapmak
 Akademi konularını konuşmak
 Sizi düşünmek (bu anketin, tapu kaydı, vs.)
 Karantena dışı aktiviteler
 Kullandığımız

21. Uzun ilişkilerde çocuğunuzla kaç kişilik gruplar dahilinde zaman geçiyorsunuz? *
Yalnızca bir şık işaretleyin.
 1-2 kişi
 3-4 kişi
 5-6 kişi
 7-8 kişi

22. LÜTFEN OKULUNUZ VE BALKONUNUZU ÇEVREYİ ÇİZİN. Çizimini, bir A4 kağıdı veya resim defterine yalnızca kalem kullanarak yapınız. Çizimlerinizi (çizgi kullanılmadan) Resminde sağdaki boşlukta gösteriniz. Çizimlerinizi ve notlarınızı yan kenarlarında, toplamda 15-20 dakikada çizmeyi tamamlayarak her bir şıkta fotoğrafını çekerek / scan ederek aşağıdaki bölüme yüklemenizi rica ederim. *
Gönderilen dosyalar:

Google Formlar

Participant 27: Male student, 12-year-old, 7-A.



Veli Anketi

Bu anket, Öğrenci Değerlendirme Formülasyonu (EĞİTİM) Yılında Lisans Mimarlık Bölümünüzde öğrenim gören EĞİTİM öğrencilerinin öğrenim hayatları ile ilgili olarak hazırlanmıştır. Cevabınıza önemle rica ederiz. Lütfen bu anketi dikkatle okuyunuz ve doğru cevapları işaretleyiniz. Anketin amacı, öğrencilerin öğrenim hayatları ile ilgili olarak elde edilen bilgileri, öğrenim hayatlarında yaşadıkları sorunları ve diğer önemli konuları belirlemek ve bu bilgileri değerlendirilmesidir. Anketin sonuçları, öğrencilerin öğrenim hayatları ile ilgili olarak elde edilen bilgileri değerlendirilmesinde kullanılacaktır. Cevabınıza önemle rica ederiz. Lütfen bu anketi dikkatle okuyunuz ve doğru cevapları işaretleyiniz.

* Genel

1. Çocuğunuzun öğrenim hayatındaki en önemli sorunu nedir? *
Yalnızca bir gökçe işaretleyin.
 Akademi
 Ders
 Diğer: _____

2. Sıhhi olanaklarınız yeterli mi? *
 Evet
 Hayır

3. Eğitimin düzeyi nedir? *
Yalnızca bir gökçe işaretleyin.
 Öğrenciler için
 İhtiyaçlar
 Dersler
 İhtiyaçlar
 Dersler
 Diğer: _____

4. Hangi konuyu yapıyorsunuz? *
 Mimarlık
 İhtiyaçlar
 Dersler
 Diğer: _____

5. Ne tür bir evde yaşıyorsunuz? (Birden çok seçenek işaretleyebilirsiniz) *
Yalnızca bir gökçe işaretleyin.
 Mimarlık (Eğitim Kurumları)
 İhtiyaçlar (Eğitim Kurumları)
 Dersler (Eğitim Kurumları)
 Diğer: _____

6. Eğitim için ne kadar zamanınız var? *
Yalnızca bir gökçe işaretleyin.
 1-2
 3-4
 5-6
 7-8
 9-10
 11-12
 Diğer: _____

7. Eğitim için ne kadar zamanınız var? *
Yalnızca bir gökçe işaretleyin.
 Evet
 Hayır

Çocuğunuzun kendine ait bir odası var mı? *
Yalnızca bir gökçe işaretleyin.
 Evet
 Hayır

9. Çocuğunuzun odasında balkon mevcut mü? *
Yalnızca bir gökçe işaretleyin.
 Evet
 Hayır

Açıklama
Yalnızca bu formda belirtilen alanlar için doldurulmalıdır. Diğer alanlar için doldurulması istenmemektedir. Bu alanlar için doldurulması istenmemektedir. Diğer alanlar için doldurulması istenmemektedir.

10. Ben ve çocuğum, katıldığımız bu anketten istediğimiz zaman sonuçları hakkında bilgi alabiliriz mi? *
Yalnızca bir gökçe işaretleyin.
 Evet
 Hayır

11. Yaş *

12. Cinsiyet *
Yalnızca bir gökçe işaretleyin.
 Erkek
 Kadın

13. Sınıf ve Şube *
Yalnızca bir gökçe işaretleyin.
 3/A
 3/B
 3/C
 3/D
 3/E
 3/F
 3/G
 3/H
 Diğer: _____

14. Evinizin en önemli odası nedir? *
Yalnızca bir gökçe işaretleyin.
 Yatak odası
 Mutfak
 Salon
 Banyo
 Diğer: _____

Sınıf içinde nerede oturuyorsunuz? *
Yalnızca bir gökçe işaretleyin.
 Ön sıradaki sıra
 Ortadaki sıra
 Arkadaki sıra

16. Kısa teneffüslerde çoğunlukla nerede zaman geçiriyorsunuz? *
Yalnızca bir gökçe işaretleyin.
 Sınıfta
 Diğer arkadaşlarımızın sınıflarında
 Kütüphane
 Koridor
 Müzik odasında
 Diğer: _____

17. Kısa teneffüslerde çoğunlukla ne tür aktiviteler yapıyorsunuz? (Birden çok seçenek işaretleyebilirsiniz) *
Yalnızca bir gökçe işaretleyin.
 Ders tekrarı, ödev yapmak
 Müzik dinlemek
 Kitap okumak
 Koridorlarda dolaşmak
 Bahçede gezmek
 Yemek yemek, atıştırmak yapmak
 Arkadaşlarımızla sohbet
 Spor yapmak
 Arkadaşlarımızla sohbet
 Diğer: _____

18. Kısa teneffüslerde çoğunlukla kaç kişilik gruplar dahilinde zaman geçiriyorsunuz? *
Yalnızca bir gökçe işaretleyin.
 Tek başına
 2-3 kişi
 3-4 kişi
 5'ten fazla kişi

Uzun teneffüslerde (öğle teneffüsünde) çoğunlukla ne tür aktiviteler yapıyorsunuz? *
Yalnızca bir gökçe işaretleyin.
 Sınıfta
 Diğer arkadaşlarımızın sınıflarında
 Kütüphane
 Koridor
 Müzik odasında
 Diğer: _____

20. Uzun teneffüslerde (öğle teneffüsünde) çoğunlukla ne tür aktiviteler yapıyorsunuz? (Birden çok seçenek işaretleyebilirsiniz) *
Yalnızca bir gökçe işaretleyin.
 Ders tekrarı, ödev yapmak
 Müzik dinlemek
 Kitap okumak
 Koridorlarda dolaşmak
 Bahçede gezmek
 Yemek yemek, atıştırmak yapmak
 Arkadaşlarımızla sohbet
 Spor yapmak
 Arkadaşlarımızla sohbet
 Diğer: _____

21. Uzun teneffüslerde (öğle teneffüsünde) çoğunlukla kaç kişilik gruplar dahilinde zaman geçiriyorsunuz? *
Yalnızca bir gökçe işaretleyin.
 Tek başına
 2-3 kişi
 3-4 kişi
 5'ten fazla kişi

22. LÜTFEN OKULUNU VE BULUNDUĞU ÇEVREYİ ÇİZİN. Çizimini, bir A4 kağıt veya resim defterine yalnızca kurşun kalem kullanarak yapmanız gerekmektedir (ölçü kullanabilirsiniz). Resminde öğrencilerin yaşadıkları sorunları ve notlara da yer verebilirsiniz. Toplamda 15-20 dakikalık çizimini tamamlayarak net bir şekilde fotoğraflayıp çabalar / scan ederek aşağıdaki bölüme yüklemenizi rica ederiz. *
Gönderilen dosyalar:

Google Formlar

Participant 29: Male student, 12-year-old, 7-A.

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