ANALYZING PERCEPTIONS OF CHILDREN IN THE CONTEXT OF PLACE ATTACHMENT REGARDING THEIR INPATIENT ROOMS

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ANALYZING PERCEPTIONS OF CHILDREN IN THE CONTEXT OF PLACE ATTACHMENT REGARDING THEIR INPATIENT ROOMS

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To my love Serhat, my precious daughter Denef, and my dear son,

ABSTRACT

The thesis investigates inpatient rooms of healthcare settings in the context of place attachment regarding children whose intention to change the interior architecture of the inpatient room is linked to their tendency to place attachment. The aim of the study is to determine children's place attachment modalities in the inpatient rooms where they are actually hospitalized and the cognitive maps of their inpatient rooms where they would like to be hospitalized through the categorizations clarified in the methodology of the research.

The research is conducted through four hypothesizes. It is hypothesized in this research that, (1) the frequency of place attachment modalities of *'self-identity'*, *'privacy'*, *'social affiliation'*, and *'technological tendency'* is correlated with the *'gender'* of children for the *occupied actual situation* of their inpatient rooms. (2) the frequency of place attachment modalities of *'self-identity'*, *'privacy'*, *'social affiliation'*, and *'technological tendency'* is correlated with the *'age range'* of children for the *occupied actual situation* of their inpatient rooms. (3) the frequency of place attachment modalities of *'self-identity'*, *'privacy'*, *'social affiliation'*, and *'technological tendency'* is correlated with the *'gender'* of children for the *imagined situation* of their inpatient rooms. (4) the frequency of place attachment modalities of *'self-identity'*, *'privacy'*, *'social affiliation'*, and *'technological tendency'* is correlated with the *'age range'* of children for the *imagined situation* of their inpatient rooms.

In the case vise, the sampling group is selected as 7-14 years old children staying more than five days in inpatient rooms of the hospital located in İstanbul. Within the framework of the case study, first, the place attachment frequency of inpatient children

during their stay in their inpatient rooms and the *place attachment modalities of* children are revealed according to the children's gender and age range *(Occupied Actual Situation)*. Secondly, children are requested to draw the inpatient room where they would like to stay during their treatment time while they are hospitalized *(Imagined Situation).* For both situations, place attachment modalities are categorized according to four different spatial tendencies of children which are arisen depending on their (1) *self-identity*, (2) occurred because of the need for *privacy*, improvement of (3) *social affiliation* (Chawla, 1992), and (4) *technological tendency* which is added to the scope of the research in accordance with the obtained datasets resulted from the observations and cognitive maps during the case study. Both two phases are analyzed in SPSS through Mann-Whitney U Tests as the nonparametric version of the T-test, to find possible correlations between the independent and dependent variables.

Through the results of the first phase *(occupied actual situation),* the place attachment items for the modality of *self-identity* are most frequently observed in the inpatient rooms of the children with the dominancy of female participants and 7-11 years old participants. All items related to the place attachment modality of *social affiliation* are conducted by participants 7-11 years old whose frequency of place attachment modality of *technological tendency* is more than 12-14 years old participants' frequency. Through the results of correlations of *gender* and the frequencies of place attachment modalities, it is revelaled that there are not any significant correlations between the variables. Through the results of correlations of the participant's *age range* and frequencies of place attachment modalities, it is revelated that there are not any significant correlations between the variables except the items of the place attachment modality of *technological tendency* which can be interpreted as 'almost significant'. Upon this result,

it can be deduced that children aged 12-14 years old utilize items of *technological tendency* the more compared to the children 7-11 years old.

Through the results of the second phase *(imagined situation),* the place attachment modality of *social affiliation* is most frequently observed in the drawings of children. Besides, the frequencies of the place attachment modalities of *self-identity* and *privacy* are similar for both genders. There is an evident dominance of male participants through the frequency of the items of place attachment modality *of technological tendency*. The frequencies of the drawn items related to the place attachment modalities of *privacy* and *technological tendency* are observable for the age range of 12-14 years old when compared with the age range of 7-11 years old. Through the results of the participant's *gender* and the frequencies of place attachment modalities, it is revelated that there are not any significant correlations between the variables for the *imagined situation.* Besides, through the results of the correlations of participants' *age range* and the frequency of place attachment modalities, it is revealed that there are not any significant correlations between the variables for the *imagined situation*.

Regarding future studies, obtained results of this research showed that the flexibility of the interior design of the inpatient rooms which may provide possible opportunities for the needs of children's place attachment related to their gender and age range can be enhanced. With this flexibility which is related to the content of children's need for *self-identity*, *privacy, social affiliation,* and *technological tendency,* the opportunities for personalization of the inpatient room environments can be provided to children. This situation may lead the further interiors of inpatient rooms to be designed through a more child-centered approach.

Key Words: Place attachment, pediatric healthcare settings, self-identity, privacy, social affiliation, technological tendency, interior architecture

ÖZETÇE

Bu tez, iç mimarisini değiştirme niyetleri, mekansal bağlanma eğilimleriyle bağdaştırılmış çocukların, sağlık yapılarındaki yatan hasta odalarını, mekansal bağlılık bağlamında incelemektedir. Bu tezin amacı, çocukların kullanılan gerçek durumdaki yatan hasta odalarında ve tedavi görmek istedikleri yatan hasta odalarına ilişkin hazırladıkları bilişsel haritalarındaki mekansal bağlılık şekillerini, metodolojide açıklandığı şekliyle sınıflandırmaktır.

Tez dört hipotez doğrultusunda ortaya konulmuştur. Bu tezde hipotez olarak varsayılmıştır ki: (1) yatan hasta odalarının *kullanılan mevcut durumunda,* mekansal bağlanma şekilleri olan *'öz kimlik', 'mahremiyet, 'sosyal bağlanma' ve 'teknolojik eğilim'* in sıklığı, çocukların *cinsiyeti* ile bağlantılıdır, (2) yatan hasta odalarının *kullanılan mevcut durumunda,* mekansal bağlanma şekilleri olan *'öz kimlik', 'mahremiyet, 'sosyal bağlanma' ve 'teknolojik eğilim'* in sıklığı, çocukların *yaş aralığı* ile bağlantılıdır, (3) yatan hasta odalarının *hayal edilen durumunda,* mekansal bağlanma şekilleri olan *'öz kimlik', 'mahremiyet, 'sosyal bağlanma' ve 'teknolojik eğilim'* in sıklığı, çocukların *cinsiyeti* ile bağlantılıdır, (4) yatan hasta odalarının *hayal edilen durumunda,* mekansal bağlanma şekilleri olan *'öz kimlik', 'mahremiyet, 'sosyal bağlanma' ve 'teknolojik eğilim'* in sıklığı, çocukların *yaş aralığı* ile bağlantılıdır.

Alan çalışması kapsamında, İstanbul'daki özel hastanenin hasta odalarında beş günden fazla kalan, 7-14 yaş arasındaki çocuklar örneklem grubu olarak seçilmiştir. Bu alan çalışmasının çerçevesinde, öncelikle hasta yatan çocukların odada kaldığı süre içindeki *mekansal bağlanma sıklıkları* ve *mekansal bağlanma şekilleri*, çocukların *cinsiyet* ve yaş *aralığına* göre ortaya çıkarılmıştır *(Kullanılan Mevcut Durum).* İkinci

olarak, çocuklardan tedavi süreçleri boyunca kalmayı arzu edecekleri yatan hasta odasını çizmeleri istenmiştir *(Hayal Edilen Durum).* Her iki durum için de, mekansal bağlanma şekilleri, çocuklarda ortaya çıkmasının bağlı olduğu dörk farklı mekansal eğilime göre kategorize edilmiştir (1) *öz kimlik*, (2) *mahremiyet* ihtiyacıyla meydana gelen, (3) *sosyal bağlanmayı* geliştiren (Chawla, 1992) ve araştırma sırasındaki gözlem ve bilişsel haritalardan elde edilen sonuçlanmış veri setleriyle ilişkili olarak araştırmanın kapsamına eklenen (4) *teknolojik eğilim*. Her iki faz, bağımlı ve bağımsız değişkenler arasındaki olası korelasyonları bulabilmek için T-testin parametrik olmayan versiyonu olan Mann-Whitnet U Tests ile SPSS'te analiz edilmiştir.

İlk aşamanın *(kullanılan mevcut durum)* sonuçları doğrultusunda, *öz kimlik* öğeleri çocuk odalarında en sıklıkla görülen mekansal bağlılık şekli olarak, kız katılımcıların ve 7-12 yaş aralığındaki katılımcıların baskınlığı doğrultusunda gözlemlenmiştir. Ortaya konulan mekansal bağlanma şekli olan *sosyal bağlanma* öğelerinin hepsini 7-11 yaş arası çocuklar ortaya koymuştur ve bu yaş grubu çocukların mekansal bağlanma şekli olarak *teknolojik eğilim* öğelerini 12-14 yaş arası çocuklardan daha fazla sıklıkla tercih ettikleri gözlemlenmiştir. *Cinsiyet* ve mekansal bağlanma şekillerinin korelasyonlarında, her hangi bir anlamlılık gözlemlenmemiştir. *Yaş aralığı* ve mekansal bağlanma şekillerinin korelasyonlarında *teknolojik eğilim* dışında her hangi bir anlamlılık gözlemlenmemiştir. Katılımcıların *yaş aralığı* ve *teknolojik eğilim* sıklığı arasındaki korelasyon 'neredeyse anlamlı' olarak değerlendirilebilir. Bu sonuca göre, 12-14 yaş aralığındaki çocukların, hasta yatan odalarındaki mekansal bağlılık şekli olarak *teknolojik eğilim* öğelerini, 7-11 yaş aralığındaki çocuklara göre daha fazla tercih ettikleri sonucununa varılabilir.

İkinci aşamanın *(hayal edilen durum)* sonuçları doğrultusunda, *sosyal bağlanma* öğeleri çocukların çizdikleri resimlerde en sıklıkla görülen mekansal bağlılık şekli olarak gözlemlenmiştir. Bunun yanı sıra, mekansal baklanma şekli olarak *öz kimlik* ve *mahremiyet* öğelerinin sıklığı her iki cinsiyet için benzerdir. Mekansal bağlanma şekli olarak *teknolojik eğilim* öğelerinin sıklığında erkek katılımcıların baskınlığı söz konusudur. 7-12 yaş aralığındaki katılımcıların mekansal bağlanma yöntemi olarak *mahremiyet* ve *teknolojik eğilim* öğelerini kullanma sıklıkları, 7-11 yaş aralığındaki katılımcılara oranla dikkat çekicidir. *Hayal edilen durumun* değişkenleri olan *cinsiyet* ve mekansal bağlanma şekillerinin korelasyonlarında, her hangi bir anlamlılık gözlemlenmemiştir. Bunun yanında, *hayal edilen durumunun* değişkenleri olan *yaş aralığı* ve *mekansal bağlanma şekillerinin* korelasyonlarında her hangi bir anlamlılık gözlemlenmemiştir.

Gelecekteki çalışmalara ilişkin olarak, bu tezden elde edilen sonuçlar göstermiştir ki, çocukların cinsiyet ve yaş aralığına bağlı mekansal bağlılık ihtiyaçlarını sağlayan iç mimari tasarımın esnekliği geliştirilebilir. Çocukların öz kimlik, mahremiyet, sosyal bağlanma ve teknolojik eğilimlerine ilişkin ihtiyaçları kapsamında sunulabilecek bu esneklikle birlikte, çocuklara kendi hasta odalarını kişiselleştirebilme olanakları sağlanabilir. Bu durum da, gelecekteki yatan hasta odalarının daha çocuk-merkezli yaklaşımla tasarlanmasına öncülük edebilir.

Anahtar Kelimeler: Mekansal bağlılık, pediatrik sağlık ortamları, öz kimlik, mahremiyet, sosyal bağlanma, teknolojik eğilim, iç mimarlık

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CHAPTER I

INTRODUCTION

1.1 The Research Problem

Development of the arts of medicine in ancient Mesopotamian, Chinese, Indian and Egyptian civilizations provided the formation of the proto hospitals. It is certainly known that ancient Greek and Roman civilizations had architectural genealogy of hospitals. Military and religious were the two traditions that were consistent in the development of hospitals in the 20th century [1]. At the end of the twentieth century, hospital design was considered beyond the creation of only health facilities. Functional efficiency, marketing, cost, and codes were taken into consideration to provide the satisfaction of the patients [2].

Children's survival, protection, quality of nutrition, and good health constitutes an essential compass for human development. Similar to adults, children tried to cope with several contagious diseases, acute illnesses, or innated disabilities for centuries. However, children obtained attentive healthcare treatment extremely late. In the early Muslim period of the 8th century, children's illnesses and treatments started to be examined initially [3]. Besides, the care of newborn children was firstly encountered in Prague (A.C. 928) and Germany (A.C. 1233) [3]. From the 13th century, childcare and treatment methods started to be examined and applied in healthcare facilities. However, till the end of the 18th century, children's healthcare environments were not differentiated from

adults' environments. From the second half of the 18th century, hospitals which are specialized in children's health started to be dispersed [3].

By the end of the 19th century, as a result of distinguishing the bacteriological differentiation of diseases, medical departments were separated into child hospitals and also in general hospitals [3]. Contagious diseases brought a new way of protection and precautions in healthcare facilities.

At the beginning of the 20th century, the outcomes of successive technological inventions were also observed in pediatric healthcare environments through physical remediations like the usage of air conditioning systems and plumbing fixtures in pediatric wards [4]. The separation of beds with partitions and the application of several infant murals and details can be considered the spatial advancement of pediatric wards in the 20th century [4].

In the 21st century, as clinical choices are revealed by research as 'evidence-based medicine', healthcare design is also directed by attentive research which links the physical environment of hospitals and patient and staff outcomes while calling it 'evidence-based design' [5]. Evidence-based design concerns a process for healthcare settings, informed by the best accessible evidence while aiming to improve outcomes and continue to monitor the achievement of designs for succeeding decisions [6]. Recently, through obtained data and experiences from patients, staff, and attendants, healthcare environments not only provide treatment or medicine, but they also aim to constitute a built environment that is not scary or unfamiliar while providing needed control, familiarity, privacy, and socialization.

This thesis mainly focuses on the analysis the perceptions of children in the context of place attachment regarding their inpatient rooms. The sense of 'place' and the concept of place attachment constitutes the main essence of the research. Within this context, Tuan

[7] intensifies the understanding of ‘place’ with the perspectives of people who assign its meaning. Varied human experiences and intentions make places changeable on unique occasions [8]. In other words, the sense of ‘place’ is comprehended and processed by the experiences and activities of people which are the inconstant and integrated variables of the place.

Seamon [9] evaluates the place and the experiences of place through the relationships of three main factors: (1) environmental ensemble, (2) people-in-place, and (3) common presence. Environmental ensemble refers to the environmental qualities of a place which is considered the base of the place's experiences and activities. People in place are linked to the association of people and their specific environments through individual and group activities, meanings, and states related to the place. The interrelated togetherness of entities in space reinforces an environmental common presence that is revealed through a sensible quality that is allocated by the entities that are the segments of the space. Common presence is linked with spatial togetherness and its environmental and human components [9].

The sense of place is evolved through individual/ group experiences and activities. As cascaded in Shamai’s [10] sense of place scale, an attachment to a place occurs after the comprehension of the significance of the place. In the stage of attachment, the place has its own personal and collective significance for the person [10].

According to some recent studies of place preferences, self-regulation, place identity, place attachment, privacy regulation, and restorative impacts of environments are interconnected phenomena [11]. It is prevalent to conduct research on place identity, place attachment, and restorative environments through the observation of people’s place preferences for self-and emotional regulation [11]. In the process of children’s adaptation to new environments, known methods for conducting belongingness and attachment to a

place like naming, humanization, control, personalization, and fixing memory signs [12] can be proposed as a conscious management practice.

Thus, in the context of this thesis, children's place attachment tendencies in their inpatient rooms are examined through Chawla's [13] research of children's place preferences. In her article *'Childhood Place Attachments'*, Chawla [13] connects children's development of place preferences to the concepts of (1) self-identity, (2) needs for privacy, and (3) social affiliation. In addition to Chawla's three main concepts of place preferences of children, the 'technological tendency' of children is also incorporated into the scope of the research as the fourth place attachment modality and a dependent variable since many representations of technological attributes have emerged not only in the 'occupied actual situations' of children's rooms but also in children's cognitive maps that represent their 'imagined' room designs during the case study.

From this point of view, it can be assumed that children who stay in their inpatient rooms for a certain -or uncertain- amount of time, perceive their rooms' physical and sensual environment differently than adults. As their inpatient rooms are different from their daily living settings, children tend to adapt to this unfamiliar environment while changing their rooms through several spatial transformations or additions subjectively. This tendency can be linked to the need for place attachment which is one of the most essential components of the sense of place. Within this framework, this research analyzes the concept of spatial perception of pediatric inpatients, in the context of place attachment regarding children's inpatient rooms.

1.2. The Scope of the Study

Diagnosis and treatment of outpatients are generally conducted in polyclinics or emergency departments of hospitals without staying overnight. However, if the person's

health condition requires to be hospitalized, then an inpatient room is provided for serious care. When children are hospitalized, this unfamiliar environment is completely unfamiliar for the pediatric inpatient who also struggles with several illnesses and treatments. Moreover, the environmental adaptation process in healthcare settings is more demanding for children who are used to experiencing their familiar surroundings like home, school, neighborhood, etc. Usual routines like schooling, sporting activities, connection with friends, and organized holidays are interrupted by hospitalization which also causes missing events in their daily life such as social affiliations at school, playing sports, and attending school [14]. The new space of an 'inpatient room' is therefore disposed to become a new 'place' for them with possible additions and transformations which can be considered through the context of place attachment.

In the scope of this research, place attachment attributes of children in the environment of their inpatient rooms are attained through Chawla's [13] research of children's place preferences. It has been theorized that children's place attachment preferences are tied up to the development of *self-identity*, *needs for privacy*, and *social affiliation* [13]. By taking into consideration of the current technological spatial supplementations and their intense usage observed in the case study, children's *'technological tendencies'* are added to the scope of the research as the fourth place preference modality. Thus, place attachment modalities are categorized according to four different spatial tendencies of children which develops their (1) self-identity, (2) occurred because of the need for privacy or improvement of (3) social affiliation [13] , and (4) occurred because of the need of technological tendencies.

A sampling group of this research is children who are aged between 7 and 14 of both genders, hospitalized in inpatient rooms. The age range of 7-14 years of the sample group is divided into two independent variables in accordance with Piaget's [15] [16]

Theory of Cognitive Development. The first age group is 7-11 years old children who can be evaluated in the stage of *concrete operations* of the theory. The second age group is 12-14 years old children who belong to the last stage of the theory: *the stage of formal operations*. The children who are hospitalized for more than five days were taken into consideration to conduct the research with a sampling group who had a certain familiarity with the setting. Types of their illnesses and treatment methods, nationalities, social routines, and cultural backgrounds were exempted from the variables of the study.

There are four main research questions in the scope of this thesis:

(Q1) Is the frequency of place attachment modalities of *'self-identity'*, *'privacy'*, *'social affiliation'*, and *'technological tendency'* correlated with the *'gender'* of children for the *occupied actual situation* of their inpatient rooms?

(Q2) Is the frequency of place attachment modalities of *'self-identity'*, *'privacy'*, *'social affiliation'*, and *'technological tendency'* correlated with the *'age range'* of children for the *occupied actual situation* of their inpatient rooms?

(Q3) Is the frequency of place attachment modalities of *'self-identity'*, *'privacy'*, *'social affiliation'*, and *'technological tendency'* correlated with the *'gender'* of children for the *imagined situation* of their inpatient rooms?

(Q4) Is the frequency of place attachment modalities of *'self-identity'*, *'privacy'*, *'social affiliation',* and *'technological tendency'* correlated with the *'age range'* of children for the *imagined situation* of their inpatient rooms?

Within this framework, four hypotheses are asserted in the scope of this thesis:

(H0-A) It is hypothesized in this research that, the frequency of place attachment modalities of *'self-identity'*, *'privacy'*, *'social affiliation'*, and *'technological tendency'*

is correlated with the *'gender'* of children for the *occupied actual situation* of their inpatient rooms.

(H0-B) It is hypothesized in this research that, the frequency of place attachment modalities of *'self-identity'*, *'privacy'*, *'social affiliation'*, and *'technological tendency'* is correlated with the *'age range'* of children for the *occupied actual situation* of their inpatient rooms.

(H0-C) It is hypothesized in this research that, the frequency of place attachment modalities of *'self-identity'*, *'privacy'*, *'social affiliation'*, and *'technological tendency'* is correlated with the *'gender'* of children for the *imagined situation* of their inpatient rooms.

(H0-D) It is hypothesized in this research that, the frequency of place attachment modalities of *'self-identity'*, *'privacy'*, *'social affiliation'*, and *'technological tendency'* is correlated with the *'age range'* of children for the *imagined situation* of their inpatient rooms.

1.3. The Aim of the Study

This quantitative research investigates long-term hospitalized pediatric patients' perceptions in the context of place attachment. Thus, there are two major aims of the research. The first aim is to determine children's place attachment modalities in the inpatient rooms where they are hospitalized and to classify them according to the categorizations clarified in the methodology of the research. The second aim is to define children's place attachment modalities through cognitive maps which consist of drawings of children who are asked to draw an inpatient room in which they would like to be hospitalized. The aims and possible outcomes of this research may lead to the design

guidelines of future pediatric room interiors through a more child-centered approach considering the children's needs for place attachment.

1.4. The Structure of the Thesis

This thesis consists of five chapters including an introduction and conclusion. Chapter 2 initially reveals the literature review of environmental psychology as a branch of behavioral studies concerning the concepts of *sense of place* and *place attachment*. Thereafter children's sense of place is discussed through their physical and cognitive development processes. Later on, children's sense of 'place' through their development process is examined through the Chawla's [13] three research outcomes of children's place preference measures: (1) *self-identity,* (2) *need for privacy,* (3) *social affiliation.* Additionally, another modality is included into the structure of the research: (4) *technological tendency* as a frequently observed attribute discovered during the case study. Lastly, environmental behavior and cognitive mapping are reviewed through cognitive mapping studies of children.

Chapter 3 focuses on the topic of child-friendly pediatric healthcare design principles. Initially, inclusive design reviews of pediatric healthcare settings are discussed through several evidence-based design studies and evaluations. This section is linked to the Supportive Design Theory of Roger Ulrich [17] which is discussed through children's spatial needs and preferences. Both the international and local standards of pediatric rooms are clarified in the next part of the section to reveal the international and local regulations of pediatric room settings applied currently.

In Chapter 4, primarily, the case study environment and features of the sampling group are explained. Then the analysis and results of the research are clarified through

both the *occupied actual situation* of the inpatient rooms and the *imagined situations* of the inpatient rooms where the children desire to be hospitalized. Results of the place attachment frequencies were explained through the total frequency ranks of the place attachment modalities observed in the actual inpatient room environments and the drawings of children. Besides, the results of the correlations were explained through the data sets obtained from the non-parametric test of the Mann-Whitney U Test for both phases of the case study. Obtained data is aimed to be analyzed through t-tests. However, since the datasets are not normally distributed, the correlations were established through Mann - Whitney U Tests in SPSS to find possible correlations between the independent and dependent variables of the two phases.

The conclusion chapter consists of general reviews of the research results and the limitations of the research. The discussions of the *occupied actual situation* and *imagined situation* for further inclusive and flexible inpatient room designs for children are discussed accordingly with the obtained data of the case study.

1.5. The Methodology of the Thesis

The sample group of this research is the children aged between 7-14 years old who were hospitalized for more than five days in two different buildings of the same private hospital settled in İstanbul. Types of their illnesses and treatment methods, nationalities, social routines, and cultural backgrounds were exempted from the variables of the study.

The methodology of the research is based on two phases. In the first phase, it is aimed to investigate the *occupied actual situation* of the inpatient room of the child in terms of its spatial structure. Thus, in the first stage, the standard form of the inpatient room provided by the hospital is recorded by the researcher through photographs from

different views of the healthcare setting. Then, as a part of the first phase, it is also aimed to reveal the modalities of place attachment by taking photographs once more, after the patient has spent at least five days in his/her inpatient rooms. Thirty-three inpatient rooms are investigated in the first phase *(occupied actual situation)* of the case study. With this stage, the additions and transformations of the patient are targeted to be recorded and classified according to the categorization of Chawla [13] and the place attachment modality of *technological tendency*.

Within this context, it is hypothesized in this research that, children's place preferences are linked to the development of (1) *self-identity*, (2) *needs for privacy*, (3) *social affiliation* [13], and (4) *technological tendency*. For that reason, the frequencies of the items of place attachment modalities of children in their inpatient rooms are classified according to these four notions.

Gender and age range were considered the independent variables, while the frequencies of place attachment attributes are considered the dependent variables based on Chawla's [13] studies of children's place preferences and an additional modality of *technological tendency*. The age range of 7-14 years of the sample group is divided into two independent variables in accordance with Piaget's [15] [16] Theory of Cognitive Development. The first age group is 7-11 years old children who can be evaluated in the stage of *concrete operations* of the theory. The second age group is 12-14 years old children who belong to the last stage of the theory: *the stage of formal operations*. Obtained data is aimed to be analyzed through t-tests. However, since the datasets are not normally distributed, the correlations were established through Mann - Whitney U Tests in SPSS to find possible correlations between the independent and dependent variables of the first phase.

The *imagined situation* of the inpatient room was investigated in the second phase of the methodology. It was requested children draw the inpatient room where they would like to be hospitalized. Drawings were studied through the same categorization which is mentioned in the *occupied actual situation* as it is stated in the first phase of the study. Of thirty-three children whose inpatient rooms are examined in the first phase of the methodology *(occupied actual situation),* twenty-five children were accepted to participate in the second phase of the case study *(imagined situation).* Obtained data is aimed to be analyzed through t-tests. However, since the datasets are not normally distributed, the correlations were established through Mann - Whitney U Tests in SPSS to find possible correlations between the independent and dependent variables of the second phase.

To sum up, in the first phase of the study *(occupied actual situation),* it was intended to reveal whether there is a relationship between the independent variables of *gender* and *age* range and the place attachment frequencies and attributes in inpatient rooms. Besides, in the second phase of the research *(imagined situation),* children's place attachment attributes expressed on their drawings were examined through the variables of gender and age range.

CHAPTER 2

PLACE ATTACHMENT THEORY WITHIN THE SCOPE OF ENVIRONMENTAL PSYCHOLOGY

2.1. Environmental Psychology as a Branch of Behavior Studies

Environmental-Behavior Studies' is chosen to be called 'Environment, Behavior, and Society (EBS) by Moore [18] and his research team as the intersection of architecture, urban design, and urban planning on one side and the social and behavioral sciences on the other. This research is developed from the interest that while much was comprehended about the individual, group, and cultural operations, perception, cognition, tendencies values, dispositions, social habits, semantic structures, and cultural distinctions, little was recognized about the connection between these social understandings to the physical environment. The realm of environment, behavior, and society has been revealed in an attempt to close this gap, to improve empirically-based comprehensions of the dual interaction among individuals, social groups, cultures, and the environments in which they exist, and to utilize such comprehensions to the better preparation and design of the built environment. EBS examines the mutuality of physical environmental systems and socio-cultural systems while encompassing both environmental and human factors. Its levels differentiate through the individual, the group, the society, and culture while containing modifications to the environment by the activities of people at distinctive levels [18] (Fig.1).

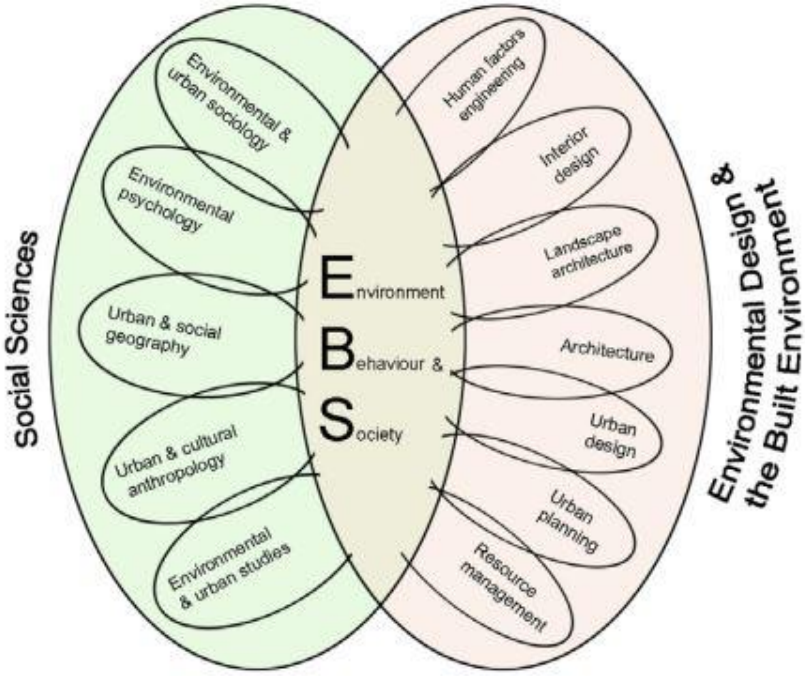


Figure 1: Environment, behavior, and society (EBS) research as the intersection of distinct parts of the social sciences and the built environment professions [18]

It can be observed from Figure.1 that environmental psychology is under the group of social sciences while intersecting with environmental design & the built environment. The scope of this thesis is containing the intersecting region of environmental psychology of social sciences and the interior design of the built environment through the research of Moore [18].

According to Bonnes and Carrus [19], environmental psychology is a branch of psychology through which the connection between people and the sociophysical features of the built and natural environment is studied, to enforce human well-being and enhance people-environment relations. This dual relationship is continuous and modificative as human behaviors and responses change over time. The word 'dual' is explained in detail by Saegert and Winkel as [20] :

"Both person and environment dynamically define and transform each other over time, as 'aspects' of a unitary whole. Stability and change coexist continuously.

The direction of change is emergent, not preestablished. If this is the case, it is important to look both for the sources of change within each paradigm and for the ways sources of change at one level affect other levels, creating new person-environment configurations." (p.443)

Accordingly, environmental psychology and its extended subjects should be evaluated in the related topic, time, socio-cultural structure, and physical environmental features. All these variables, affect human behaviors and relatively surrounding environments. It would be relevant to mention Barker's [21] [22] 'Behavior Setting Theory' in the related extend of the topic. The theory presents that, behavior settings are the units of the environment that are particular and classifiable while they collect both physical and social items of the environment into one element which regulates human behavior. According to Barker [21] behavior settings have (a) a definitive time, place, and object supports and (b) an established pattern of behavior. They are specified utilizing a series of canon for the interdependence between patterns of behavior and the milieu in which behavior settings occur. A behavior setting naturally arises as the element of the environment at the molar grade and it is identified by the environment's regular inhabitants who perceive that their lives are leaded inside behavior settings [21] [22] [23].

Barker [21] profounds four operating processes through which the environment compels behavior to produce appropriate environmental behaviors: (1) goal circuits, (2) program circuits, (3) deviation countering circuits, and (4) vetoing circuits. Goal circuits are related to the aims of the setting in which individuals can verify whether their goals are coherent with the setting. A program circuit defines the existent activities in the setting by which the goals may encounter. Deviation countering circuits emerge when some inconvenient behavior or destruction in the physical environment impends the

existing program of the setting (correction of the element). If the correction is not successful through the vetoing circuits the element may be eliminated [21].

Russel and Ward [24] emphasize that human behaviors change as people move from one place to another. According to them, this “place-specificity” (p.652) of behavior is the most essential factor of environmental psychology [24].

On the other hand, Saegert and Winkel [20] emphasize the differences in the general understanding of a person and his/her environment during their examinations of specific bodies of research and theory. In the first level of analysis, biological adaptation obtained is crucial in the relationship between person and environment. Individual opportunity structures form the second level of the analysis while the third level combines both the physical property of the environment of individuals and groups' activities [20]. When viewed from this aspect, Saegert and Winkel’s third level of analysis can be considered to be related to considerations and implementations of architecture and interior design which continuously strive to provide an ideal environment for human beings. As designing and controlling the physical properties of human everyday environments are related to the needs of other technical and disciplinary fields like architecture and natural ecological science, the occurrence of environmental psychology is also essential for these needs and responses [19]. Evaluation of the built-up environment and related human behaviors reveals a direct consistency between environmental psychology and architecture. Therefore, the data obtained from the studies which are discussed in environmental psychology, constitute notably substantial resources for architecture and interior design.

The increasing evidence from various programs of environment behavior research asserts that humans struggle (1) to set up and continue consequential psychological and social ties with the material world, with the reflection on their powerful sentimental

attachments to specific objects and places, and (2) to balance the degree of fit between their personal and collective demands for identity, on one side, and circumstances present in the physical and social environment that expedite the completing of those demands, on the other, (3) to manage with psychological, social and physiological stress which is occurred in the low perception of the person and environment fit [25].

According to Gifford *et al.* [26], there are three main analytic research levels of environmental psychology: 1) main psychological proceedings like environmental perception, spatial cognition, and personality that affect human experience and behavior, 2) social space's management: personal space, territoriality, crowding and privacy and physical setting conditions of complicated everyday behaviors; such as working, learning, etc., and 3) human transactions with nature and psychology's effect on climate change. As the concept of place attachment is mainly related to human behaviors and space management, it can be assumed that it is existing at the intersection point of Gifford *et. al*'s [26] analytic research levels of psychological processes and social space management. Therefore, it can be considered that the concept of place attachment takes its place in between the multilayered formations of environmental psychology.

2.1.1. Sense of 'Place'

Yi-Fu Tuan reviews 'place' as the determinant which vitalizes the experiences and desires of people [7]. According to him, the place is not clarified as the extensive border of space, but rather the understanding of 'the perspectives of people who have given it meaning' constitute its reality (p.387) [7]. This consideration of place is defined as a 'humanistic perspective' by Tuan (p.388) [7]. According to this point of view, it can be observed that related research subjects of environmental psychology quite coincide with Tuan's humanistic understanding of place by considering the places not only with their

spatial and physical characteristics but also together with the human behaviors and experiences occurring in them. Perceptual implementation, experience, mood, and aim of a human are linked to the structure and emotional scale of the place where their moral and aesthetic intuitions are applied [7]. In brief, a tent or lower part of the table can be a place for a child or a monument can define a place for an adult. In both cases, assigned human memories and interactions give meaning to a place.

Edward Relph's [8] consideration of 'place' is linked to the concept of 'space' which is formless and abstract and not an existence that can be identified and examined. However, according to him, some related sense or concept of place is felt, known, or explained. In general, the context of places is provided by spaces that attain their content from particular places. The variety of human experiences and purposes makes place inconstant in different situations [8]. This relationship between human experience and the environment leads to Relph's discussion on attachment as explained below [8]:

> *"In both our communal and our personal experience of places there is often a close attachment, a familiarity that is part of knowing and being known here, in this particular place. It is this attachment that constitutes our roots in places, and the familiarity that this involves is not just a detailed knowledge, but a sense of deep care and concern for that place. To be attached to places and have profound ties with them is an important human need"* (p.37-38)

With this explanation of place attachment, Relph [8] emphasizes the constitution of roots in a place. It is questioned and researched by environmental psychologists who aim to classify these environmental connections of human beings with places.

According to Shamai [10], the combination of humans and the physical environment forms the place. His sense of place scale has seven levels: (1) absence of a

sense of place, (2) awareness of being in a place without any emotional link, (3) belonging to a place with the awareness of the importance and respect of the place, (4) an attachment to a place which has personal and collective significance, (5) a case of deep attachment to the place with fostering a commitment and a dedication, (6) a state of commitment to a place with active involvement by devoting in the interests of the place, (7) relinquishing for a place by giving up personal or group interest for the place [10]. This sense of place scale of Shamai [10] propounds a complex and multifaceted inquiry for environmental psychology and other related disciplines to evaluate the environmental and personal impacts on each degree of this scale.

In the next chapter of this review, principles of place attachment are discussed before reviewing children's perspectives on the subject.

2.1.2. Place Attachment

Place attachment and its concept deal with understanding the bonds between human beings and their environments. These two extensions intersect with each other in different circumstances. Physical characteristics of the environment, individual needs and peculiarities, evaluation of the present situation, possible alternatives, and effective possibility of making choice are the physical and social characteristics of the environment that affects the intensity of the attachment [27]. Interaction between an individual and a place is a continuous and complex formation. Altman and Low (p.4) [28] consider the conjecture of place attachment as an involved phenomenon that associates various aspects of 'people-place bonding'. Their understanding of the concept of place attachment has several inextricable, integral, and dual features, characteristics, or specialties [28].

A continuous relationship between an individual and a place is mentioned by M. Carmen Hidalgo and Bernardo Hernandez [29] as 'a positive affective bond between an

individual and a specific place' (p.274). This definition is endorsed by the disposition of the individual to retain closeness to a place [29]. According to their assumption, place attachment is attachment to the people who experience the same place. However, both the social attribute and the physical environment are usually determined together in other intricately linked areas [29].

Leila Scannell and Robert Gifford's three-dimensional system of place attachment [26] configures different definitions in the literature related to this subject (Fig. 2). This system is profoundly related to the attachment's multidimensional concept of person, psychological process, and place dimensions [30]. The *person* dimension of this system is related to the individual and group. Individual-level is involved with experiences, realizations, and milestones that may make places meaningful while diverse cultures, genders, and religions mainly affect *group-centered* place attachment which occurs with common practices of religion or *culture* [30].

The second dimension of place attachment is the *psychological process* which includes person-place connections of affects, cognition, and behavior as it is represented in Figure 1. Place attachment as an *affect* can be considered to be related to the emotions which are impressed and changed by the place itself. Place attachment as a *cognitive outcome* consists of a structure of *place meaning*. Cognition outcomes enable people to feel intimacy with a place with personal features like the memory of knowledge, schemas, and meaning. Place attachment as a *behavioral level* is stated by the actions. There are two behavioral expressions of place attachment: *proximity-maintaining* and *reconstruction of place*. In both expressions, the main claim is to constitute a connection with a place [30].

The third dimension of place attachment is the *place* itself which has physical and *social* attributes. The physical level is involved with the natural and built environment

whereas the social level is much more related to communal issues like social arenas or social symbols [30].

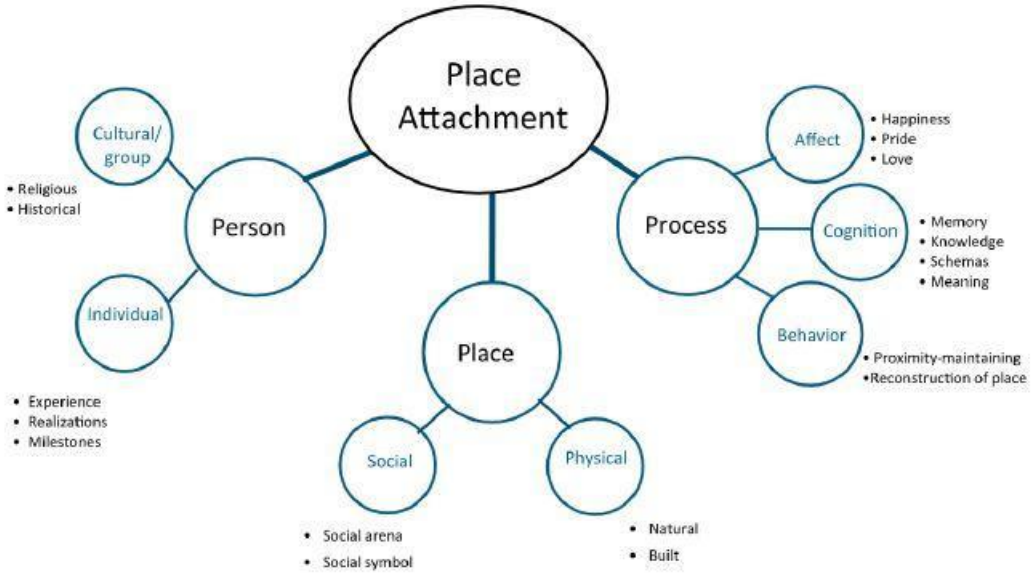


Figure 2: The tripartite model of place attachment [30]

Since place attachment's content is related to several different physical and psychological human /inhuman components, its unstable and multifaceted aspects should be precisely evaluated. In this manner, this review continues with the children's place attachment tendencies and a case study.

Lewicka [31] reviewed several empirical and theoretical research on place attachment and categorized the place scale through (1) home, (2) cities, (3) neighborhood, (4) region, (5) country, and (6) continent. The two notions of place which have various roles in the process of attachment are distinguished by the majority of place attachment researchers. Firstly, some people's attachment to a place occurs with social factors such as close ties to their neighborhoods, rootedness, or strong religious meaning of the place. Others may be felt attached to the physical resources of places such as charming nature, the chance of recreation and rest, or an environment with a physical stimulus [31].

The predictors of place attachment are categorized into three rough sections by Lewicka [31] as: (1) socio-demographic predictors, (2) social predictors, and (3) physical-environmental predictors. Socio-demographic predictors include the variables of residence length, age, social status and education, home ownership, size of the community, having children, mobility, and its order. Residence length is the winner of these variables as being the most conforming positive predictor of attachment to residence places. Community ties are generally examined in the scope of the social predictors of place attachment. The strength of community ties has been considered as a positively predict of place attachment. As the possible physical-environmental predictors of place attachment are limitless, the choice of variables either must be very particular or must use categories that are very wide or, it must involve all potential physical characteristics of settings. Even so, there is an apparent lack of theory that would link people's emotional bonds with the physical aspects of places [31].

It can be summarized that the scope of place attachment is the process of constituting bonds with places and people, and its related dimensions involve various disciplines as it is mentioned insofar. In this context, it would be relevant to examine children's sense of place and place attachment tendencies to obtain more relevant information within the scope of this thesis.

2.2. Children's Sense of 'Place' through Children's Development Process

Children's cognitive and mental development process initially commences with the exploration and movement in their homes which are generally the first environments that they experience. In time, diverse groups and established settings initiate new social functions and communions beyond their home surroundings. The built environment is one of the contextual variables which is potentially significant in children's development

process [32]. There are seven general concerns of David and Weinstein [32] in the concept of children and their built environments: (1) children are both directly and representatively affected by the built environment, (2) *multi-setting perspective* (p.7) would support the study of the built environment and children's development, (3) regarding children's development process, there should be certain prevalent features of all built environments: to encourage personal identity, to support the evolvement of competence, to supply occasions for growth, to assist a sense of security and trust, and to admit both social interaction and privacy, (4) the use and clarification of settings can be differentiated in relation with the individual and cultural alterations, (5) children should be able to plan and arrange their physical settings, (6) children's cultural and social structure must be considered while examining the built environment's impacts, (7) built environments should not only be considered through children, there are several common users of the settings like parents, teachers or caregivers. This inclusive approach of Davin and Weinstein [32] indicates the significance of the mutual relationship between the built environment and children's development. Therefore, while examining children's development process, it is also required to research existing built environments' possible contributions or obstacles to that process.

Children's perceptions considering places and things improve as a continuation of their relations with their parents who are the primary actors in their environments as they grow up and discover. Beyond the responsibility of children's biological survival, parents also act as a part of children's objective world [33]. When a young child is able to walk, he or she explores the environment through his/her mother's environment. Attachment to the adult increases if the environment is more offensive [33]. From this point of view, parents can be considered as children's primary place where they are attached physically and psychologically. Children start to attach to objects and localities as they grow up

while generally attaching small objects rather than big ones as they cannot move or handle big objects easily [33]. Speaking also enables us to classify things in some way and increases interest in places. By speaking, children label experiences and fit these experiences into several conceptual schemes [33]. Two-and-a-half-year-old children understand the meaning of ‘where’ even if they cannot perceive the intervening space between here and there. But they procure a sense of place and security when the question ‘where’ is answered with several answers like ‘home, ‘office’ or ‘big building’. One year or so later, the children are interested in landmarks when they are out for a walk or ride [34].

According to Tuan [33], the understanding of place becomes more specific and geographical as children grow. Their locational definitions start to be more detailed as seen in the answers to the question ‘where do you like play?’. Two-year-old children would probably answer this question by saying ‘home’, whereas an older child would answer in detail like ‘in my room’ or ‘in the yard’ [33]. As it is can be figured out from these expressions, place understanding, and specification are progressed by the development of age and relatedly the knowledge of the child.

Besides, children tend to believe that every component of their environment has a soul and they try to make connections with this environment. This tendency comes from their egocentric and functional view of things [35]. According to Piaget, children’s environment made by parents and other adults and terms of animism and artificialism feed their perception of the world in a friendly way [36].

Kevin Lynch’s book *A Theory of Good City Form* specifies certain spatial rights [37]. He defines ‘the right of presence’ (right to be in a place) as the first spatial right [37]. There is a right for everyone to be on any public sidewalk, but no one can keep others off it. The second right is the ‘use and action’ which is mainly related to using the

facilities of the place freely. The third right is the ‘appropriation’ which can be summarized as the ability to take the resources of the place. Lynch [37] specifies ‘modification’ as the fourth spatial right which is the ability to change the place. The last spatial right is the ‘disposition’, and it is related to controlling the rights while they can be permanent or transferable (p.206) [37]. Lynch [37] claims that young people are able to take pleasure in these rights only with adults’ tolerance. Adults control the matter and social situation of children’s lives. Thus, the relationship between the prevailing values and their realization capacity of these values within the actuality of their lives can be linked with their apprehension of the world, their sense of themselves, and their proficiency [38].

According to Chatterjee [39], the significance attached to a setting by a person or group has been extensively linked with the concept of a sense of place. There is a mediating or a dual relationship between the place and the child, task, or behavior. A child’s interaction with the place is linked with his/her spatial needs. The child’s preference for a specific place is related to the place’s satisfaction ability to fulfill desired needs and create a match between the activity and the required environmental properties of that activity. If the child’s needs and the identified affordance of a place are in harmony, then the child negotiates with the environment to realize the affordance and the satisfaction of the need. When this affordance actualization is supported by the socio-ecological context, children may evolve strong senses toward the place [39].

Relatedly, when children experience places, they could use and modify the place according to their desires. This situation is about forming a ‘place’ that gains its meaning from children’s experiences and behaviors. If the place is formed in harmony with children’s needs, they probably tend to stay more or not leave that place, and the term ‘place attachment’ subjects too. When a place exposes pain or anxiety to a child rather

than mastery, adventure, and pleasure, then the child seeks proximity and comfort from the attachment item [40]. It is crucial to state that, in this review, the physical features of the place are not completely separated from the psychological needs of children. On the contrary, spatial abilities of place attachment are evaluated with children's place attachment modalities.

2.2.1. Children's Place Attachment Through Their Place Preferences

Children's sense of place attachment initially develop in their home environments which is generally the first environment that they experience. Thereafter, depending on their physical and cognitive developments, their experimental surroundings are expanded with their neighborhoods or school settings. In this point of view, Chawla's [13] and Korpela's [11] research are substantial to determine children's place attachment tendencies through their place preferences. In her article *'Childhood Place Attachments'*, Chawla [13] mentions that place attachment substantiates if children feel to be happy in a certain place which does not only satisfy physical needs but also serves intrinsic opportunities. Several observational studies, favorite place analyses, and behavior maps are examined by Chawla [13], to figure out the most frequently used outdoor places and favorite places which are the basis of sources to develop the feeling/concept/understanding of place attachment in early and middle childhood and adolescence. Chawla [13] also emphasizes different age ranges' tendencies through behavioral mapping and favorite place analyses. According to the results [13], preschool children prefer to be close to home and mixed-gender play while local landscape with same-gender play is mostly chosen in middle childhood. Adolescents' situation has two different poles which consist of a need for privacy at home or a preference for distant attractions [13]. Spencer and Blades [41] also mention this dualistic situation of adolescents' place preferences. Adolescents can either prefer an environment that assists

their objectives or they can try to transform an environment according to their objectives [41].

Another outcome attained from Chawla's research [13] is the types of satisfaction of a place: security, social affiliation, and creative expression and exploration. Self-identity is supported by the places listed in either of two ways: by providing predefined social roles to young people through conventional settings, or by proposing unprogrammed space. This diverse behavior setting is essential for adolescents [13]. Ages between 6-11 are categorized as middle childhood that have a tendency of expansive local exploration. According to this view, middle-aged children prefer to cooperate with others in games and their physical strength and dexterity create their self-identity. Playhouses and forts are major creation choices in the nearby environment. Children aged between 12-17 years old create mixed-gender groups and they place emphasis on the privacy of the home. In contrast with this privacy needed in a home environment, they prefer distant commercials or downtown settings. Chawla [13] connects the development of place preferences to the development of *self-identity, needs for privacy,* and *social affiliation*.

Kalevi Korpela's article *'Children's and Adolescents' Place Preferences – From Descriptive Data to Theoretical Conceptions'* [11] initially reviews studies based on children's place preferences. Korpela [11] identifies descriptions of the development of place preferences, favorite place determinants, restoration, and self-and emotional-regulation in a favorite place. The concept of self-regulation, place identity, place attachment, privacy regulation, and restorative effects of environments are interrelated with the subject, and researching their interrelations provides a new perspective through the theory of place preferences [11]. Several studies of childhood memories and studies of children's place-use have indicated that intense feelings are attached to the place which can also provide emotions of privacy, control, and security [11]. Additionally, a self-

regulative view of place selection is mentioned in Korpela's research in the context of adolescents' place preferences [11]. According to his hypothesis, adolescence was an essential time when self-regulation activities would be critical as the self is being developed while self-concept development is the main exposure of adolescence. The physical environment itself can be the main component of the process of regulating the experience of self and emotions [11].

Besides, place attachment significantly helps children to handle stress and anxiety [39]. When the child moves away to examine the environment and faces frightened and stressful conditions, he/she tends to turn back to the place where he/she is already attached. In early to middle childhood, the attached place forms a secured base for careful examination through the wider environment and the ability to constitute friendships with common interests and activities [39]. Starting from this point of view, inpatient rooms' environmental features come into prominence concerning the affordance of place attachment. In the next part of this section, the notions of self-identity, the need for privacy, and social affiliation [13] and technological tendency are discussed through the concept of children.

2.2.2. Self-identity

The development and representation of self-identity are composed of a multilayered process that is modified by ongoing conditions and experiences. Individuals' interferences with a changing physical environment affect the self-identity throughout the life cycle [42]. In other words, the formation and representation of the self-identity should be evaluated through its flexible and variable structure.

Through comprehending the evolvement of human behavior and experience, spaces and places are the fundamental considerations in the context of self-identity formation [42]. It can be assumed that the sense of self-identity in childhood is constantly

modified by the existing physical, psychological, social, and cultural conditions. Children's context of emotional interdependencies involves children's strive towards the realization of moral, intentional, and authentic self-identity relationships [43]. These interdependencies initially settle in the family which is their social environment for developmental purposes [43]. Besides, children's representation methods of their self-identity are also determined by this multilayered environmental and individual structure. According to Proshansky and Fabian [42], infants' individualization process initially develops through sensory and perceptual involvements of vision, sense of hearing, touching, and so on. The eventual significant role of this process belongs to the language which is primarily essential for the identification of the objects and the people. A child's learning continues with social interactions and objects' utilizations. Triplet interactions of the child, other people, and objects implicitly function to determine who the child is to itself and others likewise [42].

Generally, home is the first physical setting of self-identity, and the first interacted objects are catchable objects like toys, tools, food, etc. Children's developed physical abilities conduce to expand their environmental interactions. Through the competence of walking, their environmental relationship extends through the places that they experience. Without the control of their parents, children can embed their belongings in their rooms which have extreme importance in the child's development of place-identity and related self-identity [42]. During the hospitalization period in inpatient rooms, this 'identical' room in the home is replaced with the 'standard' inpatient room. It is assumed in this research that children tend to transform their inpatient rooms according to their self-identity. This reflection of the self-identity converts the room from an unfamiliar space to an attached place.

Certain spaces and places that are possessed, familiar, utile, and controllable, fulfill and continue the integrity of the child's sense of self, embodying the meaning of that self [42]. Beyond the dependent and continuing relationships with other people, identity assignations of the children are also linked with the rooms, clothes, toys, and an entire range of items and spaces which also reinforce their beingness [42]. Children's identical spatial interventions constitute a sense of attachment to the experienced places. However, it is also significant to offer places that make spatial modifications possible. This research's scope is involved in the examination of the self-identity interferences of pediatric inpatients to form a sense of place attachment in the inpatient room where they are hospitalized for a long time. Hereby, offered inpatient rooms' spatial ability to represent the self-identity is examined through the concept of place attachment of children.

2.2.3. Privacy

The concept of *privacy* cannot be considered as an invariable phenomenon that is defined by constant variables throughout the life period of the human being. Age, gender, physical environment, social environment, and individual expositions can be evaluated as the main determinants of privacy which are changing and modifying in the related content. Privacy can be considered as a process in which individuals control interpersonal borders to direct and modulate their relations with others. Thus, one's personal space is a private zone that is available only to particular others. A sense of protection to physical security and identity is related with the confines of this personal space [44]. Felipe and Sommer [45] determine two fragments of interaction between people: (1) to interact and (2) to avoid interaction. Through these dipole limits, the level and sort of interaction can

be interpreted. Collaboration, contending, and directing are modes of interaction while avoidance of interaction may be also preferred.

Wolfe's [46] interests in human behavior and physical environment are separate aspects of human privacy. According to her, the existence of others and the feasibility of a relationship with them are necessities for all forms of privacy. The indication of this relationship has two components which are interaction management and information management. Interaction management is related to a form of non-interaction or an option of the variables of the interaction. On the other hand, information management is related to the individual's tendencies to manage past and present information about him/herself and initiatives to evaluate his/her behavior with regard to future and present results [46].

In this context, the relationship between the concept of privacy and the related environment should be readily discussed together. Wolfe [46] mentions the three main elements of the environmental dimensions of privacy as (1) cultural element, (2) socio-physical element, and (3) life-cycle element. The cultural element is based on the norms and culture of the community which may restrict the sensed options available to any person or group. Socio-physical element is related to the ecological and physical properties of the environmental contexts which may confine human behavior. The cultural and socio-physical effects of the privacy experience are not constant in every stage of the life cycle. Thus, the life-cycle element is accepted as the third element of the environmental dimension of privacy [46]. One of the other significant determinants which impact the understanding of privacy can be considered as the related culture of the physical and social environment. Dominant perspective of culture affects the individual's privacy situations, as these perspective's ability to limit the concrete experiences of people [46]. In this sense, it can be mentioned that the notion of privacy has a multilayered

and dynamic structure that is changed accordingly to the several environmental factors encountered through the life cycle.

The aptitude of choice is a significant qualification of the concept of privacy. In all sorts of privacy situations, the individual experience to choose how, in what situations, and to what degree he/she forms a relationship with others [46]. However, generally, children have limited or no choice options for privacy as their physical and social environment are under adults' control. Besides, according to Wolfe [46], the essence of the interpersonal structure impacts the capability to exercise choice in privacy. Common norms lead to choose over the degree, shape, and expanse of information and interaction management. Also, an individual's capability to choose decreases or increases according to the interpersonal or institutional level of the environment [46]. For instance, children who newly start school constitute new forms of privacy choices which were different from the ones preferred in the home environment. These changes in the way or degree of privacy choices support the flexible and transforming structure of privacy.

Families provide more independence to children when they enter adolescence. They are freer from adult observation; they move from home more than before; they are more often in public without their family. Interaction and information management are used by adolescents for participating in behaviors while restricting controversy and avoiding present or future results [46]. This is related to the control over permission to some related aspects of a setting like a locked door, a personal diary, a secret, or managing and preferring the type and intensity of integration [46]. Personal autonomy in a particular situation and the ecological environment in which privacy can be pursued, accomplished, or experienced determines the form and the amount of privacy possible for adolescents [46]. Both children and adolescents who are hospitalized in inpatient rooms partially lose their interaction and information management ability due to the physical environment of

the inpatient room. They spend most of their time with their parents in the same room with several medical interruptions and regulations. Thus, this situation restrains to development of a spatial relationship with the inpatient room in the context of a sense of place.

To evaluate the meaning of privacy in childhood and adolescence, Robert Laufer and Maxine Wolfe conducted research with nine hundred children and adolescents, aged 5 to12 years old [47] [48]. Outcomes of these studies indicate that children know the meaning of privacy which is substantial in their lives. The most frequently mentioned definitions of privacy are *aloneness, information management, the lack of disruption and interruption of activities, the control over access to spaces, autonomy, and quiet* (p.200) [46]. In these studies, the concepts and descriptions of privacy-related experiences of children and adolescents demonstrate that privacy contains a sort of elements in relation to one another and it is not appropriate to define it with a single element as the definer of the experience. Nevertheless, one of the key elements that become more initial for each child to the compression of privacy as an abstract concept. Another data derived from these studies is the respondent's focus on environmental management like controlling access to places or lack of noise. Less number of children focus on autonomy or choice. This situation also indicates a multifaceted understanding of privacy for children.

These studies of Laufer and Wolfe [47] [48] also specify the relationship of privacy with age and gender. In the context of age, a younger group who are below the age of 8, indicates aloneness less often than the children who are above the age of eight. Children who are aged by 13-17 years old utilize the management of information more than the younger groups. Outdoor places are more likely defined as private places for older children, while several rooms in the house are mentioned for younger children for privacy. Private places are generally considered as 'alone' places for children while the

highest percentage of the response ‘alone’ is given by the 8-12 age group. The 13-17 age commence indicating the tendency of being alone or with someone else. Lack of noise was the prevalent physical signifier for privacy. The existence of doors or doors with locks is distinguished in the 8-12-year-old group. The use of specific furniture and the utilization of several signs decreases with age, while spaces are separated as the physical signifier when age increases.

Gender can also be considered as one of the most significant determinants of privacy accordingly to the related culture and social environment of children. The outcomes of Wolfe’s [46] research signify that the boys depict outdoor places and indoor places other than their home more likely than the girls in the beginning at 8 years of age. Doors are merely mentioned by girls as a primary physical signifier of a private place. Boys were more likely than girls to mention their ability to control their access to a place that is considered private. For both boys and girls, utilization of the choice/autonomy element increases with age, however between 8-12 and 13-17 the proportion of boys using this element expands significantly. Besides, the use of information-management elements increases for girls from preadolescence to adolescence and is preferred by more girls in adolescence [46].

2.2.4. Social Affiliation

Socialization is the process by which an infant is accepted as a member of his or her society regarding appropriate behaviors, knowledge of the language, possession of the essential skills, and embracing of dominant beliefs and attitudes [49]. Homes are the most substantial environment in the realm of a child’s world socialization. Nevertheless, other environmental settings like school and outdoor play areas are included in this

socialization state as the child grows. Home, school, and outdoor settings are presumably the most effective settings in the child's life [42].

According to Wolfe [46], children are permitted to be alone without adults' control as they grow up and they spend their time away from home even alone or with peers. The first activities which are experienced away from the home and family can be considered as being able to be alone outside and experiencing the school environment. Peer relationships are more significant between school entrance and adolescence [46]. They form the nature of friendship while sharing and retaining information and defining the extent and nature of the interaction. Concerning the activities, children affiliate distinctively as the range of peer groups enlarges. The child's varied roles are determined by the activities, tendencies, and social configuration of these groups [46].

Besides, the differentiation occurred in children's behavior, interests, and/or value has three reasons: (1) adults' direction and authority, (2) peers' direction toward each other according to the socialization concerns, and (3) children's socialization attempts to provide comfort in the limits of their competencies [50].

At this juncture, it may be essential to briefly mention children's differentiation through their social gender development. Maccoby [51] mentions three dominant trends through the perspectives on gender development. Firstly, danger, dispute, demolition, courageous actions, and attempts of physical strength are observed in boys' fantasies, in the narratives they create, and in preferred books and TV broads. However, domestic or romantic arrangements contract girls' fantasy and play themes, while integrating social relations, maintenance, and restoration to gain order and safety. Secondly, boys are concerned about rough and crumble plays, competitions, conflict, ego presentations, risk-taking, and struggling for dominance. However, girls are more responsive to the remarks of their integrating partners. They prefer suggestions rather than imperious demands.

They tend to provide collaborative scenarios in which the activities of the players are shared. Thirdly, friendship qualities also differ for boys and girls while girls' are more intimate through the shared information about the details of their living and interests. On the other hand, boys know less about friends' living and rather they prefer to conduct their friendships based on shared activities. The disperse of girls' friendships is more sensitive than for boys [51].

However, Maccoby [51] also mentions that other than innate releasers, many environmental factors perform together with genetic factors to affect behavior development. Depending on the literature review above, it can be claimed that the way implemented genetic teachings depends on the environmental stimuli, at every stage of development. Even though boys and girls have different sensitivity levels, the way that they are authorized depends on the social circumstances which are supplied by the adults and interacted peers [51].

Besides, it can be claimed that adults cause gender-based socialization pressures by supplying different toys for children of the two sexes, or assigning distinctive features to them [51]. While assigning their names accordingly to their gender and dressing them differently, all-comers are directed to treat a child accordingly. Characteristic socialization pressures on boys and girls are strengthened while they grow in a given culture [51].

In the content of the methodology of this research, gender is accepted as one of the main independent variables through the place attachment tendencies of children. During their hospitalization period, children are separated from their essential social environments like home, school, and neighborhood. It is crucial to regulate the healthcare setting by making children's socialization as possible as it can be. Even children's socialization with other peers in the hospital may provide a sense of socialization.

Besides, a sense of place attachment is supported if their environment could provide spatial opportunities for more social contact.

2.2.5. Technological Tendency

Technological involvements, the use of digital screens, the need to be 'online' through an internet connection, or being digitally 'available' modified the design decisions and outcomes of architecture and interior design especially in the 21st century. Therefore, it is suggested by the researchers to take the user's needs and habits into consideration about technological innovations beyond the designers', developers', and leaders' thoughts and insights. To develop new products and services, user-centered approaches and data collection methods can be preferred [52]. According to Choi [52], at the age of 6, children generally start to utilize assigned 'places' like schools and playgrounds or shared 'places' like streets and public areas with adults. Comprehending their technological tendencies at the beginning of the interior design process would lead to constitute preferable places.

It can be observed that interactive or non-interactive technologies are efficiently integrated into many children's lives. The natural environment where many children are born and grow up consists of these technologies [53]. Thus, children are turning into regular and involved users of new technologies [54]. Only if the design of technologies objected to them are considered sufficiently, their needs can be satisfied entirely. Portable or movable devices like mobile phones, tablets, computers, television, or play consoles can be considered as the technological devices that children prefer mostly and frequently. Besides, internet-purchased digital platforms like Netflix, and Youtube are not only involved in the daily routines of adults but also the children through previously mentioned technological devices.

According to Baumgarten [55], learning, having fun, and obtaining self-esteem through achievement and positive support encourage children aged 6-9 years old to participate in internet activities. Newly forming physical, cognitive, and psycho-social potentials of this age group launch an overplus of internet possibilities. At the end of these young childhood years, most children have adequate motor skills and hand-to-eye coordination to run all computer acts efficiently. Baumgarten [55], terms the children aged 10-14 as 'tweens' who can gather the cognitive power and dominant skills to retain all aspects of the internet. Similar to younger children, tweens continue to prefer activities that are technically easy to read and hear while they also generally have the potential and tolerance to solve a problem when necessary. Learning, growing, and having fun are essential for tweens, just like younger children. Social learning is included in the process of their learning by the tweens who also prefer chat rooms in which they can socialize with their peers through several preferable relationship issues. They can follow the new and trend concepts like fashion, beauty, movies, TV, music, or teen stars. Collection of information for school-based assignments or library research is also conducted through related sites on the internet by them [55].

In their review, Markopoulos and Bekker [56] categorize children's relation to interactive technologies according to their ages or stages of development. The interest of children between the ages of 8-12 switches gradually from imagination to reality. Children commence improving a sense of logic and reasoning with plain abstractions. Laptops or handheld computing devices can be mentioned as the preferred current products of this age group. The functionality of the devices permits them to be more independent and to communicate with their friends. In early and late adolescence (ages 13 and up), children enhance their abstract thinking and logical talents while becoming independent of peers and parents. Their demands generally focus on the necessities of

identity and sexuality. From 14, they learn to develop more than one point of view. Chosen products for this age group are similar to products of adults like mobile phones and MP3 players. There should be a relationship between the activities that attract this age group like sports and social relations. A realistic look and contribution to the user's identity are essential [56].

Haugland and Wright [57] mention the benefits of developmentally pertinent computer experiences of young children through six items: (1) it contributes possibilities to gain and construct knowledge with active participation, (2) while discovering different virtual environments, it contributes a holistic learning environment, (3) it contributes inherent motivation to learn by affording children with challenges, control, imagination, and interest, (4) it contributes children with the effort that enables them to gain skills faster, (5) it links children to the world by supplying access to people and resources and (6) it provides them the possibility to reach a huge amount of information. Children's increasing usage of technological devices and internet-purchased digital platforms can be intelligible when this wide range of possibilities is conceived.

2.3. Environmental Behavior and Cognitive Mapping

The most established definition of cognitive mapping utilized and accepted by many researchers is conducted by Downs and Stea [58] as an operation constituted of a series of psychological modifications by which an individual obtains, stores, remembers, and solves information about related locations and imputes of the phenomena in his or her daily built environment. As also described by Hart and Conn [59], cognitive mapping gives reference to a 'place cognition' and the research of 'place' brings us to the random examination of thinking, sensation, and acting in the environment.

Another definition of cognitive mapping is conducted by Walmsley, *et. al*., [60] as a mental regulation and store which supports clarifying, coding and organizing the interminably complicated world of human interplay with the environment. The understanding of the environment and the 'sense of place' are not independent or irrelevant notions. Contrarily, both are achieved with environmental information and the way it is processed. Cognitive maps are evolutionary adaptations that provide a 'sense of place' to a human being [61].

Tuan [62] theorized that cognitive maps operate as imaginary worlds as well. They describe appealing goals that captivate people out of their accustomed circles. From the text from a novel or, a friend's depiction of a holiday place, we can conduct mental descriptions of places that we have never experienced. These descriptions fit into our schema of similar happenings that we have experienced. By the way, our cognitive map diagram concedes for us to form and cope with unfamiliar place data. This may have practical appropriateness to the research of our stances towards places or to historical geography in defining why people migrated to certain locations [62].

2.3.1. Cognitive Mapping Studies of Children as a Research Tool

Cognitive maps are constituted in the daily world of the child and while involving encoded resources valued friends, memories, desires as well as actual geographical information. These collected data by the children should maybe better be specified as cognitive maps [63].

Hill & Michelson [64] specified reasons for planning for children concerning cognitive mapping under six points as: (1) children's and adults' behavior patterns are different while play and education are crucial for children, (2) their uses of land and abilities are different or the purposes of use are different, (3) daily order arrays are

dissimilar, while adults have great autonomy and access to sources, (4) children react different (and likely greater) dangers from their environment, (5) children do not have decisions on politico-economic issues that regulate land-use, while adults participate more, (6) children and adults diverge in their clarification of plans [64]. It can be assumed that children and adults cognize and utilize the environment in divergent ways for different intentions. Therefore, cognitive maps of children may lead to examining the behavioral patterns of children in a specific place. Research into how children perceive and cognize the environment could be worthwhile to both sociologists and architectural designers while concerning environments to be more suitable for children's tendencies and may help to relieve the social problems of youths [65].

Jean Piaget's two main observations through the IQ tests of children led him to develop the Theory of Cognitive Development. First, he mentioned that the same wrong answers were given by the same ages of children. Second, children's mistakes diverged in systematic ways from older to younger ages [66]. This theory was essential for developmental psychologists as it is an examination of the change in children's cognitive abilities which differ from infancy to adolescence [66].

Piaget argued that, when a novel perceptual information is experienced by children, they adjust it with the knowledge that they already have. Children construct their own apprehension. In this manner, Piaget's theory is mentioned as a *constructivist* approach [66].

There are four stages of intellectual development in the theory: *the sensorimotor stage, the preoperational stage, the stage of concrete operations, and the stage of formal operations. The sensorimotor stage* spans the first two years of life. At the end of this stage, the child transforms from an organism able only several reflect activities to an individual able of systematized actions and interiorized thinking [67]. In the stage of the

preoperational stage (2-7 years) the child can perceive the external world through symbols and can start to manage them mentally. The stage of *concrete operations* (7-12) is considered a significant turning point in the intelligence of the child who can be able of logical thoughts. In this stage, children are expected to need concrete instances of concepts and operations. Abstraction and metaphors are eluded. The last stage of intelligence is specified by Piaget as the *formal operational stage* (from 11 to 14 or 15 and beyond). The mathematical multiplication and management of space make the adolescent examine the universe and spatial opportunities. This stage can be considered as the movement of the child from the concrete spatial world to a new balance with a region of the possible, hypothetical, and limitless [67]. Abstract thinking and understanding can be also considered one of the most significant changes in this stage. The understanding and the examination of the children form reality. Philosophical issues, optional lifestyles, and universes, science fiction can be discussed and evaluated in this stage [66]. Through this cognitive diversification of Piaget, the age of the sample group of this thesis is determined as 7-14 years old range which involves both the concrete operations and formal operational stage of children.

According to the general acceptance, cognitive mapping interprets and leads not only to the comprehension of spatial behavior but also regulates behavior as being a mental conception. By analyzing the external presentation of our cognitive map information, we can interpret spatial decision-making and following behavior [65]. In the second part of the methodology of this thesis, it was requested children to draw the inpatient room where they would like to be hospitalized. It is aimed to examine their spatial decisions through their mental conception.

CHAPTER 3

CHILD-FRIENDLY PEDIATRIC HEALTHCARE DESIGN

3.1. Inclusive Design Approach in the Context of Child-Friendly Pediatric Healthcare Setting Design

In the content of this thesis, the inclusive design approach is considered through children who can be evaluated as society's disadvantageous group in a manner of spatial usage. By the half of the 20th century, mass production design deficiencies generated inclusive design principles as a response [68]. Coleman [68] refers to these years of the century, as architects' and designers' work on product and service advancements that tended to treat people with a universal approach rather than an individualistic interpretation.

Rob Imrie and Peter Hall [69] mount an argument through designers' and architects' tendency to maintain one-dimensional aesthetic ideas and implementations which mainly consider ornamental and decorative states of a design rather than its functional requirements. According to them, inclusive design is not only an 'add-on' (p.18) technical solution, besides it is part of the range of ideas that search for the precedence of the user's views and values. Disability matter is not the only consideration for the inclusive way of design; it is related to justice and life quality for everyone [69]. Professionals generally comprehend the obtainments of access properties as something to be attached to the design rather than an inseparable component of successful design [69].

Environments that are inclusively designed can provide various spatial qualities and possibilities to use spaces in several ways while considering people's varied abilities

[70]. Diversification through the user abilities and profiles would lead to embracing an inclusive design approach. Waller *et. al.* [71] discuss inclusive design through the understanding of user diversity which enlightens design decisions. From their view of perspective, successful design criteria can be related to several interrelated subjects; (1) people – utility, usability, desirability -, (2) profit – commercial viability, technical viability, compatibility-, and (3) planet – resource consumption, waste control, energy efficiency-. Inclusive design decisions should be integrated into a design at the concept stage, the reason for overmuch expense to make changes latterly. At the beginning of the project, an appropriate schedule can be designed with a fine outward discourse about the integration of diverse types of user desires [72]. The core activities can be summarized as investigation, inventiveness, assessment, and project management which answer four important questions: (1) what are the needs? (2) how can the needs be met? (3) how well are the needs met? and (4) what should we do next? [71]. If the feasibility study of the design is organized through these questions, it can be observed that user diversity and user requirements are considerably challenging aspects of inclusive design.

Clarkson *et. al.* [73] find the information on who and how many can use a specific product or service insufficient, additionally, an evaluation of who and how many cannot use the design or product would emphasize facets of the product that needs to be developed. At the beginning of the design process, end-users should be defined for a successful design process. If the end-user is particular, then the requirements of that group should be well evaluated. However, if the final potential user of the product is mainly heterogonous, end users may be agreed to consider the design close to the requirements of the particular group [73].

In their pilot study, Clark and Statham [74] points out the designer's responsibility to consider the child's view, knowledge, attention, visual and sensory oddities to achieve

a much more child-oriented architecture. Her pilot work took place in an early childhood institution with a group of eight children in the kindergarten group. There are three main theoretical aspects of the research that depend on conceptions of competency. The first consideration is related to the ignorance of the children because of their status as young people who are controlled by adult careers. According to Clark and Statham [74] children should be democratically considered as *'authentic individuals'* (pp.2) in their own process. Secondly, the concept of 'voice' is integrated into the methods of the research in order to evaluate children who are deauthorized. The third concern is linked with the consideration of the notions of competency and young children together with their pedagogical frameworks [74]. In the study, it is observed that children's space definitions are linked with their affiliation with people and past events, with objects, activities, routines, and access. Children preferred personal spaces for imagination and safety or social places for social affiliation in relation to the constructed feelings and values of each place (Clark, 2005). It can be directly observed from Clark and Statham's [74] research that there is a significant connection between the children's place preferences and the sentimental meanings that they assign to these places. This inference points out the necessity of child-oriented consideration while designing and orienting their environments.

British Design Council described the inclusive design as an approach of designers whose designs and services encounter the needs of the broadest possible users, regardless of age or ability [75]. This holistic approach to intensive design is remarkable regarding the consideration of pediatric patient rooms in healthcare settings. At this point, children's and adolescents' healthcare setting considerations should be evaluated to conceptualize a better inclusive design approach. In the further part of this section, several evidence-based

studies will be revived and explained to discuss children's spatial expectations related to the healthcare facility that they experience.

Laure Verschoren [76] is the first author and the voluntary researcher of the study which is conducted in the university hospital for two weeks of a period. The researchers observed pediatric rooms and interviewed children aged between 9-16 years. Interviews not only established with them but also with parents and hospital staff who can tender different approaches to patient's experience. Findings of the interviews indicate that young patients define a child-friendly hospital environment as the environment which assists *'continuing daily life'* (p.4). The sensation of being home-like is the primary aspect that all children mentioned during the interviews. To achieve this 'home-like' feeling, children often bring their belongings to their inpatient rooms. This attempt at personalization is conducted with hanging cards, teddy bears, and books. Another need of children who are especially extremely ill and not able to leave the inpatient room is the view of the inpatient room. Natural elements and the human activity marks - city life, traffic, people- are the preferred views of children. As the summary outset of this research, children need to continue their daily life in their inpatient room. Homelike environments, the ability to personalization, and a view of life outside of the hospital are the main considerations which are stated by them during this research.

Another research which is conducted by Jo Birch *et. al.* [77] aimed to examine children's and young people's spatial considerations of hospital environments. 255 children and young people aged between 4 and 16 are incorporated into the study with one-to-one interviews which are executed in the three hospitals' outpatient services and inpatient rooms. The first remarkable outcome of the study is the minority concern of the outdoor spaces. Across all these three hospitals, very few children mentioned outer spaces. In the scope of the research, Jo Birch *et al.* [77] also involve lightening

preferences that are relevant to the type and length of the hospital visit. Outpatient children prefer bright and colorful spaces while they are not concerned with natural lighting. Only four children out of 255 mentioned natural light in their interviews. However, the remarkable outcome of this part of the research is the need of controlling lightning. A common concern by in-patient children of all ages and experiences is to be able to control lighting levels in their own bed area. Another part of the research is related to the physical environmental characteristics of smell, heat, and noise. Children's perspective on sound is associated with babies crying whereas other physical environmental features – smell and temperature- are rarely commended by children. However, children mostly emphasized various aspects of the physical and material environment of the hospital even though the subject was out of the research scope. Age-associated features of the hospital spaces are the most essential aspect for children through the hospital design.

Rachel Blumberg and Ann Sloan Devlin [78] revealed a qualitative study that aimed to identify spatial preferences of 54 male and 46 female junior high school students, aged between 12 to 14, concerning the physical design and visiting policies of hospitals. Blumberg and Devlin [78] hypothesized that adolescents would prefer designs and policies different from younger children and adults. Demographic questions, design questionnaires, and photographic comparison tasks are prepared for the tactics of the research. One adult hallway photograph, one children's hallway photograph, one adult lobby, and one children's lobby are chosen for the photographic comparison. The first result of the photographic comparison is adolescents' tendency to command the color scheme and design of the hallway design. They prefer the bright colors and attentive design principles of a child-oriented hallway. Results for the lobby seem to be different from than hallways. Seventy percent of participants disliked the childlike design of the

children’s lobby whereas thirteen percent of the participants disliked the design of the adult lobby. In the next section of the research, participants are asked to design an ideal bedroom while checking all the items they desire. The most popular items for an ideal bedroom were comfortable furniture, a clock, a balcony, and high ceilings. To reveal adolescents' needs for privacy, adolescents were asked to select from a list of twelve aspects of hospital design. Private bathrooms, single rooms, freedom to close the door, comfortable pajamas, and curtains around beds are mostly selected items that provide a sense of privacy. Television, access to music, and having a telephone near the bed were the most popular choices of room items that are considered essential by adolescents. Space for personal belongings and places for hanging their own posters are mentioned for forming personal territory in their rooms. The desire to have age-appropriate DVDs and videos accessible was the most popular answer for passing the time in the hospital. Beyond DVDs and videos for entertaining, snacks, music, and visits from friends were selected by ninety-eight percent of participants. For most adolescents, being visited by friends are more preferable to family member visits. Outer spaces which are needed for adolescents were also examined in the study. A game room, gym or exercise room, and accessible kitchen are mostly mentioned outer spaces desired by adolescents. This comprehensive study by Blumberg and Devlin [78] indicates adolescents’ several environmental preferences which can guide several inclusive healthcare design attempts like privacy concerns, the need for control, and social affiliation.

To examine children’s perspectives of what represents ideal physical design properties for hospital-built environments, Lambert *et. al.* [79] conducted a study with 55 children (aged five-eight years old) from different three children’s hospitals located in Ireland. Both verbal and visual participatory methods like semi-structured interviews and arts & crafts are utilized for the methods of the data collection. Concerning the hospital's

physical places, three main topics are obtained from the research: (1) physical environment, (2) access, and (3) personal space. Children's physical environment considerations mainly focus on colorful, creative, and comfortable interior spaces which can be also changed and modified by them (ceiling for visual displays, triangular-shaped wardrobes, colorful storage units, circular and star-shaped windows). Access is linked with wayfinding and self-orientations in the hospital setting. Children desired to comprehend their sense of position within the whole healthcare environment and wanted to have diverse movement possibilities. The emphasis on personal space is related to the tendency of the children to form their own personal and private space next to their close family members. To obtain a sense of privacy individualized bed areas with personal artworks or objects are mentioned by children. Besides, private bathrooms/toilets and separated settings for boys and girls are desired especially by the children who are not staying in private rooms. Storage is another significant consideration for children who stay more in the hospital. They mention the necessity of flexible and moveable storage which is appropriately designed for children's ergonomics. Uncontrollable noise and lighting are also indicated by children as the disruptive element to their sense of privacy [79]. This research by Lambert *et. al* [79] explicitly demonstrates that children who stay in pediatric rooms need to modify their physical environment in hospitals in relation to their needs for privacy, self-identity, and personalization. Children's tendency to form a relationship with the hospital environment that they experience can be related to the concept of place attachment which is also the main topic of this thesis.

Coyne [14] emphasizes that healthcare settings should be evaluated with a child-centered approach and that children should be conferred with and incorporated in all aspects of their treatments. According to her, to provide responsive healthcare settings, children's views should be elicited, and their experiences should be documented [14]. In

this manner, she interviewed 11 children aged 7-14 years old from four pediatric rooms in two hospitals in the south of England. Children mentioned several apprehensions and fears about hospitalization which can be categorized into four main topics: (1) separation from family and peers, (2) experiencing the unfamiliar environment, (3) exposure inquiries and treatments, and (4) deprivation of self-determination [14]. Therefore, according to these outcomes, children's contact with outside friends, family, and school should be maximized while minimizing the untoward aspects of the healthcare environment. Besides, health professionals should provide a secure environment in the hospital by encouraging children to bring in familiar items from their homes to personalize their inpatient rooms. Age-appropriate explanations for the treatment methods and applications are also essential for reducing the fears of children in the healthcare setting. Lastly, loss of self-determination may reveal the feeling of helplessness and negatively affect children's regulation of their illness and overall benefit. In other words, consonantly with their ages, nurses can help by eliciting children's choices when making decisions about their treatments. By the way, they constitute a feeling of control over some events in a healthcare setting [14]. The subject of self-determination which was discussed in Coyne's [14] research is constructively related to the need for place attachment which also occurred with the need for spatial control. Subjective transformations and additions to a place constitute a sense of control over that place and its common users.

These sorts of evidence-based studies which are concerning the physical environment of hospitalized children should be increased and supported to lead the future design of pediatric inpatient environments. The main research subject of this thesis also contains this sort of evidence-based data while obtaining children's spatial tendencies through observations and cognitive mappings.

3.2. Supportive Design Theory

In the context of considering healthcare environments' physical and psychological impact on patients, Ulrich [17] developed the *Theory of Supportive Design* which initially emerged in relation to the patients' considerable stress experienced in the healthcare settings. In the context of the theory, the first major factor of stress is related to illnesses with several medical processes and diminished physical abilities. Secondly, patients' stress is linked to the physical-social environments' impossibilities like noise, lack of privacy, or limited social support [17]. To cope with stress and support wellness, healthcare environments should be designed to encourage (1) a sense of control regarding the physical-social surroundings, (2) access to social sustain, and (3) access to positive distractions in physical environments [17].

Providing a sense of control concerning the environment is the first theme of the *Theory of Supportive Design.* According to [17], deficiency of control is related to several unfavorable effects such as depression, passiveness, increased blood pressure, and a weakened immune system. Uncontrollable positions and circumstances are unattractive and stressful. Negative impressions of the stressors are considerably reduced regarding an individual's ability to control [17]. During their hospitalization period, children also necessitate a sense of control through several decisions which are directly related to them. Even though their treatment methods and processes cannot be decided or dominated by them, the physical environments of the healthcare settings can provide a sense of control to children. If the inpatient rooms' environment could tender spatial opportunities in regard to developing the need for privacy of the children, the sense of control could be constituted spatially.

As the second aspect of the *Theory of Supportive Design*, constant contact with family members and friends is remarkably beneficial for the patients' recovery processes.

It is observed in many health and non-health situations that, social support diminishes individuals' stress levels and sustains higher levels of wellness, and it should be integrated into a contemporary theory of stress-reducing theory [17]. Children who are hospitalized in the inpatient room are indispensably separated from their daily social interactions. Thus, providing environments that enable similar social interactions is essential for pediatric healthcare settings.

The existence of positive distractions in the physical environment forms the third notion of the theory. If high stimulation levels are existing in the environment due to noise, excessive lighting, bright colors, and other environmental features, their effect on patients will be stressful. Besides, patients may concentrate on their worries and stressful considerations if there are no external positive distractions in the healthcare setting. Happy, laughing, or loving faces, animals, and natural elements like trees, plants, and water are the most efficient positive distractions for human beings [80].

Certain linkages can be observed between the Theory of Supportive Design [17] and the concept of place attachment. The first theme of the theory mentions patients' sense of control which is also related to the person's spatial experience. When the place is controlled by the occupant, attachment to that place can occur with the experiences. The second theme of the theory focuses on the social contact of the patient with family members or friends. Socialization in a place conducts common experiences in the same place. Thus, the place gains its new meaning for a person who commences forming a relationship with that place. The third theme of the theory is much more relevant to the positive distractions in the physical environments of the patients. Likewise, experiencing positive distractions could form a sense of attachment with a certain place. Therefore, it can be concluded that one of the intercourses of the Theory of Supportive Design [17]

may be the sense of place attachment, while both of them are concerning a person's spatial relationship.

3.3. International Standards of Pediatric Healthcare Settings

World Health Organization's (WHO) 'Standards for improving the quality of care for children and young adolescents in health facilities [81] has a separate section that defines child-friendly physical resources. It is initially indicated that children and adolescents are different from adults and necessitate definite, specially designed services. Health care environments should be accessible, safe, secure, and acceptable for children and their families. Each facility should have basic infrastructure and comfort, like water, sanitation, hygiene, electricity and waste annihilation, and storage of necessary medicines, supplies, and equipment comprising for play and learning. Appropriately furnished outpatient, emergency, and inpatient care areas should be provided for children and young adolescents in the health facility. There should be separate areas with appropriate facilities for patients or caregivers for self-care like sleep, washing, cooking, or remaining with their children. It is also specified that appropriately equipped facilities like furnished play and learning areas should be contributed for children and adolescent-friendly environments. A clean, comfortable organized, and furnished environment should be provided for maintaining the continuity of care and for minimizing a harmful impact on the experience of the child or caregivers of health care.

Ernst *et. al.*'s [82] clinical report for the American Academy of Pediatrics also mentions that pediatric inpatient care is adequately different from adult inpatient care, and these distinctions need to be considered when considering this sensitive population. In the same report by Ernst *et. al.* [82], it is remarked that single rooms afford better isolation for the common infections of children and these rooms should provide a space

for sleeping and monitoring the child for the caregiver. If single rooms are not affordable, then children should be hospitalized in the same room according to their age and sex while still considering the caregiver's spatial needs. Asking for families to participate in procedure making or design of a facility renovation can be a worthwhile resource for hospital management. Ernst et. al. [82] also include the Joint Commission's Comprehensive Accreditation Manual for Hospitals' additional considerations for the care of children. These patient care and area facilities can be summarized as:

- Single or double rooms should follow guidelines for preventing hospital-obtained infections.
- Pediatric beds should provide bed rails to be raised
- Rooms should afford enough space for caregivers' accommodation
- Adjustable privacy screens should exist to have convenient surveys and supervision of patients.
- There should be space in elevators and procedural rooms for adults' accompanying.
- A negative-pressure room for isolating the suspected infected children should exist.
- Furniture should be age-appropriate, containing cribs with overhead safety equipment and a bed covered with mechanical or electrical control panels.
- There should be highchairs for infant and toddler mealtimes.
- Bookshelves or other heavy furniture should be fixed to the wall and match Consumer Product Safety Commission standards.
- Certain safety products, such as electrical outlet covers, window lockers, cabinet door safety latches, padding points for sharp corners and edges, and toilet latches should be considered.

- Window coverings should be cordless.
- Phones should be cordless.
- Communication boards should be magnet-free.
- Toddlers and small children could not reach the trash cans and sharps containers.
- Small children could not reach the alcohol-containing hang sanitizer dispensers.
- There should be age-appropriate spaces that provide a feeling of safety from painful or scary medical treatments.
- A separate treatment room should exist.
- Entertainment consoles, computers, and also educational and other age-appropriate activities should be supplied to keep children diverted. Toys, equipment, and play surfaces should be systematically cleaned with suitable germicidal solutions.
- An indoor and/or secure outdoor playground area should be adequately equipped for those with impaired mobility
- For entertainment, work, and education, internet access should be available to all patients and families with safeguards. Families may be able to store food and human milk and personal hygiene staff while they accommodate their children in the facility.
- Affordable or free parking should be provided for families with hospitalized children to support family participation.

From the mentioned items above, it can be observed that beyond the safety and medical concerns, there are also concerns related to children's age and gender. Another remarkable subject is regarding children's need for play and education and providing a built environment accordingly.

Comprehensive Accreditation Manual for Behavioral Healthcare and Human Services (CAMBHC) [83] remarks on the Standard CTS.02.03.03 for organizations providing care, treatment, treatment, or services to a child or youth. It is stated that a developmental perspective should be utilized in determining all sides of functioning, including the child's or youth's physical, sensitive, cognitive, educational, nutritional, and social occurrence. Besides, it is also mentioned that the child's or youth's leisure and recreational interests should be considered accordingly.

In the same document of CAMBHC [83], the Standard CTS.04.02.15 includes educational resources for children and adolescents in the healthcare setting. It is stated that for organizations providing care, treatment, or services to children or youth the facility should communicate with the child's or youth's school about past academic information. The facility should encourage regular communication among teachers, clinical and child-care staff, and parents or guardians. Regular interferences should be provided between teachers and clinical and child-care staff, as it is determined in the plan for care, treatment, or services. The standard CTS.04.02.13 also specifies the responsibility of the organization to provide academic education to children and youth if they can not attend school because of their treatment period.

The HBN 23 Report of Hospital Accommodation for Children and Young People [84] aims to define and identify the best practice in the built environment from a child-friendly perspective. It is reported that children who are hospitalized for long periods in the hospital should be able to experience similar activities in their home routines. The important activities are play, education, and socialization opportunities. Local Education Authorities are responsible to contribute education for children in hospitals [84].

In article 1.39 [84], children between 5 and 11 years old are considered young children and it is claimed that they have intelligible views about their experiences in

hospitals. Continuing their daily activities configure their prior focus. Feeling safe, staying close to the people they love, eating their favorite food, having a nice space for playing, and having chances for more things to do while waiting for things to occur are their desires. Too much light and noise at night, high interior temperatures, and unpleasant smells are not preferable.

The feeling of embarrassment is a common cause of indictment as it is indicated in article 1.40 [84]. Being in a inpatient room with younger or older people decreases the stress level, especially in the 16-18-year-old age group. The tendency for a dedicated environment was noticeably clear for young people as having their privacy and feeling similar things to other patients. It is mentioned in article 2.9 [84] that the interior design, artwork, furnishings, and fitments should be carefully chosen accordingly to children's and adolescents' tendencies. Many healthcare settings now support young people to actively participate in the design of their own environments. Time-limited, age-related or stylish trends should be supported.

Accessing a dedicated recreation room for young people and separating them from young children and adults are considered ideal [84]. Playing games, watching television or videos, listening to music, using computers, reading or writing can be preferable activities in the recreation room which is not available for staff or other children unless they are allowed to use. Clinical treatments are not allowed to take place in this room. It is stated in article 2.32 [84] that, the location of the children's unit should be on the ground floor with external views and access to green outdoor spaces and play areas. There should be direct access to these external play spaces for children and their families.

Concerning the in-patient units, it is mentioned in article 2.56 [84] that, the design should be adequately flexible for the accommodation of different ages, cultures, ethnicity, health problems, and needs of children. Ward-based treatment rooms should be existing

For different age ranges, devoted support facilities are necessary for the in-patient area like a playroom for young children or a recreation room for young people. Besides, educational facilities should be also provided [84].

The necessity of play facilities is clarified in the same report of HBN 23 [84] as the requirement of a playroom in-patient accommodation. By the way, children can participate in different activities simultaneously. Clinical interventions should not proceed in this room. The hospital environment should allow children to run and move freely. The external play areas should be well coordinated to a reduction in stress and troubling behavior. Children should have access to every open space of the facility where possible [84].

Bed spaces for the inpatient rooms of children are separately approached in articles 3.108 and 3.109 [84]. It is stated that all bedrooms should be accessed for fire escape, doors with locker and a half. The walls of the rooms should be full-height with soundproof materials. They should take natural light in with a view of a courtyard or landscape. Windows should have a low-level sill (a maximum of 60cm) to enable small children to view outside from their bed or crib. For providing privacy and protection from glare and solar gain blinds to internal glaze screens and windows are required. Internal low-level windows in between the room and the corridor are required for the observation of the child [84]. All bed spaces (in single or multi-bedrooms) should be planned to accommodate a full-size adult bed. The space around the immediate bed space should be appropriate for at least two members of staff and a parent or caregiver of the child. A bedside locker and essay chair are also needed [84].

In the document of HBN 23 [84], the spatial opportunities of the inpatient rooms in relation to the ‘sense of space’ or place attachment are also clearly mentioned. In the article od 3.113, it is stated that ceilings, walls, and floors should allow displaying the

artwork of children (Fig.3,4). Ceiling-mounted artwork can be utile, especially when children stay in bed for a long time. While using the ceiling, it is also possible to read books and watch computer art forms and films. There should be an appropriate store for toys and books. Each bed area should provide enough space for displaying personal items such as family photographs, favorite toys, and get-well cards.

Figure 3: Ceiling artwork, Bristol Royal Hospital for Children, Photographer: Jerry Hardman-Jones [84]

Figure 4: Ceiling tiles of inpatient rooms, Royal Preston Hospital [84]

It can be observed from the international standards of pediatric settings mentioned above, beyond physical environmental facilities related to accessibility, safety, security, and ergonomics, children's social, educational, and personal tendencies like age-appropriate playrooms, educational opportunities, privacy, and stress level concerns, socialization with family and peers are indicated.

3.4. Local Standards of Pediatric Healthcare Settings

According to the Private Hospital Regulations *(Özel Hastaneler Yönetmeliği-Resmî Gazete Sayısı: 24708)* [85] the isolation of the landscape of the hospital from noise, air/water pollution, and harmful industrial institutions must be provided, and congruity must be approved by the governorship. Appropriate green areas, ease of transformation, and car park service are the other initial considerations for the location. Inpatient rooms' spatial organization should allow enlightening the rooms with natural light. The floor and wall surfaces should be easily cleaned and should be convenient for the disinfestation. The width of the inpatient room door should be a minimum of a hundred and ten centimeters while the bathroom or toilet doors should be opened throughout the space. It is not allowed to locate more than two inpatient beds in a single inpatient room. Inpatient rooms with single beds should be minimum of nine-meter squares (except in wet areas). Inpatient rooms with double beds should provide seven meters squares for each patient (six-meter squares for the children). An inpatient room with a single bed for a mother and a newborn should be a minimum of twelve-meter squares while ten-meter squares are required for each patient if there are two mothers, and their newborns are the occupants of the inpatient room. Six-meter squares should be provided for each child in the pediatric inpatient rooms.

Turkish Standards of ICS 03.080.30, 91.040.10- TS 12813/March 2002 [86] which is regulated for the public healthcare necessities, refer to some additional space requirements for the pediatric service in healthcare settings like playing room, classroom, and teacher room in the related pediatric department Playing room should be organized according to two-meter squares for each child. Each classroom should be designed one and a half meters square for each child while providing a dais, whiteboard, wardrobe, and sets of seating according to the age of the children. Preferably the direction of the classroom should be in a southwest direction. In the pediatric service, there should be additional nursing and grandchild sections except for the shared areas. It is also mentioned that, except for the new-borns care units, pediatric rooms should be the same as the adult's inpatient services. However, the height of the washbasin and toilet should be appropriate for the children's ergonomics.

There are also remarked regulations for pediatric hospitals in the Turkish Standards of ICS 03.080.30, 91.040.10- TS 12813/March 2002 [86]. It is stated that single baby inpatient rooms should be minimum of sixteen-meter squares while being appropriate for the attendant with its WC, sink, shower, and wardrobe. The rooms should be separated with a glass partition from the corridor and there should not be a direct entrance through the corridor. There should be an asepsis for washing hands before entering the room. The inpatient rooms for five babies should be minimum of thirty-two-meter squares while separating with a glass partition from the corridor with asepsis for washing hands before entering the room.

Design Standards of Healthcare Settings, 2010 Guidance published by the Turkish Ministry of Health [87] indicates that multifunctional or personal rooms should be provided next to the adults' and children's inpatient rooms, to be utilized for nourishment, education, developmental play, or fun. In pediatric service areas, there should be

wardrobes for storing toys, education, or fun materials. Besides, children's cribs can be able to change with patient beds if it is required. Therefore, appropriate storage should be provided. Required types of equipment and materials should be supplied for the attendants like an openable sofa or sliding armchair. It is also stated that pediatric inpatient rooms should have the same spatial properties, dimensions, and equipment as the adults' inpatient rooms as children are compulsorily hospitalized with their attendants. In the same guidance, appropriate selections of colors, materials, and forms are mentioned for pediatric clinics.

It can be observed from local standards of pediatric settings that, pediatric rooms are not classified differently from adults' inpatient rooms. Mentioned regulations are mostly related to the size and the equipment of the room and mostly related to the needs of the attendants. However, during their hospitalization period, children encounter an unfamiliar environment while coping with several illnesses and treatments. This unfamiliarity and the intense control of the adults - even the attendants, doctors, or nurses- block the possible relationship between the child and the experienced 'inpatient room'. If their inpatient rooms may afford the ability to control, change or personalize, then experienced space would not be scary. Contrary, they would attach to the inpatient room by their spatial and behavioral needs. Understanding children's behavioral needs in this particular place, identifying the design decisions according to these needs, and indicating these decisions in the local regulations are essential for child-friendly healthcare design solutions.

CHAPTER 4

CASE STUDY – PLACE ATTACHMENT PREFERENCES OF CHILDREN IN THEIR INPATIENT ROOMS (OCCUPIED ACTUAL SITUATION AND IMAGINED SITUATION)

4.1. Methodology of the Research

The methodology of the research has been constructed in two phases to examine children's place attachment tendencies occurred in their inpatient rooms:

(1) In the first phase, it is aimed to investigate the *occupied actual situation* of the inpatient room of the child in terms of its spatial structure. So, in the first stage, the standard form of the inpatient room provided by the hospital is recorded by the researcher through photographs from different views of the healthcare setting. Then, as a part of the first phase, it is also aimed to reveal the modalities of place attachment by taking photographs once more, after the patient has spent at least five days in his/her inpatient room. Within this context, it is hypothesized in this research that, children's place preferences are not only linked to the development of (1) *self-identity*, (2) needs for *privacy, and* (3) *social affiliation* [13] but also to the (4) *technological tendency* of children considering today's world. Thus, the frequency of the items of the place attachment modalities of children are classified according to these four notions specified above.

Gender and age range were considered the independent variables of the research, while the frequencies of place attachment modalities which are present as a result of the child's occupation in the inpatient room environment *(occupied actual situation)* are considered as the dependent variables which are based on Chawla's [13] studies of children's place preferences and technological tendencies (Table 1). The age range of 7-14 years of the sample group is divided into two independent variables in accordance with Piaget's Theory of Cognitive Development [15][16]. The first age group is 7-11 years old children who can be evaluated in the stage of *concrete operations* of the theory. The second age group is 12-14 years old children who belong to the last stage of the theory: *the stage of formal operations*.

Table 1: Variables of the first phase of the methodology *(Occupied Actual Situation)*

1ST PHASE: OCCUPIED ACTUAL SITUATION OF THE INPATIENT ROOM	
Independent Variable	**Dependent Variable**
NOMINAL	**INTERVAL**
Gender (Female / Male)	Frequency of self-identity items
Age range (7-11 years/12-14 years)	Frequency of privacy items
	Frequency of social affiliation items
	Frequency of technological tendency items

Place attachment modalities of children in their occupied inpatient room environment were categorized according to the:

- Items that support *self-identity* (personal ability or interest items like paintings, painting materials, painting books, activity books, reading books, toys, handmade items, decor

objects, party objects, potted plants, notebooks, team uniform, team pillow, team flag, small bicycles)

- Items that support needs for *privacy* (items emphasizing personal space like naming, closure, and control items, etc.)
- Items that support *social affiliation* (visual, verbal, or symbolic socializing items like family photos, multiplayer games)
- Items that support *technological tendency* (Game console - PlayStation, internet connection, internet purchased digital platforms -Youtube, Netflix-, self-phone, tablet)

(2) *'Imagined situation'* of the inpatient room was investigated in the second phase of the methodology. It is requested from the children to draw the inpatient room where they would like to be hospitalized. The drawing period was 30 minutes for each pediatric patient through which they drew their desired inpatient rooms only with a pencil. Drawings were analyzed through the same categorization which is mentioned in the *occupied actual situation* as it is stated in the first phase of the study. Gender and age range were considered as the independent variables, while frequencies of place attachment modalities that occurred in the drawings of the children *(imagined situation)* were considered as the dependent variables which are based on Chawla's [13] studies of children's place preferences and technological tendency (Table.2). The age range of 7-14 years of the sample group is divided into two independent variables in accordance with Piaget's Theory of Cognitive Development [15][16]. The first age group is 7-11 years old children who can be evaluated in the stage of *concrete operations* of the theory. The second age group is 12-14 years old children who belong to the last stage of the theory: *the stage of formal operations*.

Table 2: Variables of the second phase of the methodology *(Imagined Situation)*

2ND PHASE: IMAGINED SITUATION OF THE INPATIENT ROOM	
Independent Variable **NOMINAL**	**Dependent Variable** **INTERVAL**
Gender (Female / Male)	Frequency of self-identity items
Age range (7-11 years/12-14 years)	Frequency of privacy items
	Frequency of social affiliation items
	Frequency of technological tendency items

Place attachment modalities of children revealed in pediatric children's drawings were categorized according to the:

- Items that support *self-identity* (personal ability or interest items like paintings, painting materials, painting books, activity books, reading books, toys, handmade items, decor objects, party objects, potted plants, notebooks, team uniform, team pillow, team flag, small bicycles, letters, expression shapes -heart, star-, food preferences, cartoon characters)
- Items that support *needs for privacy* (items emphasizing personal space like naming, closure, control items, inpatient rooms, inpatient room furniture, toilets, patient beds, self-figures, serum hangers, pillows)
- Items that support *social affiliation* (visual, verbal, or symbolic socializing items like family photos, multiplayer games, playground tools, outdoor items - trees, birds, clouds, sun, flowers on the soil-, buildings, common use furniture like nurse station or common tables, figures of people, animals, education items, healthcare staff -doctors, nurses-, names, speech bubbles)

- Items that support *technological tendency* (Television, game console - PlayStation, internet connection, internet purchased digital platforms -Youtube, Netflix-, self-phone, tablet)

To sum up, in the first phase of the study *(occupied actual situation)*, it was intended to reveal whether there is a relationship between the independent variables of gender and age range and the place attachment frequencies and modalities in the *occupied actual situation* of the inpatient rooms.

Moreover, in the second phase *(imagined situation)* of the research, children's place attachment modalities expressed in their drawings were examined through the variables of gender and age range. For both phases, obtained data are tested in SPSS with Mann Whitney U test to find possible correlations between the independent and dependent variables.

4.2. Case Study Environment

The case study of the research is conducted on the two different buildings of a private hospital settled in İstanbul. There are four main floors in each hospital where the case study is conducted. The codification of the total eight floors of the case study environment is indicated in Table 3. The number of inpatient rooms that participated in the study on each floor is stated in Table 4. As the standard forms of the inpatient rooms provided by the hospital and the revised inpatient rooms' environment in consequence of the place attachment tendencies of the children are compared, material, form, or texture differences between the inpatient types are ignored in the scope of the research.

Table 3: Categorization of the total eight floors of the case study environment

	Floor 1	Floor 2	Floor 3	Floor 4
HOSPITAL 1	1-1	1-2	1-3	1-4
HOSPITAL 2	2-1	2-2	2-3	2-4

Table 4: Number of inpatients participated to the case study for each floor

FLOOR CODES	1-1	1-2	1-3	1-4	2-1	2-2	2-3	2-4
Number of Inpatients	1	9	3	1	5	4	3	7
TOTAL	**33 INPATIENT ROOMS**							

The first-floor type (1-1) has double-sided inpatient rooms, with a single middle corridor. A private bathroom, a patient bed, one bedside table, one chair, one side table, one folding armchair for the companion's hospitality, one wardrobe unit, one TV unit, two poufs, and one service unit are the main interior components of the inpatient rooms (Fig. 5 and Fig. 6).

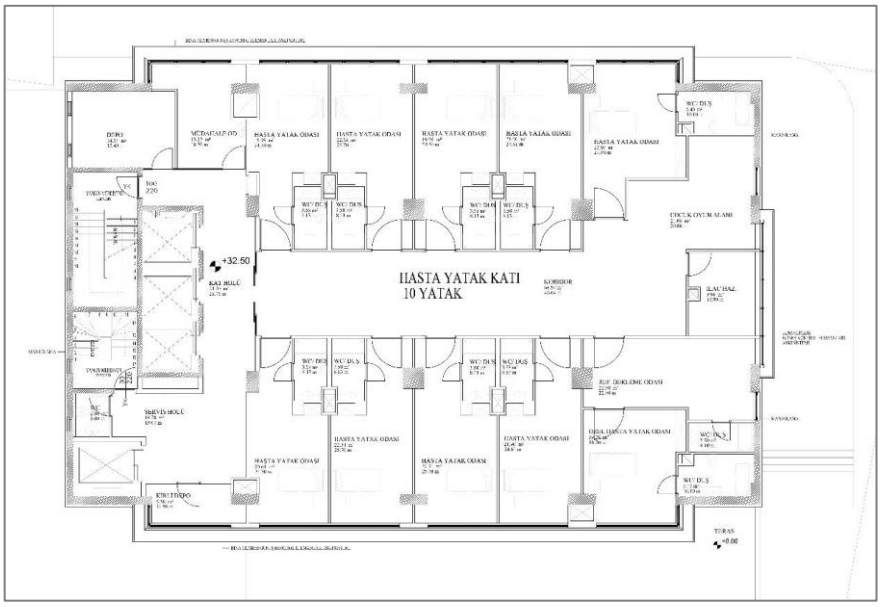


Figure 5: Floor 1-1 inpatient floor plan

Figure 6: Standard inpatient room of Floor 1-1

The second-floor type (1-2) has double-sided inpatient rooms, with a single middle corridor. A private bathroom, a patient bed, one bedside table, one chair, one side table, one folding armchair for the companion's hospitality, one wardrobe unit, one TV unit, and one service unit are the main interior components of the inpatient rooms (Fig. 7 and Fig. 8).

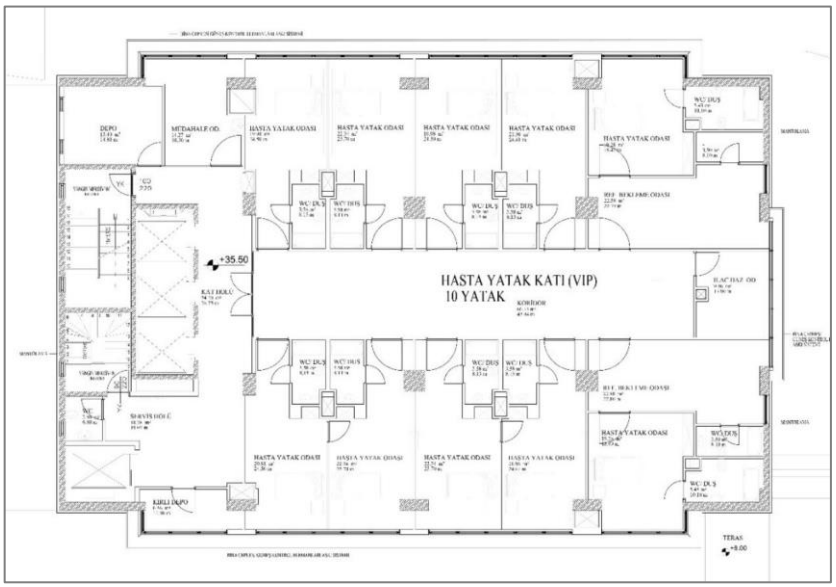


Figure 7: Floor 1-2 inpatient floor plan

Figure 8: Standard inpatient room of Floor 1-2

The third-floor type (1-3) has one-sided ordered inpatient rooms, with a single side corridor. A separated room entrance for the isolation, a private bathroom, a patient bed, one bedside table, one chair, one side table, one folding sofa for the companion's hospitality, one TV unit, one service unit, baby crib (optional) are the main interior components of the inpatient rooms (Fig. 9 and Fig. 10).

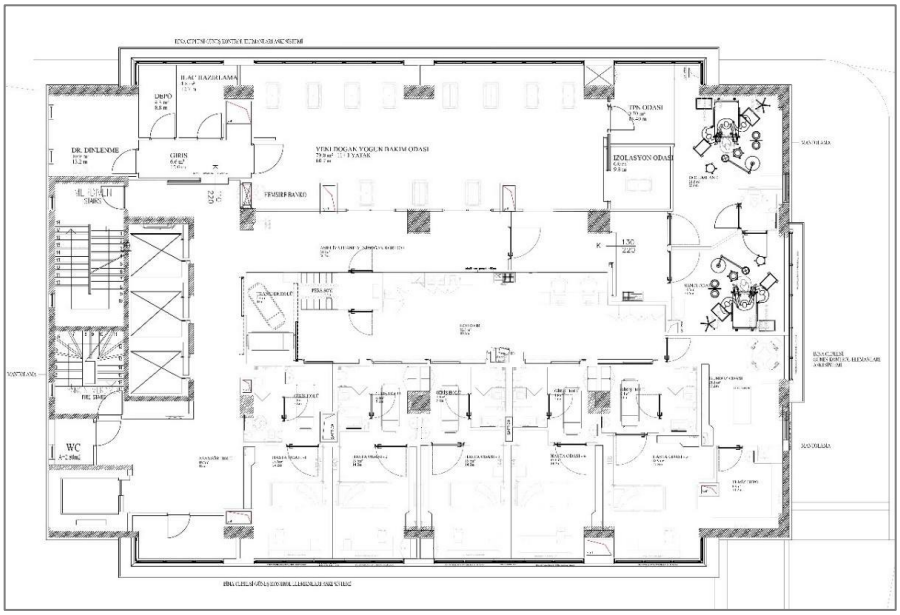


Figure 9: Floor 1-3 inpatient floor plan

Figure 10: Standard inpatient room of Floor 1-3

The fourth-floor type (1-4) has two-sided ordered inpatient rooms, with U shape corridor. A private bathroom, a patient bed, one bedside table, two chairs, one side table, one wardrobe unit, one TV unit, one service unit, baby crib (optional) are the main interior components of the inpatient rooms (Fig. 11 and Fig. 12).

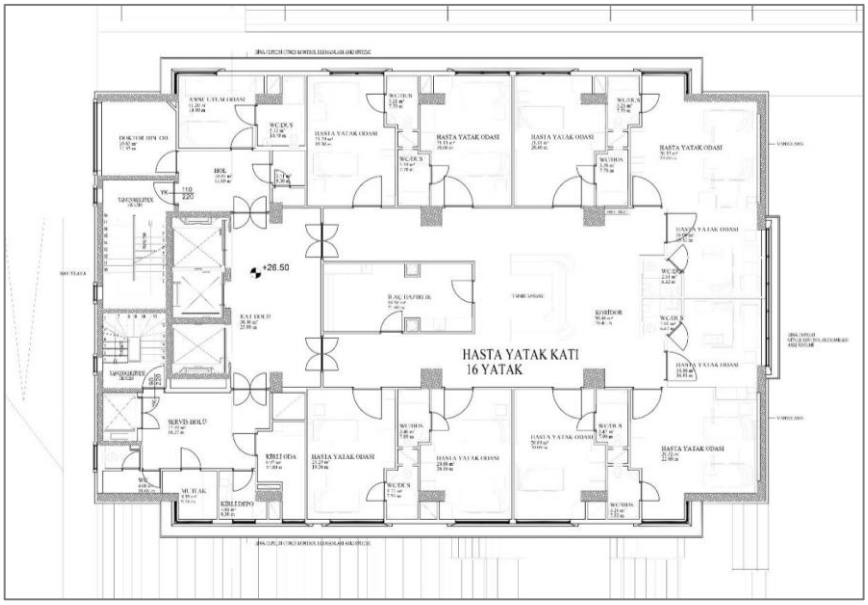


Figure 11: Floor 1-4 Inpatient Floor Plan

Figure 12: Standard inpatient room of Floor 1-4

The fifth-floor type (2-1) has two-sided ordered inpatient rooms, with a one-way linear corridor. A private bathroom, a patient bed, one bedside table, one chair, one table unit, one side table, one folding sofa for the companion's hospitality, one TV unit, and one wardrobe unit are the main interior components of the inpatient rooms (Fig. 13 and Fig. 14).

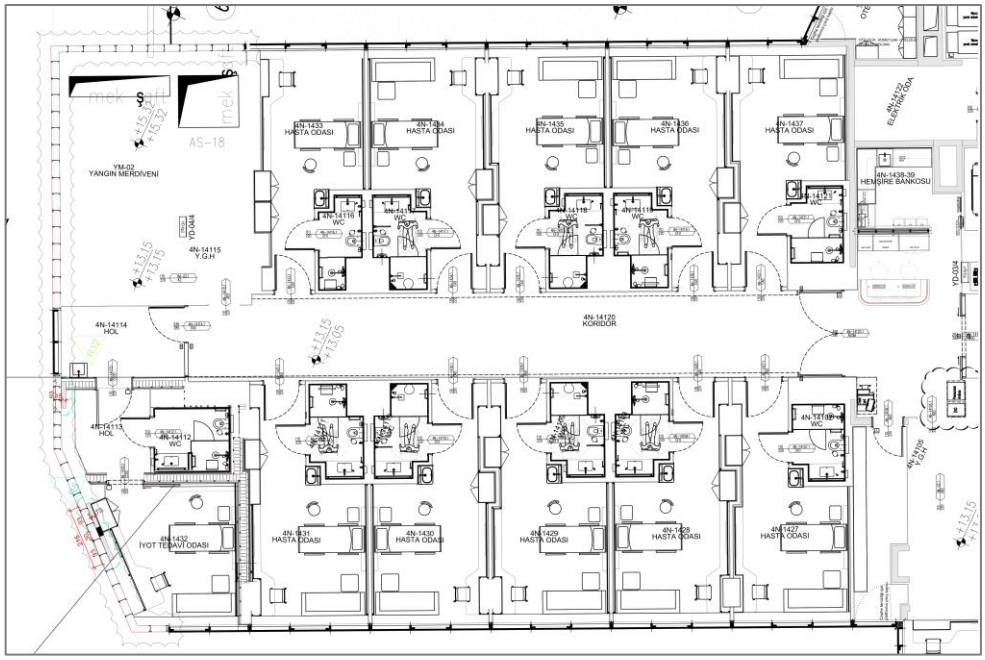


Figure 13: Floor 2-1 Inpatient Floor Plan

Figure 14: Standard inpatient room of Floor 2-1

The sixth-floor type (2-2) has two-sided ordered inpatient rooms, with a one-way linear corridor. A private bathroom, a patient bed, one bedside table, one chair, one table unit, one side table, one folding sofa for the companion's hospitality, one TV unit, and one wardrobe unit are the main interior components of the inpatient rooms (Fig. 15 and Fig. 16).

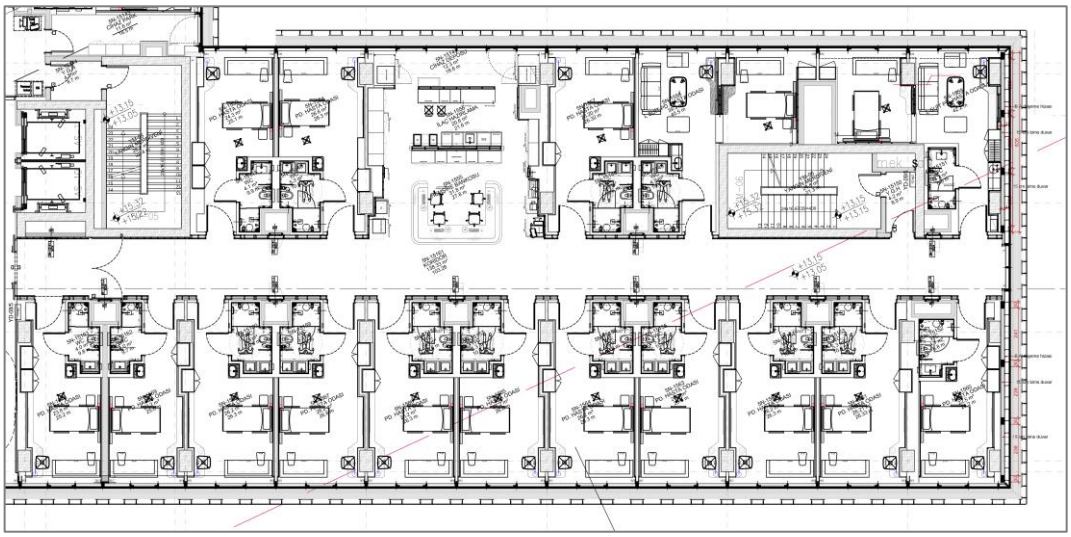


Figure 15: Floor 2-2 Inpatient Floor Plan

Figure 16: Standard inpatient room of Floor 2-2

The seventh-floor type (2-3) has two-sided ordered inpatient rooms, with a one-way linear corridor. A private bathroom, a patient bed, one bedside table, one chair, one table unit, one side table, one folding sofa for the companion's hospitality, one TV unit, and one wardrobe unit are the main interior components of the inpatient rooms (Fig. 17 and Fig. 18).

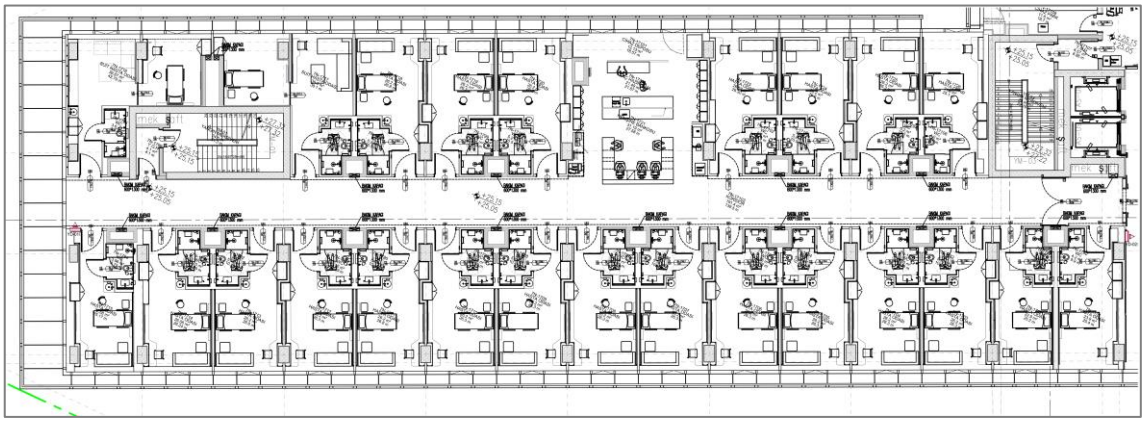


Figure 17: Floor 2-3 Inpatient Floor Plan

Figure 18: Standard inpatient room of Floor 2-3

The eighth-floor type (2-4) has two-sided ordered inpatient rooms, with a one-way linear corridor. A private bathroom, a patient bed, one bedside table, one chair, one table unit, one side table, one folding sofa for the companion's hospitality, one TV unit, and one wardrobe unit are the main interior components of the inpatient rooms (Fig. 19 and Fig. 20).

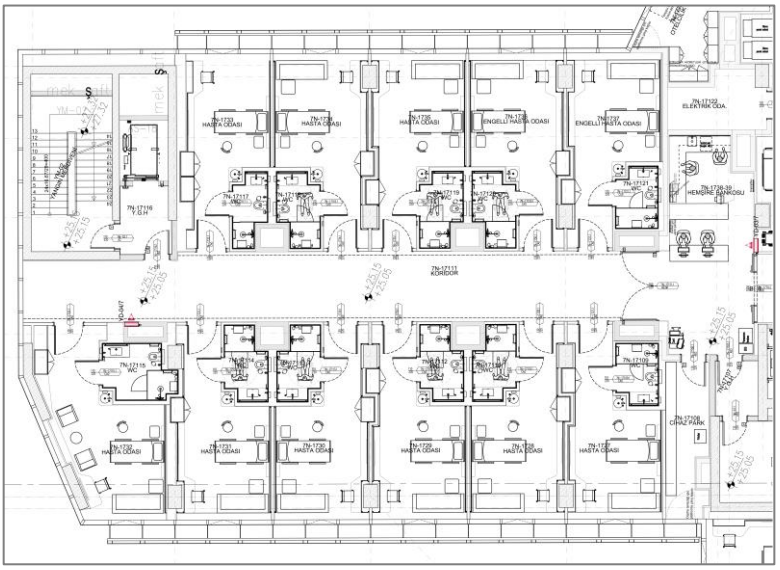


Figure 19: Floor 2-4 Inpatient Floor Plan

Figure 20: Standard inpatient room of Floor 2-4

4.3. Sampling Group

The sample group of this research was 33 children aged between 7-14 years old who were hospitalized for more than five days in the inpatient services of the two different buildings of the private hospital settled in İstanbul. The age range of 7-14 years of the sample group is divided into two independent variables in accordance with Piaget's Theory of Cognitive Development [15][16]. The first age group is 7-11 years old children who can be evaluated in the stage of *concrete operations* of the theory. The second age group is 12-14 years old children who belong to the last stage of the theory: *the stage of formal operations*.

Types of the children's illnesses and treatment methods, nationalities, social routines, and cultural backgrounds were exempted from the variables of the study. If the family's or children's language is not Turkish or English, healthcare settings' interpreters aided the communication between the researcher and the participant. English translations are conducted by the researcher. 33 children's inpatient rooms are examined in the first

phase of the methodology (*occupied actual situation*). These children's gender and age range can be found in Table 5.

Table 5: Gender and age range of the children for the first phase of the methodology *(Occupied Actual Situation)*

	GENDER		**AGE RANGE**	
	Female	Male	7-11 years old	12-14 years old
Gender and age range of children *(occupied actual situation)*	15	18	25	8
	33 CHILDRENS' INPATIENT ROOMS		**33 CHILDRENS' INPATIENT ROOMS**	

From the 33 inpatient rooms of the first phase of the methodology *(occupied actual situation)*, 25 of the children accepted to participate in the second phase of the case study which is the cognitive mapping session to reveal the *imagined situation* of the child considering one's desire about their inpatient rooms. These children's gender and age range can be found in Table 6.

Table 6: Gender and age range of the children for the second phase of the methodology *(Imagined Situation)*

	GENDER		**AGE RANGE**	
	Female	Male	7-11 years old	12-14 years old
Gender and age range of children *(imagined situation)*	11	14	20	5
	25 CHILDREN		**25 CHILDREN**	

By the ethical approval obtained from the ethics committees of Özyeğin University (2021/ 14 / 01), signed consent forms of the parents have been obtained before conducting the case study. Even if parents' signed permission is existing for the case study, verbal consent is also obtained from the child to draw the inpatient room where

they would like to stay during their treatment time *(imagined situation).* Likewise, 8 children rejected to draw and did not participate in the second phase of the methodology. Therefore, of 33 inpatient rooms of children, 25 of them accepted to participate in the second phase of the study to draw the inpatient room that they desire to be hospitalized in *(imagined situation)*.

4.4. Analysis and Results of the Research

4.4.1. Results of the Occupied Actual Situation

To obtain the frequencies of place attachment modalities of children in the *occupied actual situation*, the standard form of the inpatient room provided by the hospital is first recorded by the researcher through photographs from different views of the pediatric setting. Then, as a part of this phase, it is also aimed to reveal the frequencies of place attachment modalities by taking photographs once more, after the participant has spent at least five days in his/her inpatient healthcare setting. Detected items in the inpatient room environment are counted and categorized according to the development of (1) *self-identity*, (2) needs for *privacy*, (3) *social affiliation* [13], and (4) *technological tendencies* (Table 7, Table 8, Table 9 Figure 21).

Table 7: Categorization of place attachment items observed in the inpatient room environments *(Occupied Actual Situation)*

	Type of Items
Items for self-identity	paintings, painting materials, painting books, activity books, reading books, toys, handmade items, decor objects, party objects, potted plants, notebooks, team uniform, team pillow, team flag, small bicycles
Items for privacy	naming, closure, and control items
Items for social affiliation	family photos, multiplayer games
Items for technological tendency	Game console - PlayStation, internet connection, internet purchased digital platforms -Youtube, Netflix-, self-phone, tablet

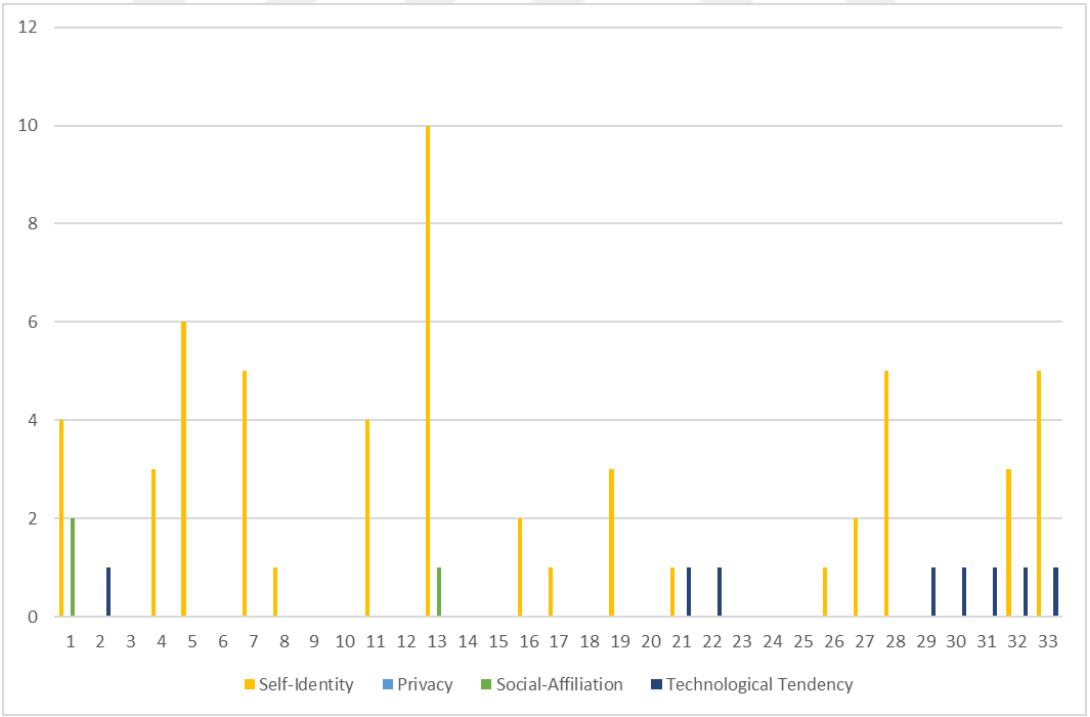


Figure 21: The frequencies of place attachment modalities of participants in their inpatient room environments *(Occupied Actual Situation)*

Table 8: Categorization of frequencies of place attachment modalities in the inpatient room environments *(Occupied Actual Situation)*

Part. Num.	Self Identity	Privacy	Social Affiliation	Technological Tendency
1	4	0	2	0
2	0	0	0	1
3	0	0	0	0
4	3	0	0	0
5	6	0	0	0
6	0	0	0	0
7	5	0	0	0
8	1	0	0	0
9	0	0	0	0
10	0	0	0	0
11	4	0	0	0
12	0	0	0	0
13	10	0	1	0
14	0	0	0	0
15	0	0	0	0
16	2	0	0	0
17	1	0	0	0
18	0	0	0	0
19	3	0	0	0
20	0	0	0	0
21	1	0	0	1
22	0	0	0	1
23	0	0	0	0
24	0	0	0	0
25	0	0	0	0
26	1	0	0	0
27	2	0	0	0
28	5	0	0	0
29	0	0	0	1
30	0	0	0	1
31	0	0	0	1
32	3	0	0	1
33	5	0	0	1
TOTAL	**56**	**0**	**3**	**8**

Table 9: Categorization of frequencies of place attachment modalities in the inpatient room environments *(Occupied Actual Situation)*

Part. Num.	Self Identity	Privacy	Social Affiliation	Technological Tendency
1	easel, handmade flower, train toy, paints	0	chess, balance game	0
2	0	0	0	Playstation
3	0	0	0	0
4	barbie 1, barbie 2, dog toy	0	0	0
5	painting book, paint material, baby 1, baby 2, toy cloth 1, toy cloth 2	0	0	0
6	0	0	0	0
7	snow globe 1, snow globe 2, party hats, father Christmas sock, small hand toy group	0	0	0
8	helicopter toy	0	0	0
9	0	0	0	0
10	0	0	0	0
11	painting 2, painting 2, book, potted plant	0	0	0
12	0	0	0	0
13	painting 1, painting 2, night lamp, notebook, toy 1, handmade flower, balloon 1, balloon 2, balloon 3, Pinocchio toy	0	family photo	0
14	0	0	0	0
15	0	0	0	0
16	team uniform, team pillow	0	0	0
17	car toy	0	0	0
18	0	0	0	0
19	baby toy, mini mouse toy, necklace	0	0	0
20	0	0	0	0
21	activity book	0	0	tablet
22	0	0	0	tablet
23	0	0	0	0
24	0	0	0	0
25	0	0	0	0
26	bicycle	0	0	0
27	small car group, robot toy	0	0	0
28	barbie 1, babie 2, barbie 3, baby toy, monkey	0	0	0
29	0	0	0	tablet
30	0	0	0	mobile phone
31	0	0	0	tablet
32	book1, book2, book3	0	0	tablet
33	egg shape toy, bear toy, barbie1, barbie2, jewelry toy	0	0	tablet
TOTAL	**56**	**0**	**3**	**8**

According to the analysis of the *occupied actual situation*, it is determined that the most frequent place attachment modality is attained through the items which develop children's *self-identity*. These items are mostly the children's toys which are preferably brought and located in the inpatient rooms (Figure 22).

Figure 22: Children's toys as their place attachment modality of *self-identity* (Participants 5, 8, 19)

The second frequent item of the place attachment modality of *self-identity* can be considered as children's own paintings and paint materials. Generally, these paintings are hung on the walls of the inpatient room or placed vertically on horizontal surfaces (Figure 23).

Figure 23: Children's paintings and painting materials as their place attachment modality of *self-identity* (Participants 5, 11, 13)

The items of *technological tendency* is the second most frequent place attachment modality in the *occupied actual situation* of the research. In this case, children mostly

prefer their tablets while mobile phones and play consoles are in the minority of their choices (Figure 24).

Figure 24: Children's tablets as their place attachment modality of *technological tendency* (Participants 22, 29, 31)

Group games and family photos are recorded as the *social affiliation* items which is the third most frequent place attachment modality of children (Figure 25). There are not any recorded items for the place attachment modality of *privacy* in the *occupied actual situation*. This output can be evaluated with the single inpatient room configuration of the healthcare settings. Even if children share the room with their parents or companions they did not present any *privacy* concerns.

Figure 25: Children's group games and family photos as their place attachment modality of *social affiliation* (Participants 1, 13)

As it is clarified in the methodology, place attachment modalities recorded in children's occupied actual inpatient room environment are examined through their gender and age range. Accordingly, from the total 56 items of *self-identity*, females presented 36, and males presented 20 items. Thus, when the total frequency of the modality of *self-identity* is examined in the *occupied actual situation* of the case, it can be observed that female participants tend to attach to their inpatient rooms' environment more frequently than male participants. There were not any items recorded for *privacy* for both genders. 1 of 3 items of *social affiliation* is preferred by the female participant, while the 2 of them belong to the male participant. The frequencies place attachment modality of *technological tendency* items are equally distributed by gender. Of the total 8 items of *technological tendency*, 4 of them are observed in the inpatient rooms of female participants (Figure 26, Table 10).

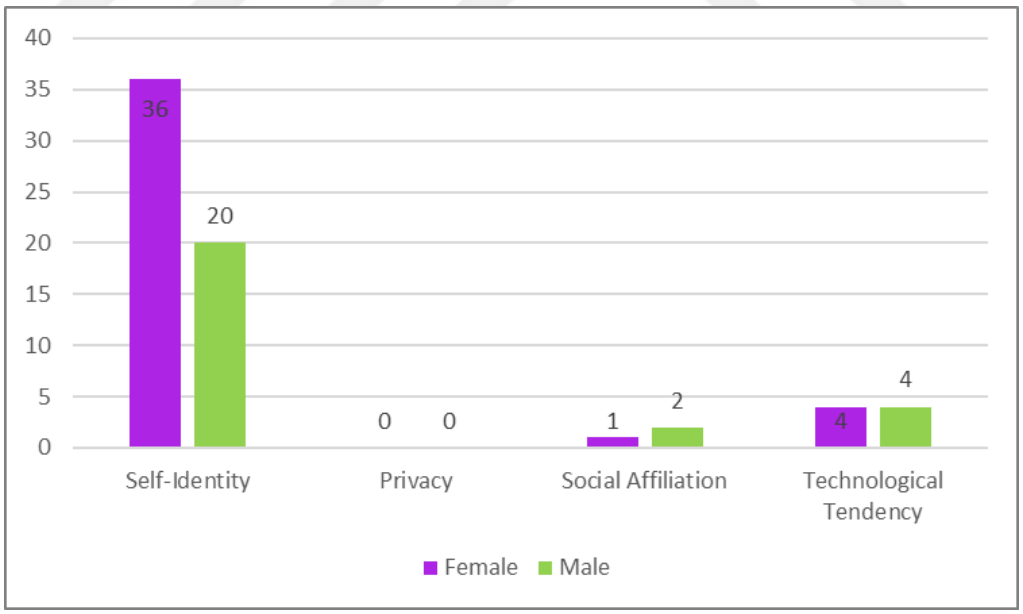


Figure 26: *Occupied Actual Situation* – The frequencies of items of place attachment modalities through the gender of children

Table 10: *Occupied Actual Situation* – The frequencies of items of place attachment modalities through the gender of children

	Self-Identity	**Privacy**	**Social Affiliation**	**Technological Tendency**
Female	36	0	2	4
Male	20	0	1	4
TOTAL	**56**	**0**	**3**	**8**

When the distribution of the place attachment frequencies is evaluated through the *age range* of children, it can be observed that the most frequent place attachment modalities are conducted by children aged 7-11 years old through the items of *self-identity*. Children aged 7-11 years old presented 46, and children aged 12-14 years old presented 10 items of *self-identity*. By reason of the number of participants from different age ranges (25 children aged 7-11 years old, 8 children aged 12-14 years old), it can not be interpreted from only this result that, children aged 7-11 years old tend to represent their identities in their inpatient room environment more frequently than the children aged 12-14 years old. There were not any items needed for the modality of *privacy* for both age ranges. All *social affiliation* items (3 items) are represented by children aged 7-11 years old. Items of *technological tendency* are distributed equally through the ages of children even though the number of children aged 7-11 years old is approximately four times than the number of children 12-14 years old. Thus, it can be interpreted from this result that the participants aged 12-14 years old merely use items of *technological tendency* in the context of place attachment (Figure 27, Table 11).

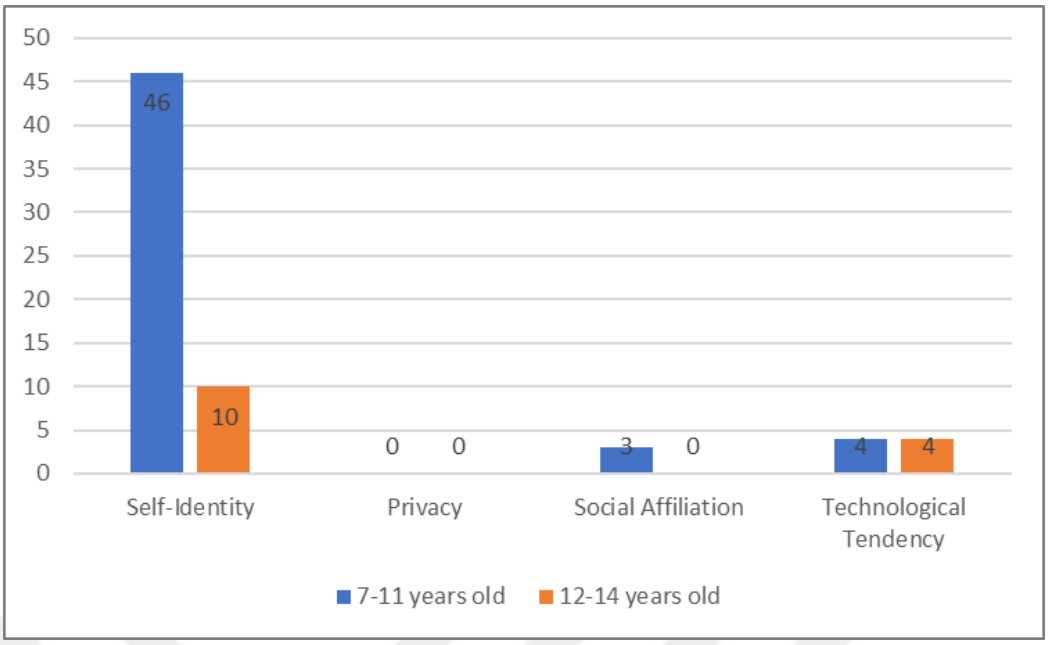


Figure 27: *Occupied Actual Situation* – The frequencies of items of place attachment modalities through the age range of children

Table 11: *Occupied Actual Situation* – The frequencies of items of place attachment modalities through the age range of children

	Self-Identity	**Privacy**	**Social Affiliation**	**Technological Tendency**
7-11 years old	46	0	3	4
12-14 years old	10	0	0	4
TOTAL	**56**	**0**	**3**	**8**

4.4.2. Results of the Imagined Situation

Through the research on the *imagined situation*, it was requested children to draw the inpatient room where they would like to be hospitalized. The drawing period was 30 minutes for each pediatric patient through which they drew their desired inpatient rooms only with a pencil. 25 participants accepted to participate in the second phase of the case study *(imagined situation)* while 8 participants rejected. Detected items in the drawings are counted and categorized according to the development of (1) *self-identity*, (2) needs

for *privacy*, (3) *social affiliation* [13], and (4) children's *technological tendency* (Table 12, Table 13, Table 14, Figure 30).

Table 12: Categorization of place attachment items detected in the drawings *(Imagined Situation)*

	Type of Items
Items for self-identity	paintings, painting materials, painting books, activity books, reading books, toys, handmade items, decor objects, party objects, potted plants, plants in vases, notebooks, team uniform, team pillow, team flag, small bicycles, letters, expression shapes -heart, star-, food preferences, cartoon characters
Items for privacy	naming, closure, control items, inpatient rooms, inpatient room furniture types, toilets, patient beds, self-figures, serum hangers, pillows
Items for social affiliation	family photos, multiplayer games, playground tools, outdoor items - trees, birds, clouds, sun, flowers on the soil-, buildings, common use furniture pieces like nurse stations or common tables, figures of people, animals, education items, healthcare staff -doctors, nurses-, names, speech bubbles
Items for technological tendency	television, game console - PlayStation, internet connection, internet purchased digital platforms -Youtube, Netflix-, self-phone, tablet

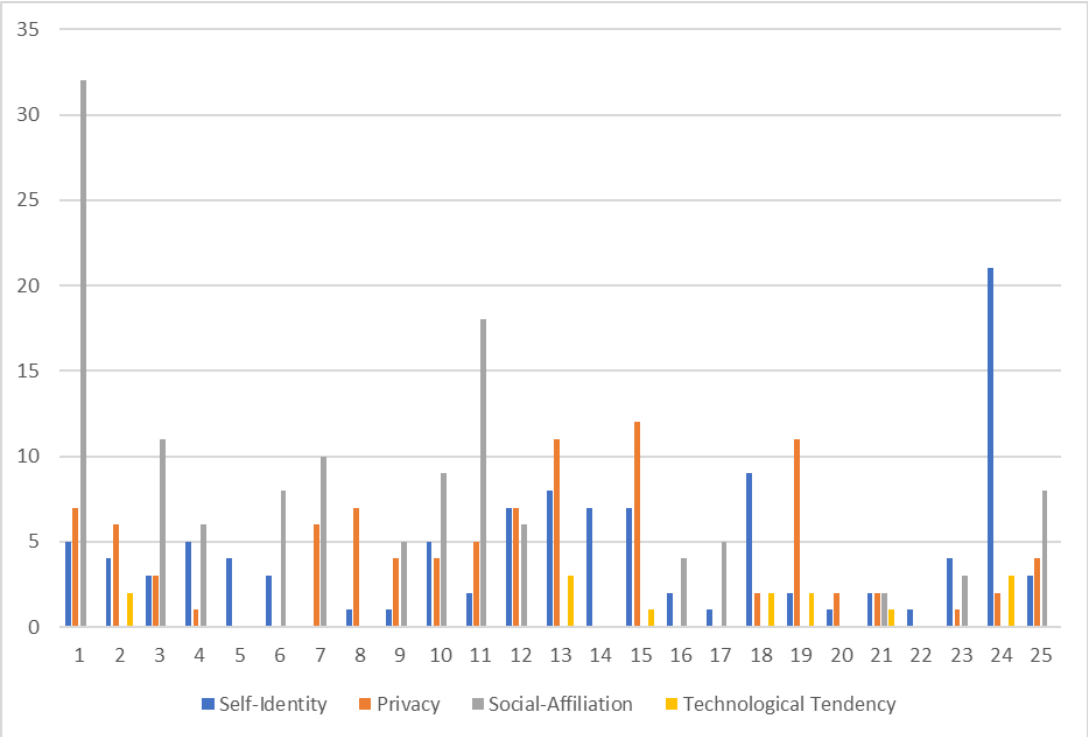


Figure 28: The frequencies of place attachment modalities of participants in their drawings *(Imagined Situation)*

Table 13: Categorization of frequencies of place attachment modalities in the drawings of children *(Imagined Situation)*

Part. Num.	Self Identity	Privacy	Social Affiliation	Technological Tendency
1	5	7	32	0
2	4	6	0	2
3	3	3	11	0
4	5	1	6	0
5	4	0	0	0
6	3	0	8	0
7	0	6	10	0
8	1	7	0	0
9	1	4	5	0
10	5	4	9	0
11	2	5	18	0
12	7	7	6	0
13	8	11	0	3
14	7	0	0	0
15	7	12	0	1
16	2	0	4	0
17	1	0	5	0
18	9	2	0	2
19	2	11	0	2
20	1	2	0	0
21	2	2	2	1
22	1	0	0	0
23	4	1	3	0
24	21	2	0	3
25	3	4	8	0
TOTAL	**108**	**97**	**127**	**14**

Table 14: Categorization of frequencies of place attachment modalities in the drawings of children *(Imagined Situation)*

Part. Num.	Self Identity	Privacy	Social Affiliation	Technological Tendency
1	letters, Arabic word 1, Arabic word 2, Arabic word 3, heart shape	room 1, room 2, room 3, bed 1, bed 2, closet 1, closet 2	playground tool 1, playground tool 2, tree 1, tree 2, L-shaped sofa, sitting unit 1, sitting unit 2, sitting unit 3, table 1, common use furniture 1, common use furniture 2, common use furniture 3, common use furniture 4, common use furniture 5, common use furniture 6, L-shaped counter, table 2, table 3, table 4, table 5, table 6, table 7, sitting unit 4, sitting unit 5, sitting unit 6, sitting unit 7, person 1, person 2, person 3, person 4, person 5, person 6	0
2	decor 1, decor 2, decor 3, decor 4	patient bed, personal pillow, nightstand, room table 1, room table 2, room chair 1	0	PlayStation, television
3	heart 1, heart 2, ball	the child herself, patient bed, pillow	person 1, person 2, person 3, person 4, person 5, person 6, person 7, person 8, chicken, rabbit, butterfly	0
4	ball, gift 1, gift 2, gift 2, ball, bear toy	child herself	house, sun, stars, clouds, tree, flowers	0
5	car toy, ball, planted flower, bicycle	0	0	0
6	smiling face, star, heart	0	name 1, name 2, name 3, name 4, name 5, name 6, name 7, name 8	0
7	0	patient bed, the child herself, serum hanger, personal speech bubble, rest room 1, restroom 2	person 1, person 2, person 3, information desk, medical preparation, stair, playground setting 1, playground setting 2,	0

			speech bubble 1, speech bubble 2	
8	painting	patient bed, pillow, room table, room stool, mirror, curtains, lamp	0	0
9	plant in the vase	patient bed, room chair, room table, room wardrobe	sun, birds, cloud, flower, tree	0
10	hearts, flowers, stars, butterflies, Turkish flag	the child herself, pillow 1, pillow 2, pillow 3	person 1, person 2, person 3, table 1, chair 1, chair 2, common use furniture 1, common use furniture 2, common use furniture 3	0
11	Bus, the Turkish word	patient bed, pillow, the child himself, flower on the patient bed, clock on the bed	person 1, person 2, person 3, person 4, person 5, person 6, person 7, person 8, person 9, person 10, person 11, person 12, person 13, person 14, person 15, person 16, butterfly, flowers	0
12	hanging stars, hanging hearts, heart, stars, flower, treble clef, item 2	patient bed, pillow, the child herself, table, serum hanger, room side furniture, item 1	building of the hospital, butterflies, clouds, tree 1, tree 2, tree 3	0
13	planted flower, painting 1, painting 2, books 1, books 2, pencils, wall clock, bookcase	room working desk, room chair, room table lamp, room wall lamp, ceiling lamp, room console, roomsofa, side table, refrigerator, room pattern 1, room pattern 2	0	PlayStation, television, tablet
14	hearts, toy 1, toy 2, toy 3, car, ball, hoop	0	0	0
15	color choice for the room, color choice of the light of room 1, color choice of the light of room 2, bookcase 1, bookcase 2, bookcase 3, additional working table	entrance area, wardrobe, bathroom, , patient bed, pillow, serum hanger, bed for attendants, hidden ceiling light 1, hidden	0	Smart TV

		ceiling light2, room working table, caisson, facade glass		
16	hand, toy	0	flower, cloud, sun, person	0
17	helicopter	0	person 1, person 2, person 3, building 1, building 2	0
18	train toy, ball, bear with balloons, dog, a wall with paintings, chair 1, chair 2, table, carpet	patient bed, pillow	0	television, youtube
19	cover set, personal wish	pillow 1, pillow 2, patient bed, serum hanger, table 1, door, sofa, table 2, refrigerator, bathroom, tea machine	0	television, computer
20	balloon	the child herself, pillow	0	0
21	food preference, library in the room	the child himself 1, the child himself 2	teacher, writing board	Playfive5
22	Cartoon character	0	0	0
23	toy 1, toy 2, shape 1, shape 2	patient bed	sun, clouds, person 1	0
24	ball, bear toy, barbie 1, barbie 2, barbie 3, barbie 4, barbie 5, barbie 6, barbie 7, barbie 8, barbie 9, barbie 10, barbie 11, barbie 12, barbie 13, barbie 14, barbie 15, barbie 16, bookcase, carpet, flowers in the vase	side table, patient bed	0	youtube, Netflix, television
25	balloons, room ornament, flowers in the vase	patient bed, serum hanger, the child herself, side table	healthcare staff, person 1, person 2, person 3, person 4, person 5, person 6, person 7	0
TOTAL	**108**	**97**	**127**	**14**

Results of the *imagined situation* are attained through certain general acceptances which are mentioned below:

(1) If the expression shapes or outdoor items -like hearts, stars, or clouds are identically similar and reiterated three or more than three times-, they are counted as one item.

(2) Reiterated figures of people or common-use furniture pieces are counted separately even if they are repeated three times or more.

(3) If the children draw furniture 'types' or interior items that are already existing in their inpatient rooms -like a patient bed, serum hanger, pillow(s), working desk, chair, side table, etc.- these items are categorized through the content of *privac*y.

(4) If the children draw 'new types' of furniture or a 'new types' of interior items that are not existing in their inpatient rooms -like bookcases, carpets, vases with flowers, colored wallpaper, etc.- these items are categorized through the content of *self-identity*.

(5) If the children draw sets of furniture belonging to outside spaces of the inpatient room -like nurse stations or commonly shared rooms-, these items are evaluated through the content of *social affiliation*.

(6) Outdoor landscape items like clouds, sun, trees, or flowers are evaluated through the content of *social affiliation*.

(7) Outdoor built environment items like buildings or homes are evaluated through the content of *social affiliation*.

Specified categorization in Table 13 is exemplified through the two examples of drawings shown in Figure 28 and Figure 29. In the drawing of Participant 2, the vase with some plants on the right top, the vase on the table, and plant-like items on each side -total 4 Items- are signifying items related to the place attachment modality of *self-identity*. Patient bed, personal pillow, nightstand, room table 1, room table 2, room chair -total 6 items- are indicating the place attachment modality of *privacy*.

Play console and television -total 2 items- are expressed for the items of *technological tendency* modality (Figure 29).

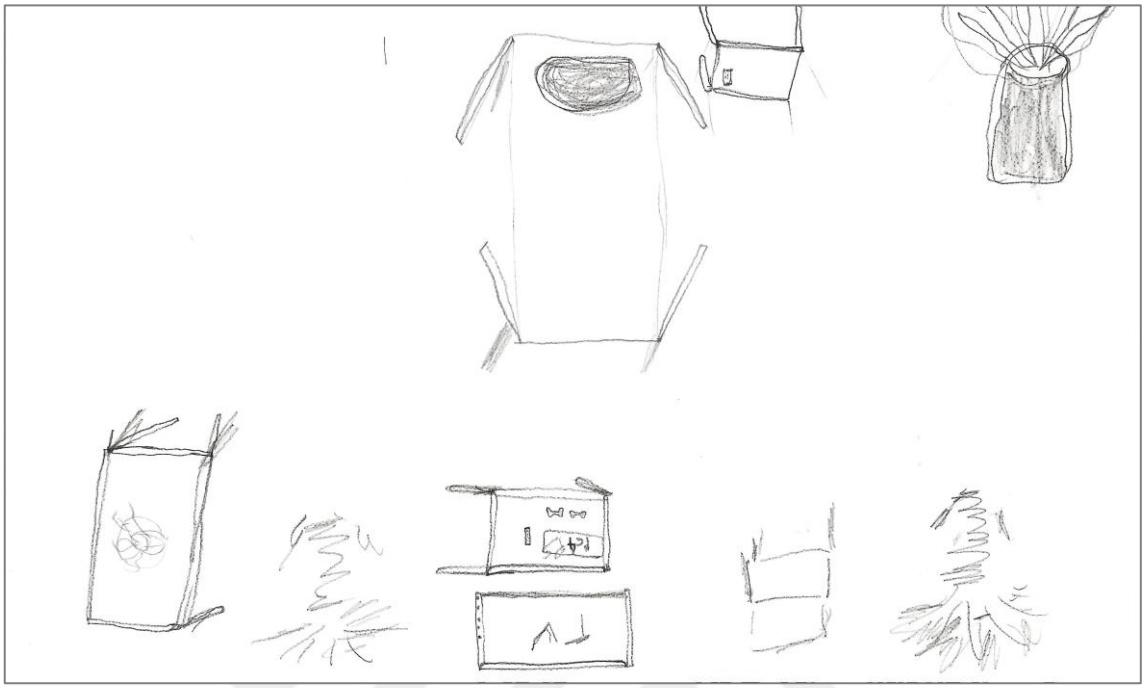


Figure 29: Drawing of the Participant 2

In the drawing of Participant 30, three balloons (counted as one), the room ornament, flowers in the vase -total 3 items- signifying items related to the place attachment modality of *self-identity* The patient bed, the serum hanger, the child herself, the side table -total 4 Items- are indicating items of *privacy.* The healthcare staff, person 1, person 2, person 3, person 4, person 5, person 6, person 7 -total 8 items- are expressed for the items of the place attachment modality of *social affiliation* (Figure 30)

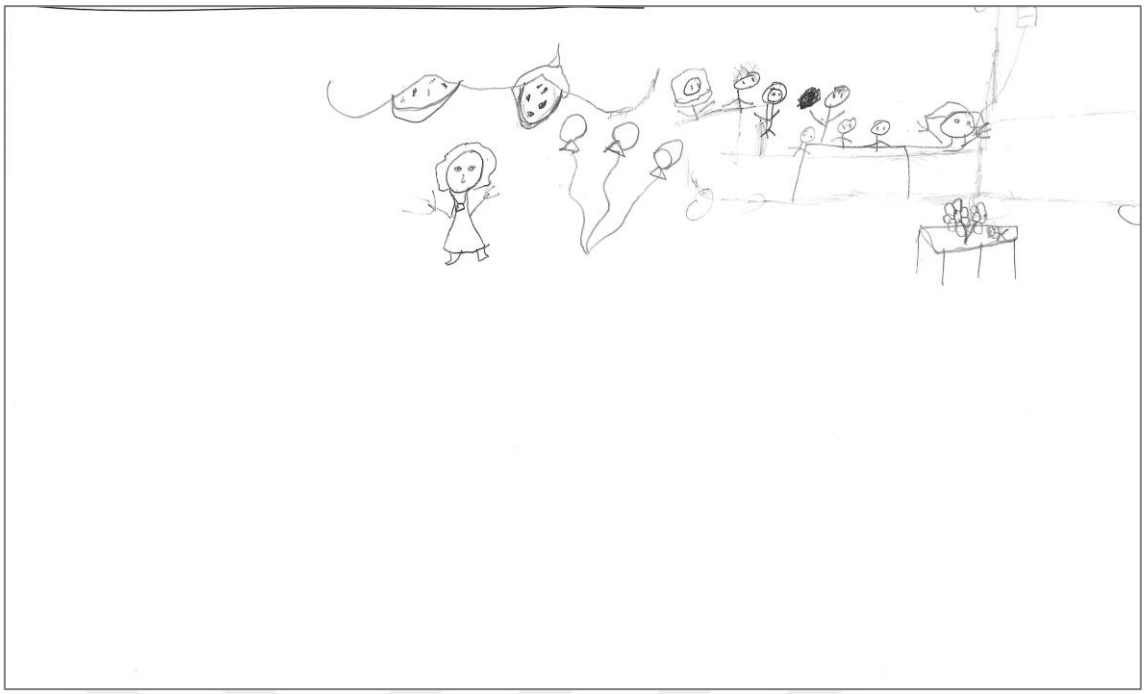


Figure 30: Drawing of the Participant 30

As a result of the *imagined situation*, it is determined that the most frequently drawn place attachment modality is related to the items that develop children's *social affiliation*. These items are generally expressed through people figures or exterior landscape items like clouds, trees, etc. (Figure 31). This tendency can be evaluated through children's need for socialization during their hospitalization period.

Figure 31: Drawn human figures as place attachment modality of *social affiliation* (Participants 3, 9, 13)

Items related to *self-identity* are the second most frequently drawn place attachment modality in the *imagined situation* of the research. Toys and cartoon characters are the most preferred drawn items to express children's place attachment modality of *self-identity* (Figure 32).

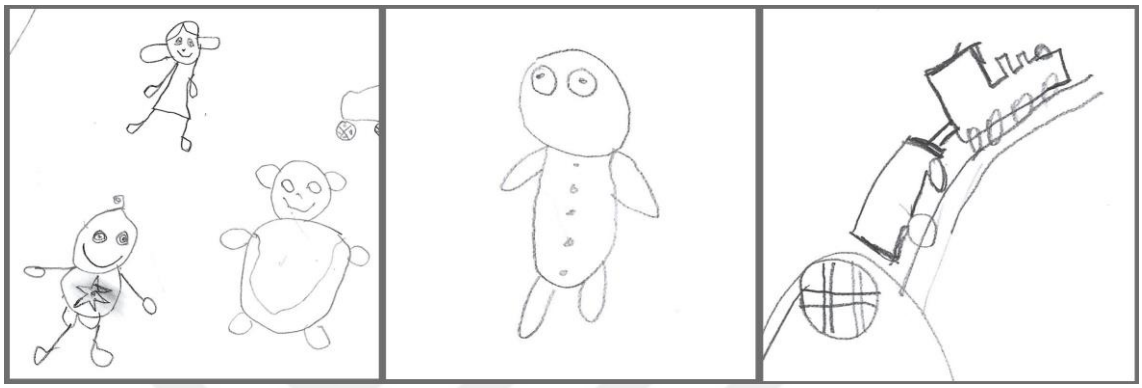


Figure 32: Drawn toys as place attachment modality of *self-identity* (Participants 17, 19, 21)

Through the category of *privacy* which is the third most frequently drawn place attachment modality, patient beds and children's own figures are mostly observed in the drawings. (Figure 33).

Figure 33: Drawn patient beds and self-figures as place attachment modality of *privacy* (Participants 2, 3, 15)

The *technological tendency* is the least frequently drawn place attachment modality. Children mostly express internet-purchased digital platforms like Youtube

or Netflix and play consoles to express their tendency toward technology (Figure 34). It can be deduced from this data that, even though the healthcare setting provides television to each inpatient room, children need additional digital platforms existing in the content of the television.

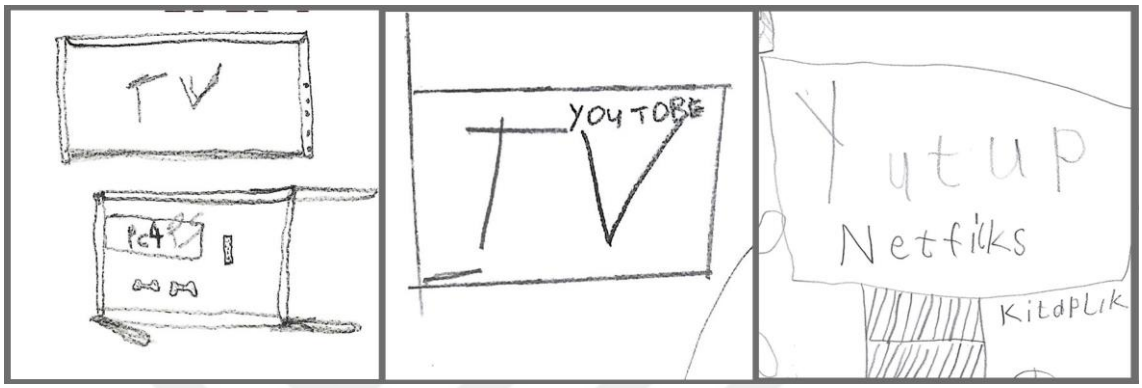


Figure 34: Drawn play consoles and internet-purchased digital platforms as place attachment modality of *technological tendency* (Participants 2, 21, 29)

As it is clarified in the methodology, place attachment modalities observed in children's drawings are examined through their gender and age range in the second phase of the research *(imagined situation).* Consequently, from the total 108 items of *self-identity* items, females presented 50, and males presented 58 items. It can be interpreted from this output that both gender types' tendencies to express their need for *self-identity* in the drawings of the inpatient rooms are similar while considering the number of male participants (14) is more than the number of female participants (11). Besides, 44 items of the place attachment modality of *privacy* were determined in females' drawings while 53 of them are observed in males' drawings. Thus, similar to the items of *self-identity*, it can be interpreted that both gender types' tendencies to express their need for *privacy* in the drawings of the inpatient rooms are similar while considering the number of male participants (14) is more than the number of female participants (11). 59 of 127 items of *social affiliation* are drawn by female

participants, while 68 of them belong to male participants. Approximate results of both genders signify both genders' tendencies of *social affiliation* in the context of place attachment modality in their inpatient room environment. Of the total 14 items of *technological tendency*, females drew 5 items while males' total item frequency is 9. There is a significant dominance of males in the place attachment modality of *technological tendency* (Figure 35, Table 15).

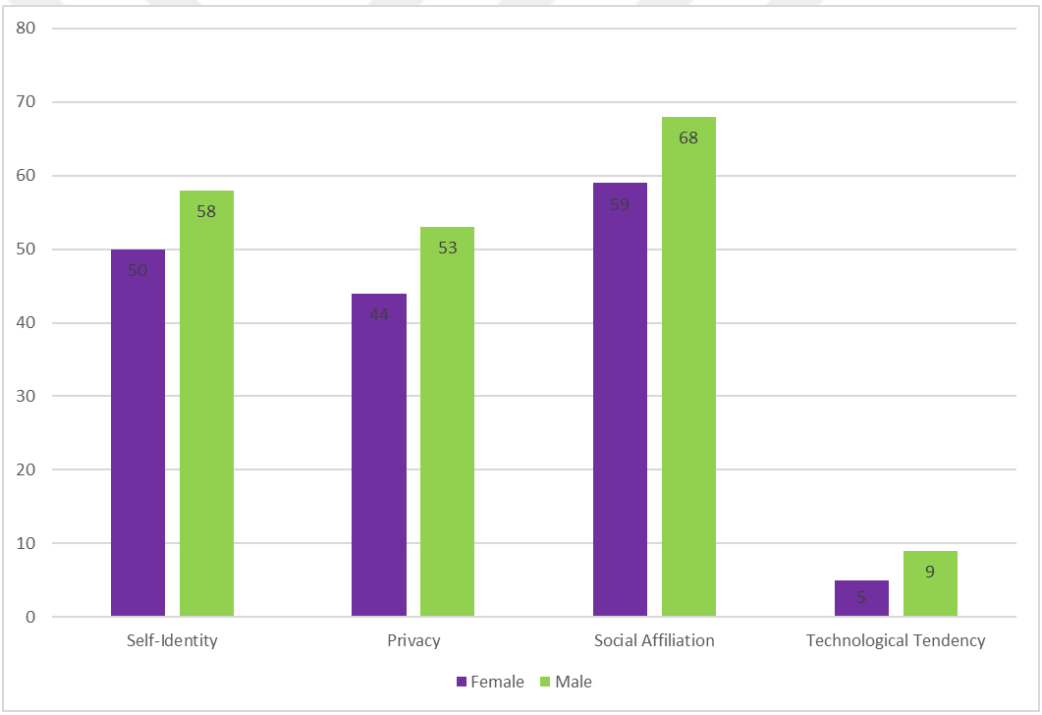


Figure 35: *Imagined Situation*- The frequencies of items of place attachment modalities through the gender of children

Table 15: *Imagined Situation*- The frequencies of items of place attachment modalities through the gender of children

	Self-Identity	**Privacy**	**Social Affiliation**	**Technological Tendency**
Female	50	44	59	5
Male	58	53	69	9
TOTAL	**108**	**97**	**127**	**14**

Through the evaluation of the age range in the *imagined situation* of the research, it can be observed that from a total of 108 items of *self-identity*, 84 items are drawn by children aged 7-11 years old while 24 items are drawn by children aged 12-14. By reason of the number of participants from different age ranges (20 children aged 7-11 years old, 5 children aged 12-14 years old), it can not be interpreted from this result that, participants aged 7-11 years old tend to represent their self-identities in their drawings more frequently than the participants aged 12-14 years old. Besides, 97 items are observed in the content of privacy while 67 of them belong to participants aged 7-11 years old and 30 of them are drawn by participants aged 12-14 years old. In this case, even though participants aged 12-14 years old are the minority in total participants, their regard for *privacy* can be observable from this result. 127 items of place attachment modality of *social affiliation* items are existing in the drawings of participants, and 111 of them are drawn by children aged 7-11 years old. Similar to the results of *self-identity*, due to the inequality of the numbers from the two age ranges, an accurate interpretation would not be correct for the place attachment modality of *social affiliation*. The drawn frequencies of items for the modality of *technological tendency* are similar for the two age ranges while participants aged 7-11 years old drew 8 items and the participants aged 12-14 years old drew 6 items

in total. Similar to the results of *privacy*, even the number of participants aged 12-14 years old is approximately three times less than the participants aged 7-11 years old, there is apparent attention on the *technological tendency* for the children aged 12-14 years old (Figure 36, Table 16).

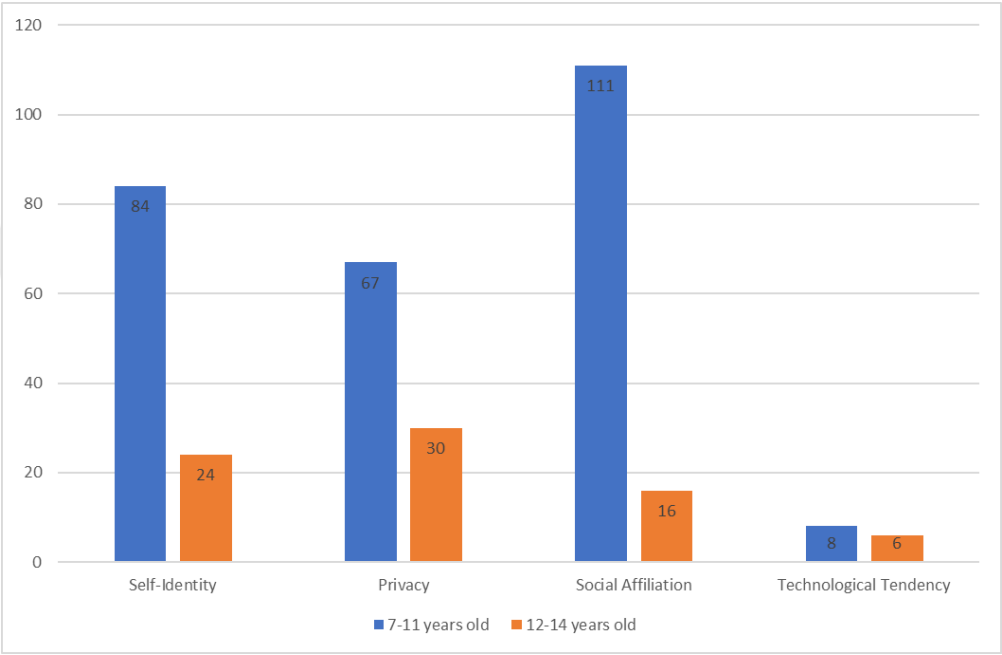


Figure 36: *Imagined Situation* - The frequencies of items of place attachment modalities through the age range of children

Table 16: *Imagined Situation* - The frequencies of items of place attachment modalities through the age range of children

	Self-Identity	**Privacy**	**Social Affiliation**	**Technological Tendency**
7-11 years old	84	67	111	8
12-14 years old	24	30	16	6
TOTAL	**108**	**97**	**127**	**14**

4.5. Statistical Correlations

Statistical correlations of the first phase (*occupied actual situation)* and the second phase (*imagined situation)* of the research are conducted between the *independent variables* of age range and gender, and *dependent variables* of the frequencies of the items of place attachment modalities of self-identity, privacy, social affiliation, and technological tendency. To research the possible correlations between the independent and dependent variables of the methodology, obtained data from both the first phase *(occupied actual situation)* and the second phase *(imagined situation)* are aimed to be analyzed through t-tests. However, since the datasets are not normally distributed, the correlations were established through Mann - Whitney U Tests in SPSS.

4.5.1. Statistical Correlations of the Occupied Actual Situation

Statistical correlations of the *occupied actual situation* are conducted between the *independent variables* of gender and age range, and *dependent variables* of the frequencies of the items of *self-identity, privacy, social affiliation, and technological tendency.* Initially, in order to decide the type of the correlation test, *dependent variables'* congruity to the normal distribution (test of normality) is tested in SPSS with the Shapiro-Wilk test. The sigma value of the Shapiro-Wilk test is expected to be more than the value of 0,05 in order to conduct a parametric test to the data of the occupied actual situation. However, the sigma value of the Shapiro-Wilk test for *self-identity, social affiliation,* and *technological tendency* resulted in less than the value of 0,05 (Table 17). Thus, the non-parametric test of the t-test which is called as Mann-Whitney U Test is applied to the data of the *occupied actual situation* in order to examine possible correlations between the variables (Table 18).

Table 17: Test of normalities of the dependent variables of the *occupied actual situation*

	Shapiro-Wilk Sig.	**Parametric Test / Non-Parametric Test Appropriateness**
Self-Identity	<,001	Non-parametric test (Mann Whitney – U)
Privacy	- (no data)	- (no data)
Social Affiliation	<,001	Non-parametric test (Mann Whitney – U)
Technological Tendency	<,001	Non-parametric test (Mann Whitney – U)

Table 18: Occupied Actual Situation - Mann Whitney – U test correlations in between the *independent variables* of gender and age range and the *dependent variables* of the frequencies of place attachment modalities of self-identity, privacy, social affiliation, and technological tendency.

1ST PHASE: OCCUPIED ACTUAL SITUATION OF THE INPATIENT ROOM	
Independent Variable	**Dependent Variable**
NOMINAL	**INTERVAL**
Gender (Female / Male)	Frequency of self-identity items
Age range (7-11 / 12-14)	Frequency of privacy items
	Frequency of social affiliation items
	Frequency of technological tendency items

Through the results of the Mann – Whitney U test correlations of the independent variable of children's *gender* and dependent variables of the frequency of the place attachment modalities of *self-identity, social affiliation, privacy,* and *technological tendency* items, it can be observed that there are not any significant correlations between

the variables for the *occupied actual situation.* However, when the mean ranks of female and male values are examined, it can be observed that there is not a certain dominance of gender through the place attachment modalities of *self-identity, social affiliation*, or *technological tendency*. In other words, both genders have similar tendencies through each of these place modalities in the context of place attachment. As there is not any data recorded for the modality of *privacy,* it is excluded from the correlation tests (Table 19).

Table 19: Occupied Actual Situation - Mann Whitney – U test correlation results in between the independent variable of *gender* and the dependent variables of the frequencies of the place attachment modality of *self-identity, privacy, social affiliation* and *technological tendency* items.

	Female Chil. Number	**Male Chil. Number**	**Mean Rank (Female)**	**Mean Rank (Male)**	**Asymp. Sig.**	**Significance**
Gender; frequency of self-identity items	15	18	18,30	15,92	0,447 > 0,05	Not significant
Gender; frequency of privacy items	15	18	-	-	-	-
Gender; frequency of social affiliation items	15	18	17,07	16,94	0,930 > 0,05	Not significant
Gender; frequency of technological tendency items	15	18	17,40	16,67	0,770 > 0,05	Not significant

Through the results of the Mann – Whitney U test correlations of the independent variable of children's *age range* and dependent variables of the frequencies of the place attachment modalities of *self-identity, social affiliation, privacy,* and *technological tendency* items, it can be observed that there are not any significant correlations between the variables except the items of *technological tendency* of the *occupied actual situation*.

As with the significance value of 0,054, the correlation between the *age range* of children and the frequency of *technological tendency* items can be interpreted as 'almost significant' (Table 20). Upon this result, it can be deduced that, in the scope of this case study, children aged 12-14 years old utilize items of *technological tendency* the more compared to the children 7-11 years old in the context of place attachment regarding their inpatient rooms. This outcome can be linked to several discussions that are previously mentioned in the literature review of this thesis. Chawla [13] mentions adolescents' two different poles of place preference which are related to privacy at home or a preference for distant attractions. As children who are hospitalized in their inpatient rooms do not have the chance to provide the desired privacy for themselves and to leave the healthcare setting for outer appeals, they may tend to constitute this need of 'isolation' through the technological devices and internet purchased digital platforms. Besides, according to Rachel Blumberg and Ann Sloan Devlin's research, children aged between 12 to 14 years old mostly desire television, access to music, and a telephone near the bed for their inpatient rooms [78]. The desire to have age-appropriate DVDs and videos accessible was the most popular answer for passing the time in the hospital. These results partially resemble the correlation between the 12-14 years old children's place attachment modality of *technological tendency* in the occupied actual situation of their inpatient rooms. In accordance with the past sixteen years after from Rachel Blumberg and Ann Sloan's research, today the type and the accessibility of the devices are probably changed and developed. For instance, children prefer using their telephones or tablets in order to communicate with people or watch films. Thus, an additional telephone next to the bed or DVD player is not required in today's technological settlements.

Baumgarten also emphasizes the 'social learning' process which enables children to follow new trend concepts or school-based issues [55]. Thus, in the scope of this research, children aged 12-14 years old may also tend not to keep off from the present issues that they have already followed through the internet or digital platforms and they express this tendency to the actual inpatient room environment. As also mentioned in the review of Markopolous and Berker [88] the functionality of the devices permits children to be more independent and to communicate with their friends. Therefore, the isolated and confined environment of the inpatient room may affect the need to be socialized which is only possible with these technological devices. The last discussion about this correlation can be developed through the existing situation of the inpatient room. Although the hospital provides television to each inpatient room, it can be observed that these televisions can be supported with some internet-purchased platforms like Youtube or Netflix.

Even though the number of participants aged 12-14 years old is 8, it can be remarked that the mean ranks of both the modalities of *self-identity* and *social affiliation* for both age ranges are similar in the *imagined situation.* As there is not any data recorded for the modality of *privacy,* it is excluded from the correlation tests.

Table 20: Occupied Actual Situation - Mann Whitney – U test correlation results in between the independent variable of *age range* and the dependent variables the frequencies of the place attachment modalities of *self-identity, privacy, social affiliation,* and *technological tendency* items.

	7-11 years old Chil. Number	**12-14 years old Chil. Number**	**Mean Rank (7-11 years old)**	**Mean Rank (12-14 years old)**	**Asymp. Sig.**	**Significance**
Age range; frequency of self-identity items	25	8	17,54	15,31	0,541 > 0,05	Not significant
Age range; frequency of privacy items	25	8	-	-	-	-
Age range; frequency of social affiliation items	25	8	17,32	16	0,417 > 0,05	Not significant
Age range; frequency of technological tendency items	25	8	15,64	21,25	0,054 ≈ 0,05	**Almost significant**

4.5.2. Statistical Correlations of the Imagined Situation

Statistical correlations of the *imagined situation* are conducted between the *independent variables* of gender and age range, and *dependent variables* of the frequencies of *self-identity, privacy, social affiliation,* and *technological tendency* items. Initially, in order to decide the type of the correlation test, *dependent variables'* congruity to the normal distribution (test of normality) is tested in SPSS with the Shapiro-Wilk test. The sigma value of the Shapiro-Wilk test is expected to be more than the value of 0,05 to conduct a parametric test to the data of the *occupied actual situation*. However, the sigma value of the Shapiro-Wilk test for *self-identity, privacy, social affiliation,* and *technological tendency* resulted in less than the value of 0,05 (Table 21). Thus, the non-parametric test of the t-test which is called as Mann-Whitney U Test is applied to the data

of the *imagined situation* in order to examine possible correlations between the variables (Table 22).

Table 21: Test of normalities of the dependent variables of the *imagined situation*

	Shapiro-Wilk Sig.	**Parametric Test / Non-Parametric Test Appropriateness**
Self-Identity	<,001	Non-parametric test (Mann Whitney – U)
Privacy	0,008	Non-parametric test (Mann Whitney – U)
Social Affiliation	<,001	Non-parametric test (Mann Whitney – U)
Technological Tendency	<,001	Non-parametric test (Mann Whitney – U)

Table 22: Imagined Situation - Mann Whitney – U test correlations between the *independent variables* of gender and age range and the *dependent variables* of the frequencies of the place attachment modalities of self-identity, privacy, social affiliation, and technological tendency items.

2ND PHASE: IMAGINED SITUATION OF THE INPATIENT ROOM	
Independent Variable	**Dependent Variable**
NOMINAL	**INTERVAL**
Gender (Female / Male)	Frequency of self-identity items
Age range (7-11 / 12-14)	Frequency of privacy items
	Frequency of social affiliation items
	Frequency of technological tendency items

According to the results of the Mann – Whitney U test correlations of the independent variable of children's *gender* and dependent variables of the frequency of place attachment modalities of *self-identity, social affiliation, privacy,* and *technological tendency* items, it can be observed that there are not any significant correlations between the variables for the *imagined situation* (Table 23). However, when the mean ranks of *privacy* items are examined, it can be remarked that even though the number of female participants is less than males, the mean rank of females is more than the mean rank of males. In other words, females tend to use items of *privacy* in the drawings of the inpatient rooms where they would like to be hospitalized more than males even though a significant correlation can not be demonstrated in the dataset. A similar result is obtained for the items of *social affiliation* which are more preferred in the drawings of females in order to reflect the modalities of place attachment.

Table 23: Imagined Situation - Mann Whitney – U test correlation results between the independent variable of *gender* and the dependent variables of the frequencies of the place attachment modalities of *self-identity, privacy, social affiliation* and *technological tendency* items.

	Female Chil. Number	**Male Chil. Number**	**Mean Rank (Female)**	**Mean Rank (Male)**	**Asymp. Sig.**	**Significance**
Gender; frequency of self-identity items	11	14	12	13,79	0,543 > 0,05	Not significant
Gender; frequency of privacy items	11	14	13,91	12,29	0,580 > 0,05	Not significant
Gender; frequency of social affiliation items	11	14	15,27	11,21	0,152 > 0,05	Not significant
Gender; frequency of technological tendency items	11	14	12	13,79	0,446 > 0,05	Not significant

Through the results of the Mann – Whitney U test correlations of the independent variable of children's *age range* and dependent variables of the frequency of the place attachment modalities of *self-identity, social affiliation, privacy,* and *technological tendency* items, it can be observed that there are not any significant correlations in between the variables for the *imagined situation.* (Table 24).

Besides, according to the mean ranks of *self-identity*, even though the number of participants aged 12-14 years old is less than the participants aged 7-11 years old, the mean rank of participants aged 12-14 years old is more than the mean rank of participants 7-11 years old. Participants aged 12-14 years old tend to use more items of *self-identity* in the drawings of the inpatient rooms. A similar result is obtained for the items of *privacy* which are more preferred in the drawings of participants aged 12-14 years old in order to reflect the modalities of place attachment.

Table 24: Imagined Situation - Mann Whitney – U test correlation results between the independent variable of *age range* and the dependent variables of the frequencies of place attachment modalities of *self-identity, privacy, social affiliation*, and *technological tendency* items.

	7-11 years old Chil. Number	**12-14 years old Chil. Number**	**Mean Rank (7-11 years old)**	**Mean Rank (12-14 years old)**	**Asymp. Sig.**	**Significance**
Age range; frequency of self-identity items	20	5	12,28	15,90	0,320 > 0,05	Not significant
Age range; frequency of privacy items	20	5	11,83	17,70	0,107 > 0,05	Not significant
Age range; frequency of social affiliation items	20	5	13,20	12,20	0,776 > 0,05	Not significant
Age range; frequency of technological tendency items	20	5	12	17	0,086 > 0,05	Not significant

In the content of this thesis, with the case study which is conducted with 33 participants aged between 7-14 years old, hospitalized for more than 5 days in the inpatient rooms of the two different buildings of the private hospital in İstanbul, possible correlations between participants' age and gender are investigated through the participant's place attachment modalities of *self-identity, privacy, social affiliation,* and *technological tendency.* Datasets of this case study are obtained through the two phases of the methodology (*occupied actual situation & imagined situation*) and interpreted separately. Results of the place attachment frequencies were explained through the total frequency ranks of the place attachment modalities observed in the actual inpatient room environments and the drawings of children. Results of the correlations were explained through the data sets obtained from the non-parametric test of the Mann-Whitney U Test for both phases of the case study (Table 25). The hypotheses of the research and related results are indicated in Table 26.

Table 25: Results of the *occupied actual situation* and the *imagined situation* of the case study

		Results of the frequency of the place attachment modalities	**Results of the correlations of the place attachment modalities**
OCCUPIED ACTUAL SITUATION	**Self-Identity**	1- Most frequent place attachment modality 2- Female participants' frequency is more than the male participants' frequency. 3- 7-11 years old participants' frequency is more than 12-14 years old participants' frequency.	1- Not any significant correlations for gender or age range
	Privacy	NO DATA	NO DATA
	Social Affiliation	1- Third frequent place attachment modality 2- All social affiliation items are conducted by participants of 7-11 years old.	1- Not any significant correlations for gender or age range
	Technological Tendency	1- Second frequent place attachment modality which is same for genders 2- 7-11 years old participants' frequency is same with 12-14 years old participants' frequency.	1- Not any significant correlations for gender 2- Almost significant correlation is existing for the age range of 12-14 years old.
IMAGINED SITUATION	**Self-Identity**	1- Second frequent place attachment modality 2- Similar gender tendency	1- Not any significant correlations for gender or age range
	Privacy	1- Third frequent place attachment modality 2- Similar gender tendency 3- 12-14 years old participants' tendency is observable	1- Not any significant correlations for gender or age range
	Social Affiliation	1- Most frequent place attachment modality	1- Not any significant correlations for gender or age range
	Technological Tendency	1- Forth frequent place attachment modality 2- Dominance of male participants 3- 12-14 years old participants' tendency is observable	1- Not any significant correlations for gender 2- Not any significant correlations for age range

Table 26: Evaluation of the hypothesis of the thesis through the significance of the correlations.

	Hypothesis 0	Asymp. Sig. / Significance	Hypothesis 1
H0-A	It is hypothesized in this research that, the frequency of place attachment modalities of *'self-identity', 'privacy', 'social affiliation', and 'technological tendency'* is correlated with the *gender* of children for the *occupied actual situation* of their inpatient rooms.	Self-Identity & Gender: **0,447** > 0,05 **NOT SIGNIFICANT** Privacy & Gender: **NO DATA** Social Affiliation & Gender: **0,930** > 0,05 **NOT SIGNIFICANT** Technological Tendency & Gender: **0,770** > 0,05 **NOT SIGNIFICANT**	The frequency of place attachment modalities of *'self-identity', 'privacy', 'social affiliation', and 'technological tendency'* is **NOT** correlated with the *gender* of children for the *occupied actual situation* of their inpatient rooms.
H0-B	It is hypothesized in this research that, the frequency of place attachment modalities of *'self-identity', 'privacy', 'social affiliation',* and *'technological tendency'* is correlated with the *age range* of children for the *occupied actual situation* of their inpatient rooms.	Self-Identity & Age Range: **0,541** > 0,05 **NOT SIGNIFICANT** Privacy & Age Range: **NO DATA** Social Affiliation & Age Range: **0,417** > 0,05 **NOT SIGNIFICANT** Technological Tendency & Age Range: 0,054 ≈ 0,05 **ALMOST SIGNIFICANT**	The frequency of place attachment modalities of *'self-identity', 'privacy', and 'social affiliation'* is **NOT** correlated with the *age range* of children for the *occupied actual situation* of their inpatient rooms. However, the frequency of place attachment modalities of *'technological tendency'* is **ALMOST** correlated with the age range of children for the *occupied actual situation* of their inpatient rooms.
H0-C	It is hypothesized in this research that, the frequency of place attachment modalities of 'self-identity', 'privacy', 'social affiliation', and 'technological tendency' is correlated with the *gender* of children for the *imagined situation* of their inpatient rooms.	Self-Identity & Gender: **0,543** > 0,05 **NOT SIGNIFICANT** Privacy & Gender: **0,580** > 0,05 **NOT SIGNIFICANT** Social Affiliation & Gender: **0,152** > 0,05 **NOT SIGNIFICANT** Technological Tendency & Gender: **0,446** > 0,05 **NOT SIGNIFICANT**	The frequency of place attachment modalities of *'self-identity', 'privacy', 'social affiliation', and 'technological tendency'* is **NOT** correlated with the *gender* of children for the *imagined situation* of their inpatient rooms.
H0-D	It is hypothesized in this research that, the frequency of place attachment modalities of 'self-identity', 'privacy', 'social affiliation', and 'technological tendency' is correlated with the *age range* of children for the *imagined situation* of their inpatient rooms.	Self-Identity & Age Range: **0,320** > 0,05 **NOT SIGNIFICANT** Privacy & Age Range: **0,107** > 0,05 **NOT SIGNIFICANT** Social Affiliation & Age Range: **0,776** > 0,05 **NOT SIGNIFICANT** Technological Tendency & Age Range: **0,086** > 0,05 **NOT SIGNIFICANT**	The frequency of place attachment modalities of *'self-identity', 'privacy', 'social affiliation and 'technological tendency'* is **NOT** correlated with the *age range* of children for the *imagined situation* of their inpatient rooms.

CHAPTER 5

CONCLUSION AND DISCUSSION

Children generally constitute the disadvantage group in the society in a manner of inclusive environmental design strategies, especially when they share their physical environments with adults. Except for the particularly considered interiors like schools or playgrounds, commonly, children are exposed to rigidly designed environments that do not provide flexibility which may be occurred due to their spatial needs. The same interior configuration of the inpatient rooms is also used by adults whose spatial needs and cognitions are considerably different from the children's. Since the same healthcare environment is offered to the two different user groups, then appropriate spatial flexibility should be afforded in the inpatient rooms. Children's methods to be attached to the inpatient room are examined through this idea of flexible and child-friendly pediatric healthcare settings.

In the content of the thesis 'Analyzing Perceptions of Children in the Context of Place Attachment Regarding Inpatient Rooms', children's intention to change the interior architecture of the inpatient room is searched through children's tendency of place attachment modalities. As children's inpatient rooms are dissimilar from their daily living settings, they try to struggle in order to adapt to this new compulsory environment in such a way that they develop their own physical and sensual perceptions about their inpatient rooms. This process of adaptation is analyzed through the need for place attachment of children whose gender and age range are examined regarding their place attachment

modalities of (1) self-identity, (2) privacy, (3) social affiliation, and (4) technological tendency that occurred in their inpatient room environments during their hospitalization period in the inpatient healthcare setting.

According to the children's observable need for the place attachment modality of *self-identity* in the *occupied actual situation* of inpatient rooms, reconsidering the interior design of the inpatient rooms' environment may provide a better inclusive design approach for children. Specially organized presentation boards for paintings or photographs, personalized shelves, exhibition units for toys, and a defined area for making handmade products or paintings can be the interior proposals for further inpatient room designs. The integration of these items into the inpatient rooms can be flexible with folding or sliding units while considering inpatient rooms' usage by adults. Besides, even though participants aged 12-14 years old need technological items more than the participants aged 7-11 years old, both age groups experience their inpatient room environment together with technological items. This result may lead to a novel kind of interior design approach to the integration of technological items or internet-purchased digital platforms into the interior of the inpatient rooms, at the beginning of the design process of the healthcare settings in the future.

Even though a significant correlation is not determined between the variables of the *imagined situation*, according to the total frequency of *social affiliation*, it is observed that participants represent the inpatient room that they would like to be hospitalized through the need for socialization. In this case, the healthcare setting's functional organization may be reconsidered in such a manner of providing appropriate areas for the socialization of children. Another remarkable point that should be mentioned in relation to socialization is the intensive tendency of children to draw natural items like flowers,

sun, clouds, or trees. Although closed social places can not be provided due to the infection risks, open areas like courtyards or small gardens can be integrated into the preliminary design phase of the healthcare setting considering children hospitalized in the inpatient rooms for a long time. Other remarkable point in this phase of the research is observing children's identification of internet-purchased digital platforms like Youtube or Netflix drawn next to the television in their drawings . In other words, it can be mentioned that even though the television is provided for each inpatient room, some additional technological applications are required by the children in their inpatient room environment.

It should be also mentioned that, as the number of participants is limited and the numbers of participants in related their age ranges are considerably different, both outcomes from the first phase (*actual occupied situation)* and the second phase (*imagined situation)* can not be generalized through the studies of environmental behaviors. Another limitation of this thesis is the fact that the demographic information and social structure of children were excluded from the content of the research. Children's family patterns, nationalities, or economic opportunities could be other essential determinants of their place attachment tendencies in their inpatient room environment. Besides, children's illness types and their physical conditions exluded from the variables of this research. Thus, the research can be extended and fortified through these social and physical variables in future studies. It is aimed to conduct the premise research method of childrens' place attachment tendencies in the context of their inpatient rooms.

APPENDIX A

APPENDIX A: Patient and companion approval form

APPENDIX B: Voluntary participation form

APPENDIX C: Drawing sheet of participants

APPENDIX D: Patient follow sheet

APPENDIX E: Participants' inpatient room photographs and drawings

APPENDIX F: Occupied Actual Situation Statistical Output Sheet

APPENDIX G: Imagined Situation Statistical Output Sheet

APPENDIX H: Letter of permission for the case study

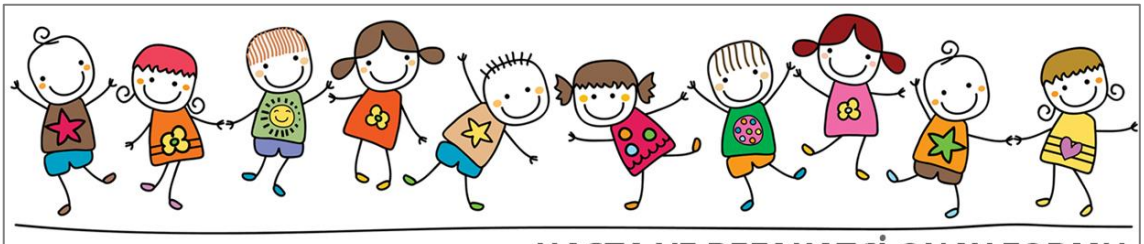
APPENDIX I: Letter of permission for the case study

APPENDIX J: Letter of permission for the case study

APPENDIX K: Letter of permission for the case study

APPENDIX L: Ethical committee report

APPENDIX A: Patient and companion approval form



HASTA VE REFAKATÇİ ONAY FORMU

Katılımcı No: _____

Araştırma Hakkında

Merhaba,

Ben Seda Dönmez. Özyeğin Üniversitesi Fen Bilimleri Enstitüsü Mimarlık Tezli Yüksek Lisans Programı öğrencisiyim.

'*Pediatri Hastalarının, Hasta Odalarına İlişkin Algılarının Mekansal Aidiyet Bağlamında İrdelenmesi*' başlıklı yüksek lisans tez çalışması kapsamında, yatarak tedavi gören çocukların algılarını, mekansal aidiyet bağlamında inceleyen araştırmama katılmanız konusunda desteğinizi rica ederim.

Teşekkür ederim.

Hasta ve Refakatçi Hakkında

Refakatçisi olduğum hastanın araştırmaya katılmasını istiyorum: Evet ◯ Hayır ◯

Hastanın Yaşı: _____ Hastanın Cinsiyeti: Kız ◯ Erkek ◯

Hastanın Odada Kalış Süresi: _____

Refakatçinin Adı: _____

Refakatçinin Yakınlık Derecesi: _____

Hastanın Sınıf Düzeyi: İlkokul ① ② ③ ④ Ortaokul ⑤ ⑥ ⑦ ⑧ Diğer:_____

Refakatçinin Eğitim Durumu: Okur yazar değil ◯ Okur yazar ◯ İlkokul ◯

Ortaokul ◯ Lise ◯ Lisans ◯

Lisansüstü ◯

Hastanın (varsa) Kardeş Sayısı ve Kardeşlerinin Yaşları: _____

Çocuğunuzla Birlikte İkamet Ettiğiniz İl ve İlçe: _____

Refakatçinin İmzası: _____

APPENDIX B.1: Voluntary participation form

ÖZYEĞİN ÜNİVERSİTESİ

Gönüllü Katılım Onay Formu (Form B)

Projenin Adı: **Pediatri Hastalarının, Hasta Odalarına İlişkin Algılarının Mekansal Aidiyet Bağlamında İrdelenmesi**

Proje yürütücüsünün adı ve iletişim bilgileri: Seda Dönmez
seda.donmez@ozyegin.edu.tr & seda.donmez@ozu.edu.tr

Proje bütçesine katkı ile ve/veya diğer şekillerde projeyi destekleyen kuruluşlar: -

Projenin amacı: Bu araştırma, uzun süre yatarak tedavi gören çocukların, hasta odalarıyla kurdukları mekansal aidiyet ihtiyacını incelemektedir. Çocuğun tedavi gördüğü belirli bir sürenin sonunda, odasına kendi istek ve ihtiyaçlarını yansıtan eklemeler yaptığı öngörülmektedir. Bu olası eklemeler, çocuğun bulunduğu odaya daha çok 'kendisine ait' algılama ihtiyacından doğmaktadır. Projenin ilk amacı, hasta odasının gerçek durumda çocukların mekansal aidiyet algısını güçlendirecek oda içindeki değişiklikleri tespit etmekdir. Bu tespitler, hasta odasının fotograflarının çekilmesi suretiyle belirlenecektir. Projenin ikinci amacı ise, çocukların bulunmak istedikleri hasta odasını çizecekleri resimlerin analiz edilmesi suretiyle mekansal aidiyet isteklerini incelemektir. Bu araştırmada ortaya konması hedeflenen olası sonuçlar sayesinde, kendilerine yabancı bir ortamda tedavi görmekte olan çocukların, bulundukları ortama ilişkin aidiyetlerine yönelik daha hızlı ve etkili tasarım çözüm önerileri getirebilir.

Süreç: Araştırma kriterine uyan çocuğun refakatçisine, araştırmanın amacı ve kapsamı sözlü olarak ifade edilecektir. Refakatçi, çocuğunun araştırmaya katılmasını kabul eder ise, refakatçinin imzalı onayı alındıktan sonra ve çocuğun da araştırmaya katılmayı istemesi halinde, belirli bir süredir tedavi gören çocukların odaları, araştırmacı tarafından fotoğraflanacaktır. Bu ilk aşamadaki amaç çocuğun hasta odasında tedavi olduğu süre boyunca o odayla kurduğu mekansal aidiyet ilişkisini incelemektir. İkinci aşamada, çocuklara sunulacak olan çizim föyüne, kalmayı isteyecekleri odanın resmini çizmeleri istenecektir. Toplamda 30 dakikalık bir süre sonunda bu çizimler araştırmacı tarafından toplanacaktır.

Gizlilik: Araştırmanın hiçbir aşamasında katılımcı çocukların isimlerine yer verilmeyecektir. 'Hasta ve Refakatçi Onay Formu' ile 'Gönüllü Katılım Onay Formu'nda refakatçinin ismi ve imzası olacak, bu formlar da sadece araştırmacının arşivinde saklı tutulacaktır. Araştırma için kullanılacak tüm veriler numaralandırma ve kodlamalar şeklinde olacaktır. Katılımcı çocukların yaptıkları resimler, tezinn ekinde isim belirtmeksizin paylaşılacaktır.

APPENDIX B.2: Voluntary participation form

ÖZYEĞİN ÜNİVERSİTESİ

Gönüllü Katılım: Bu projeye katılım tamamen gönüllülük esasına dayanmaktadır. Alan çalışmasının herhangi bir anında, çalışmadan çekilme hakkınız vardır ve katılımı reddetmek herhangi bir zarara yol açmayacaktır. Refakatçinin izni olmadan çocuklarla herhangi bir iletişime geçilmeyecektir. Çocuğun araştırmaya katılmak istememesi halinde, refakatçi izni olsa dahi araştırmaya devam edilmeyecektir.

Bu formda anlatılan araştırmanın etik yönleriyle ilgili soru veya görüşleriniz varsa lütfen Özyeğin Üniversitesi Etik Kurulu ile (216) 564 9846 numaralı telefondan temasa geçiniz.

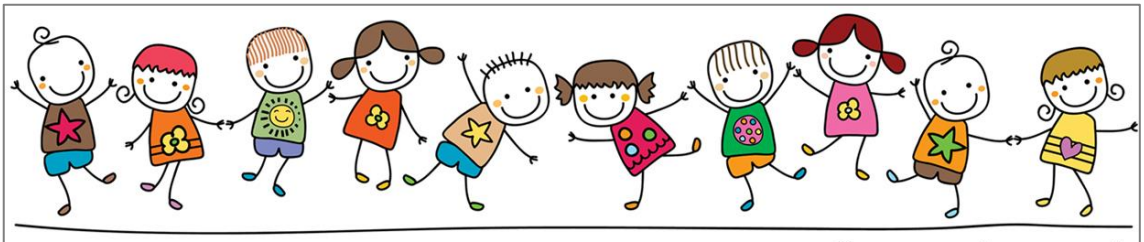
Yukarıda sözü geçen **Pediatri Hastalarının, Hasta Odalarına İlişkin Algılarının Mekansal Aidiyet Bağlamında İrdelenmesi** isimli araştırma projesinin detaylarını okudum ve bu proje ile ilgili sorularım cevaplandı. Bu çalışmaya gönüllü olarak katılıyorum.

_____ _____

İsim Soyadı Tarih

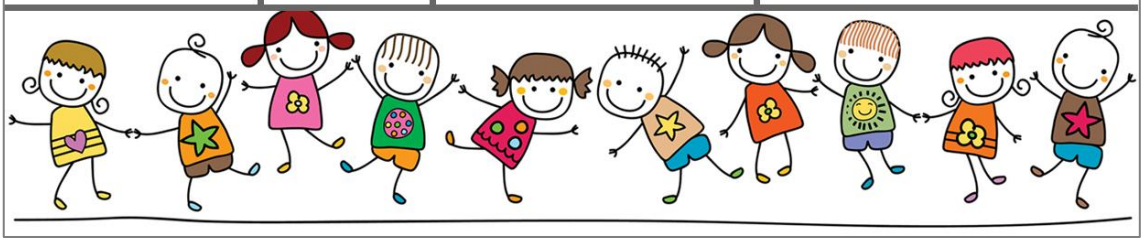
APPENDIX C: Drawing sheet of participants

APPENDIX D: Patient follow sheet



HASTA ODA YATIŞ / TABURCU GÖZLEM ÇİZELGESİ

KATILIMCI NO	ODA NO	HASTA YATIŞ TARİHİ	ALAN ÇALIŞMASI TARİHİ



APPENDIX E.1: Standard inpatient room photographs & occupied inpatient room photographs & drawing of the Participant 1

Standard Inpatient Room – Floor 1-2

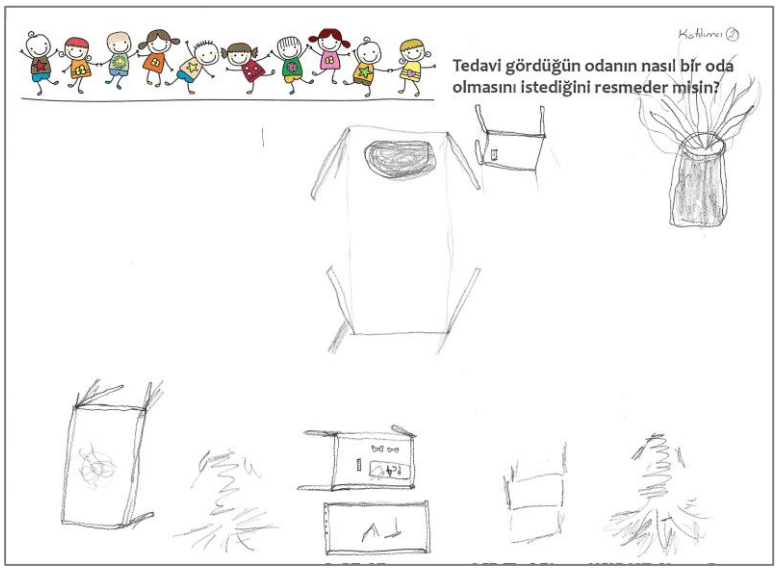
Occupied Inpatient Room – Floor 1-2

Drawing of the Participant 1 (Imagined Situation)

APPENDIX E.2: Standard inpatient room photographs & occupied inpatient room photographs & drawing of the Participant 2

Standard Inpatient Room – Floor 1-2

Occupied Inpatient Room – Floor 1-2



Drawing of the Participant 2 (Imagined Situation)

APPENDIX E.3: Standard inpatient room photographs & occupied inpatient room photographs & drawing of the Participant 3

Standard Inpatient Room – Floor 1-2

Occupied Inpatient Room – Floor 1-2

Drawing of the Participant 3 (Imagined Situation)

APPENDIX E.4: Standard inpatient room photographs & occupied inpatient room photographs & drawing of the Participant 4

Standard Inpatient Room – Floor 1-1

Occupied Inpatient Room – Floor 1-1

Drawing of the Participant 4 (Imagined Situation)

APPENDIX E.5: Standard inpatient room photographs 2 & occupied inpatient room photographs & drawing of the Participant 5

Standard Inpatient Room – Floor 1-2

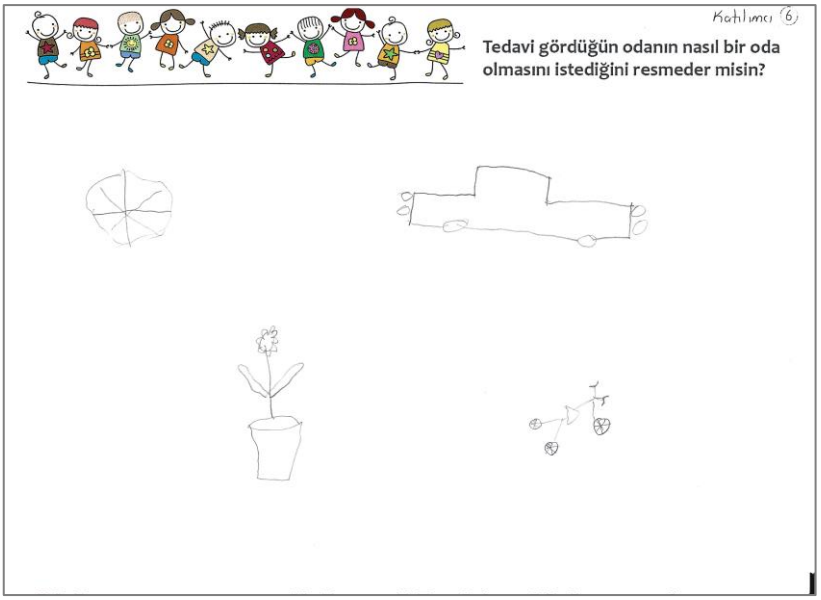
Occupied Inpatient Room – Floor 1-2

THE PARTICIPANT DID NOT ACCEPT TO PARTICIPATE THE SECOND PHASE OF THE CASE STUDY

APPENDIX E.6: Standard inpatient room photographs & occupied inpatient room photographs & drawing of the Participant 6

Standard Inpatient Room – Floor 1-2

Occupied Inpatient Room – Floor 1-2



Drawing of the Participant 6 (Imagined Situation)

APPENDIX E.7: Standard inpatient room photographs & occupied inpatient room photographs & drawing of the Participant 7

Standard Inpatient Room – Floor 1-2

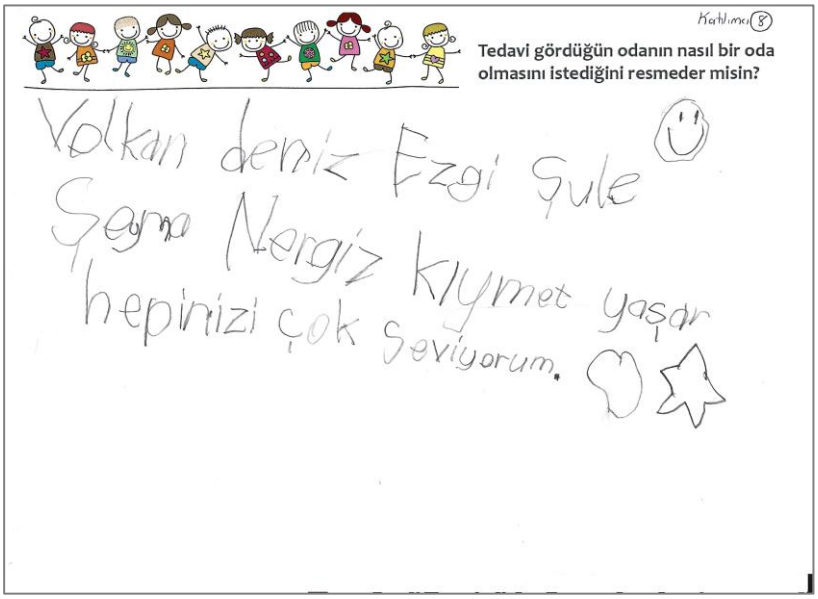
Occupied Inpatient Room – Floor 1-2

THE PARTICIPANT DID NOT ACCEPT TO PARTICIPATE THE SECOND PHASE OF THE CASE STUDY

APPENDIX E.8: Standard inpatient room photographs & occupied inpatient room photographs & drawing of the Participant 8

Standard Inpatient Room – Floor 1-4

Occupied Inpatient Room – Floor 1-4



Drawing of the Participant 8 (Imagined Situation)

APPENDIX E.9: Standard inpatient room photographs & occupied inpatient room photographs & drawing of the Participant 9

Standard Inpatient Room – Floor 1-3

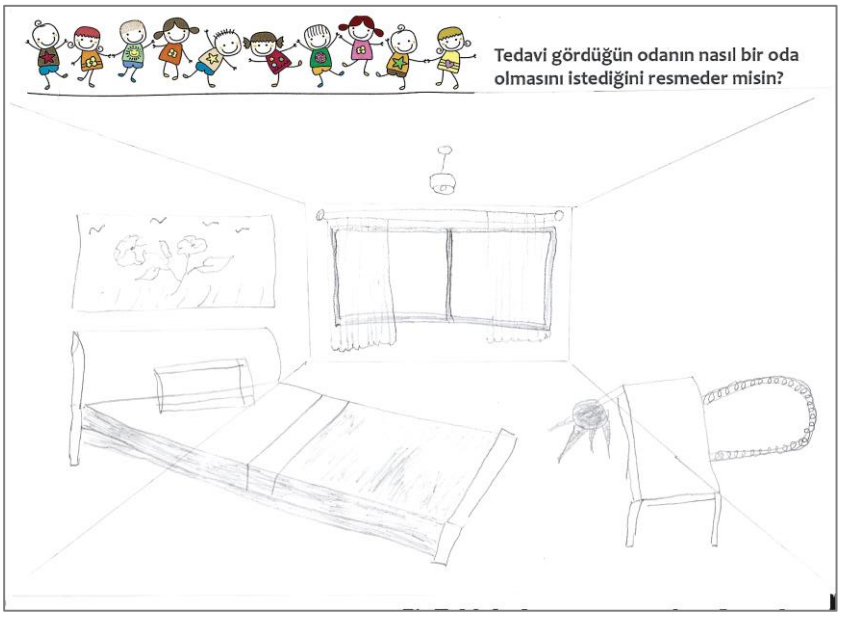
Occupied Inpatient Room – Floor 1-3

Drawing of the Participant 9 (Imagined Situation)

APPENDIX E.10: Standard inpatient room photographs & occupied inpatient room photographs & drawing of the Participant 10

Standard Inpatient Room – Floor 1-3

Occupied Inpatient Room – Floor 1-3

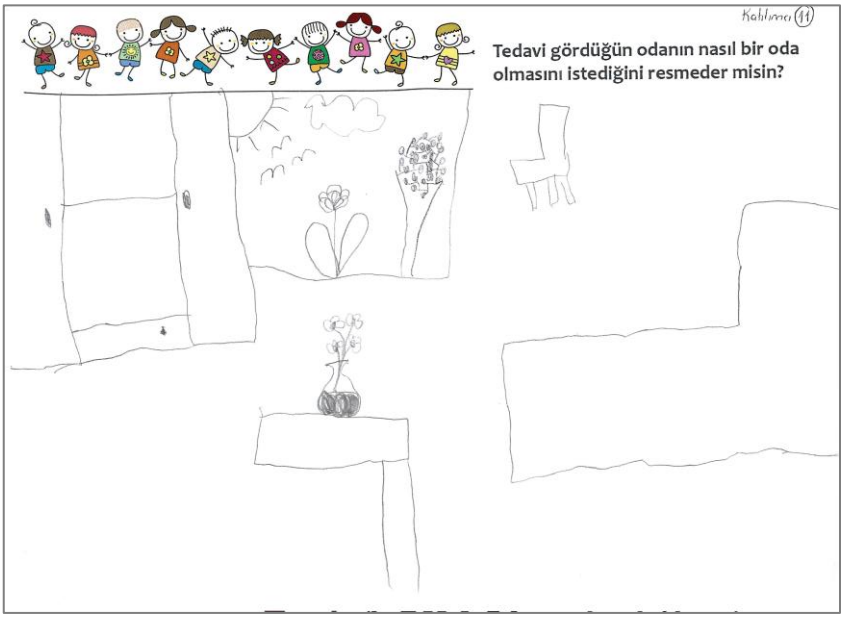


Drawing of the Participant 10 (Imagined Situation)

APPENDIX E.11: Standard inpatient room photographs & occupied inpatient room photographs & drawing of the Participant 11

Standard Inpatient Room – Floor 1-2

Occupied Inpatient Room – Floor 1-2



Drawing of the Participant 11 (Imagined Situation)

APPENDIX E.12: Standard inpatient room photographs & occupied inpatient room photographs & drawing of the Participant 12

Standard Inpatient Room – Floor 1-3

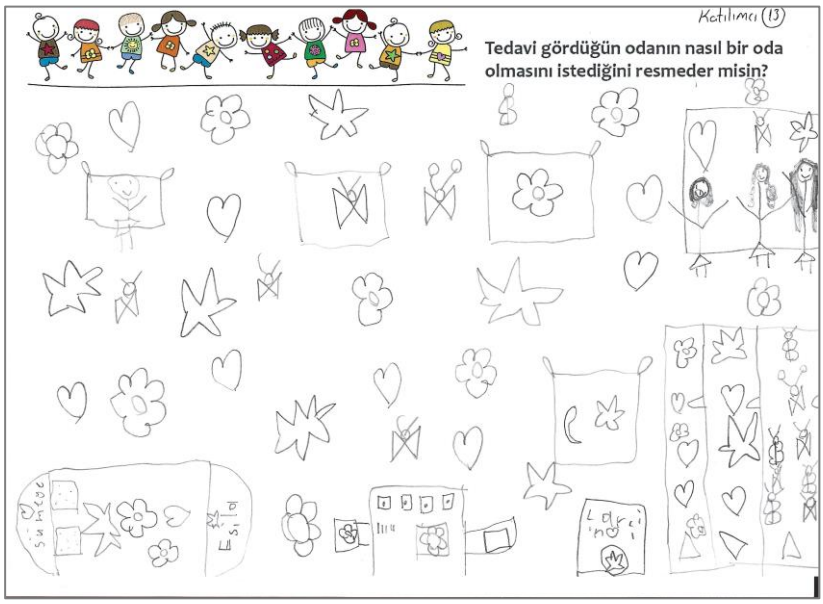
Occupied Inpatient Room – Floor 1-3

THE PARTICIPANT DID NOT ACCEPT TO PARTICIPATE THE SECOND PHASE OF THE CASE STUDY

APPENDIX E.13: Standard inpatient room photographs & occupied inpatient room photographs & drawing of the Participant 13

Standard Inpatient Room – Floor 2-4

Occupied Inpatient Room – Floor 2-4



Drawing of the Participant 13 (Imagined Situation)

APPENDIX E.14: Standard inpatient room photographs & occupied inpatient room photographs & drawing of the Participant 14

Standard Inpatient Room – Floor 2-4

Occupied Inpatient Room – Floor 2-4

Drawing of the Participant 14 (Imagined Situation)

APPENDIX E.15: Standard inpatient room photographs & occupied inpatient room photographs & drawing of the Participant 15

Standard Inpatient Room – Floor 2-4

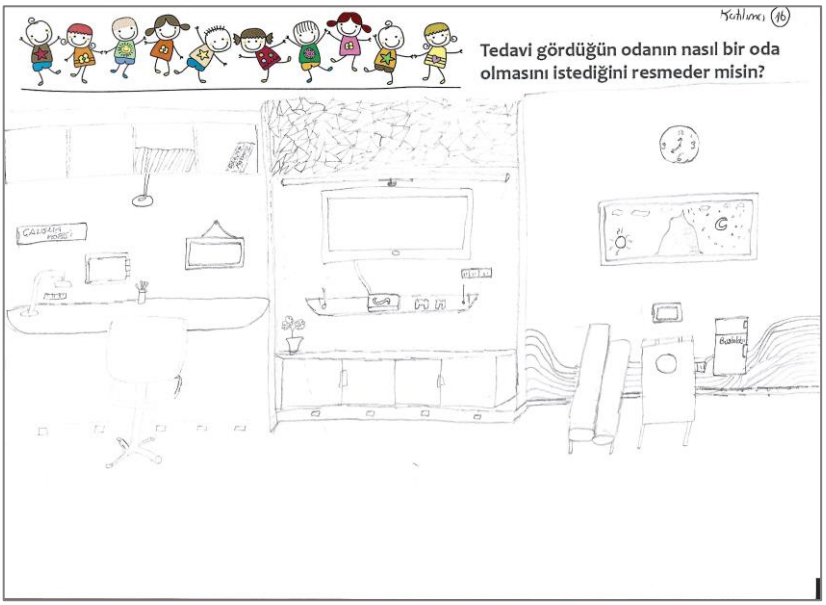
Occupied Inpatient Room – Floor 2-4

Drawing of the Participant 15 (Imagined Situation)

APPENDIX E.16: Standard inpatient room photographs & occupied inpatient room photographs & drawing of the Participant 16

Standard Inpatient Room – Floor 2-3

Occupied Inpatient Room – Floor 2-3



Drawing of the Participant 16 (Imagined Situation)

APPENDIX E.17: Standard inpatient room photographs & occupied inpatient room photographs & drawing of the Participant 17

Standard Inpatient Room – Floor 1-2

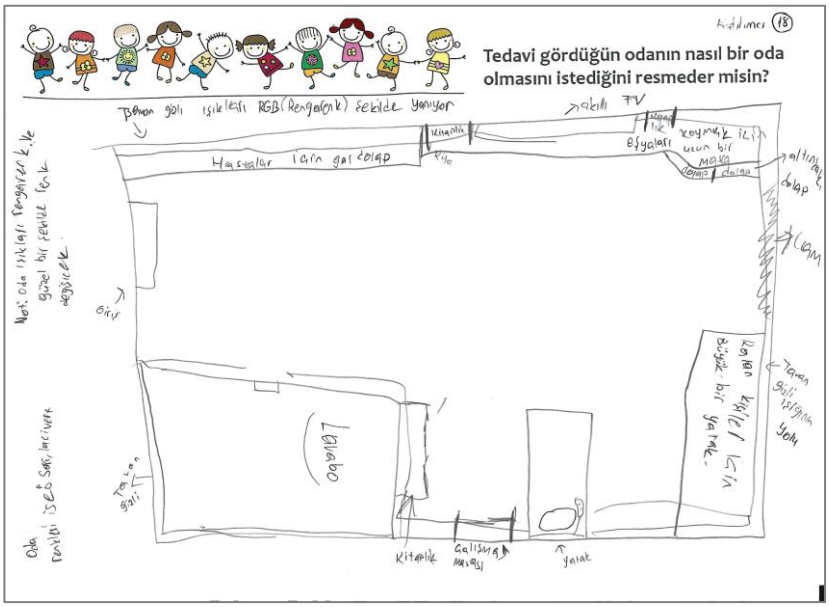
Occupied Inpatient Room – Floor 1-2

Drawing of the Participant 17 (Imagined Situation)

APPENDIX E.18: Standard inpatient room photographs & occupied inpatient room photographs & drawing of the Participant 18

Standard Inpatient Room – Floor 2-2

Occupied Inpatient Room – Floor 2-2



Drawing of the Participant 18 (Imagined Situation)

APPENDIX E.19: Standard inpatient room photographs & occupied inpatient room photographs & drawing of the Participant 19

Standard Inpatient Room – Floor 2-3

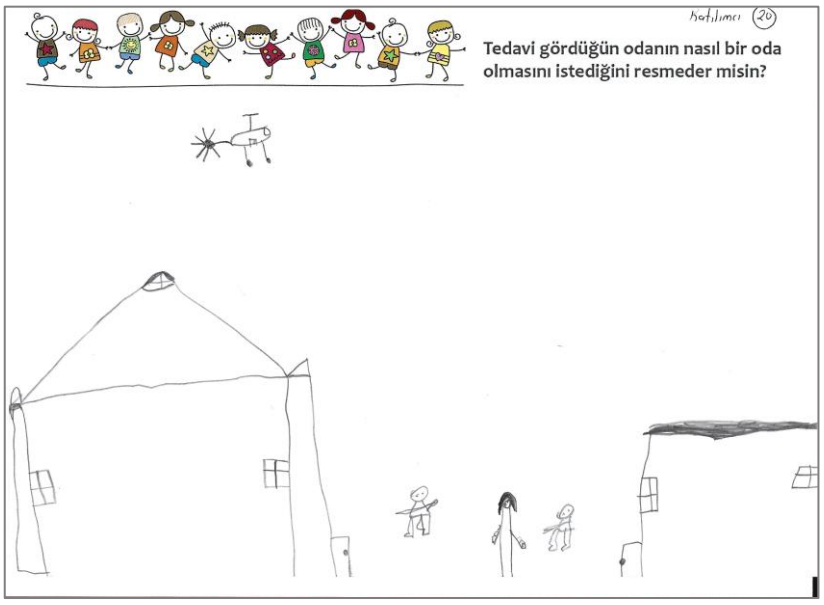
Occupied Inpatient Room – Floor 2-3

Drawing of the Participant 19 (Imagined Situation)

APPENDIX E.20: Standard inpatient room photographs & occupied inpatient room photographs & drawing of the Participant 20

Standard Inpatient Room – Floor 2-1

Occupied Inpatient Room – Floor 2-1

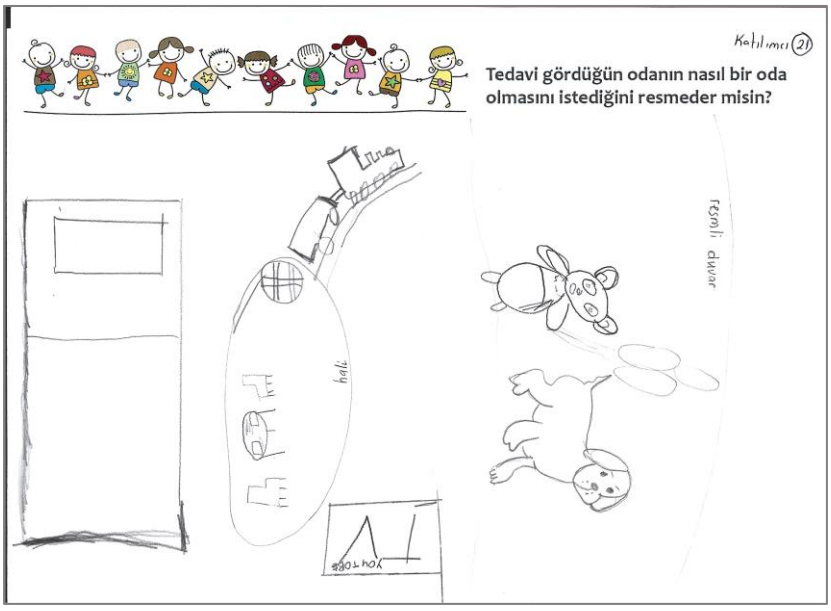


Drawing of the Participant 20 (Imagined Situation)

APPENDIX E.21: Standard inpatient room photographs & occupied inpatient room photographs & drawing of the Participant 21

Standard Inpatient Room – Floor 2-1

Occupied Inpatient Room – Floor 2-1

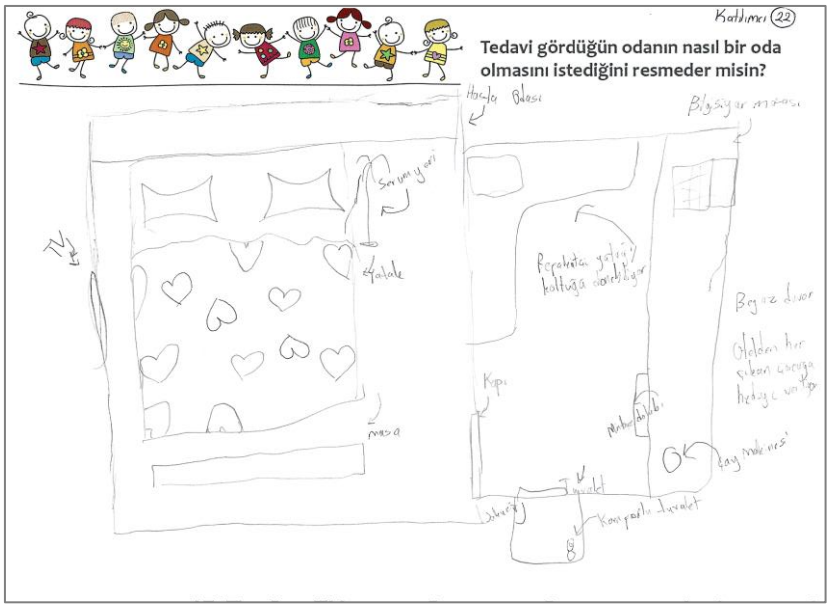


Drawing of the Participant 21 (Imagined Situation)

APPENDIX E.22: Standard inpatient room photographs & occupied inpatient room photographs & drawing of the Participant 22

Standard Inpatient Room – Room 2-2

Occupied Inpatient Room – Floor 2-2



Drawing of the Participant 22 (Imagined Situation)

APPENDIX E.23: Standard inpatient room photographs & occupied inpatient room photographs & drawing of the Participant 23

Standard Inpatient Room – Room 2-4

Occupied Inpatient Room – Floor 2-4

Drawing of the Participant 23 (Imagined Situation)

APPENDIX E.24: Standard inpatient room photographs & occupied inpatient room photographs & drawing of the Participant 24

Standard Inpatient Room – Room 2-4

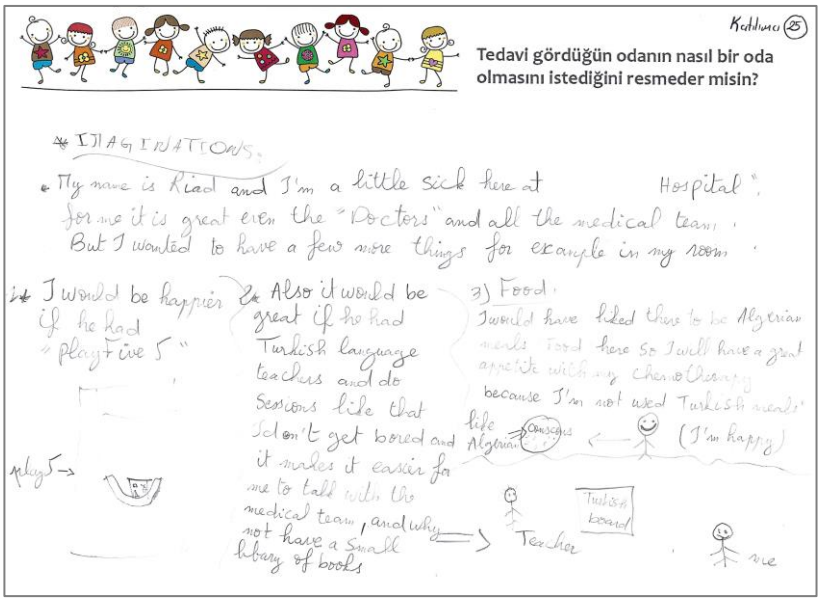
Occupied Inpatient Room – Floor 2-4

THE PARTICIPANT DID NOT ACCEPT TO PARTICIPATE THE SECOND PHASE OF THE CASE STUDY

APPENDIX E.25: Standard inpatient room photographs & occupied inpatient room photographs & drawing of the Participant 25

Standard Inpatient Room – Floor 1-2

Occupied Inpatient Room – Floor 1-2



Drawing of the Participant 25 (Imagined Situation)

APPENDIX E.26: Standard inpatient room photographs & occupied inpatient room photographs & drawing of the Participant 26

Standard Inpatient Room – Floor 2-1

Occupied Inpatient Room – Floor 2-1

Drawing of the Participant 26 (Imagined Situation)

APPENDIX E.27: Standard inpatient room photographs & occupied inpatient room photographs & drawing of the Participant 27

Standard Inpatient Room – Room 2-3

Occupied Inpatient Room – Floor 2-3

Drawing of the Participant 27 (Imagined Situation)

APPENDIX E.28: Standard inpatient room photographs & occupied inpatient room photographs & drawing of the Participant 28

Standard Inpatient Room – Room 2-4

Occupied Inpatient Room – Floor 2-4

THE PARTICIPANT DID NOT ACCEPT TO PARTICIPATE THE SECOND PHASE OF THE CASE STUDY

APPENDIX E.29: Standard inpatient room photographs & occupied inpatient room photographs & drawing of the Participant 29

Standard Inpatient Room – Room 2-3

Occupied Inpatient Room – Floor 2-3

Drawing of the Participant 29 (Imagined Situation)

APPENDIX E.30: Standard inpatient room photographs & occupied inpatient room photographs & drawing of the Participant 30

Standard Inpatient Room – Room 2-2

Occupied Inpatient Room – Floor 2-2

APPENDIX E.31: Standard inpatient room photographs & occupied inpatient room photographs & drawing of the Participant 31

Standard Inpatient Room – Room 2-2

Occupied Inpatient Room – Floor 2-2

THE PARTICIPANT DID NOT ACCEPT TO PARTICIPATE THE SECOND PHASE OF THE CASE STUDY

APPENDIX E.32: Standard inpatient room photographs & occupied inpatient room photographs & drawing of the Participant 32

Standard Inpatient Room – Room 2-1

Occupied Inpatient Room – Floor 2-1

THE PARTICIPANT DID NOT ACCEPT TO PARTICIPATE THE SECOND PHASE OF THE CASE STUDY

APPENDIX E.33: Standard inpatient room photographs & occupied inpatient room photographs & drawing of the Participant 33

Standard Inpatient Room – Room 2-1

Occupied Inpatient Room – Floor 2-2

THE PARTICIPANT DID NOT ACCEPT TO PARTICIPATE THE SECOND PHASE OF THE CASE STUDY

APPENDIX F.1: Occupied Actual Situation Statistical Output Sheet-1

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Selfidentity	33	100,0%	0	0,0%	33	100,0%

Descriptives

			Statistic	Std. Error
Selfidentity	Mean		1,70	,421
	95% Confidence Interval for Mean	Lower Bound	,84	
		Upper Bound	2,55	
	5% Trimmed Mean		1,42	
	Median		,00	
	Variance		5,843	
	Std. Deviation		2,417	
	Minimum		0	
	Maximum		10	
	Range		10	
	Interquartile Range		3	
	Skewness		1,665	,409
	Kurtosis		2,947	,798

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Selfidentity	,274	33	<,001	,744	33	<,001

a. Lilliefors Significance Correction

APPENDIX F.2: Occupied Actual Situation Statistical Output Sheet-2

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
SocialAffiliation	33	100,0%	0	0,0%	33	100,0%

Descriptives

			Statistic	Std. Error
SocialAffiliation	Mean		,09	,067
	95% Confidence Interval for Mean	Lower Bound	-,05	
		Upper Bound	,23	
	5% Trimmed Mean		,01	
	Median		,00	
	Variance		,148	
	Std. Deviation		,384	
	Minimum		0	
	Maximum		2	
	Range		2	
	Interquartile Range		0	
	Skewness		4,503	,409
	Kurtosis		20,828	,798

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
SocialAffiliation	,533	33	<,001	,257	33	<,001

a. Lilliefors Significance Correction

APPENDIX F.3: Occupied Actual Situation Statistical Output Sheet-3

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
TechnologicalTendencies	33	100,0%	0	0,0%	33	100,0%

Descriptives

			Statistic	Std. Error
TechnologicalTendencies	Mean		,24	,076
	95% Confidence Interval for Mean	Lower Bound	,09	
		Upper Bound	,40	
	5% Trimmed Mean		,21	
	Median		,00	
	Variance		,189	
	Std. Deviation		,435	
	Minimum		0	
	Maximum		1	
	Range		1	
	Interquartile Range		1	
	Skewness		1,260	,409
	Kurtosis		-,443	,798

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
TechnologicalTendencies	,469	33	<,001	,534	33	<,001

a. Lilliefors Significance Correction

APPENDIX F.4: Occupied Actual Situation Statistical Output Sheet-4

Ranks

	Gender	N	Mean Rank	Sum of Ranks
Selfidentity	Female	15	18,30	274,50
	Male	18	15,92	286,50
	Total	33		

Test Statistics[a]

	Selfidentity
Mann-Whitney U	115,500
Wilcoxon W	286,500
Z	-,760
Asymp. Sig. (2-tailed)	,447
Exact Sig. [2*(1-tailed Sig.)]	,486[b]

a. Grouping Variable: Gender

b. Not corrected for ties.

Ranks

	Gender	N	Mean Rank	Sum of Ranks
SocialAffiliation	Female	15	17,07	256,00
	Male	18	16,94	305,00
	Total	33		

Test Statistics[a]

	SocialAffiliation
Mann-Whitney U	134,000
Wilcoxon W	305,000
Z	-,087
Asymp. Sig. (2-tailed)	,930
Exact Sig. [2*(1-tailed Sig.)]	,986[b]

a. Grouping Variable: Gender

b. Not corrected for ties.

APPENDIX F.5: Occupied Actual Situation Statistical Output Sheet-5

Ranks

	Gender	N	Mean Rank	Sum of Ranks
TechnologicalTendencies	Female	15	17,40	261,00
	Male	18	16,67	300,00
	Total	33		

Test Statistics[a]

	Technological Tendencies
Mann-Whitney U	129,000
Wilcoxon W	300,000
Z	-,292
Asymp. Sig. (2-tailed)	,770
Exact Sig. [2*(1-tailed Sig.)]	,845[b]

a. Grouping Variable: Gender

b. Not corrected for ties.

Ranks

	Age	N	Mean Rank	Sum of Ranks
Selfidentity	7-11 years	25	17,54	438,50
	12-14 years	8	15,31	122,50
	Total	33		

Test Statistics[a]

	Selfidentity
Mann-Whitney U	86,500
Wilcoxon W	122,500
Z	-,611
Asymp. Sig. (2-tailed)	,541
Exact Sig. [2*(1-tailed Sig.)]	,578[b]

a. Grouping Variable: Age

b. Not corrected for ties.

APPENDIX F.6: Occupied Actual Situation Statistical Output Sheet-6

Ranks

	Age	N	Mean Rank	Sum of Ranks
SocialAffiliation	7-11 years	25	17,32	433,00
	12-14 years	8	16,00	128,00
	Total	33		

Test Statistics[a]

	SocialAffiliation
Mann-Whitney U	92,000
Wilcoxon W	128,000
Z	-,812
Asymp. Sig. (2-tailed)	,417
Exact Sig. [2*(1-tailed Sig.)]	,757[b]

a. Grouping Variable: Age

b. Not corrected for ties.

Ranks

	Age	N	Mean Rank	Sum of Ranks
TechnologicalTendencies	7-11 years	25	15,64	391,00
	12-14 years	8	21,25	170,00
	Total	33		

Test Statistics[a]

	Technological Tendencies
Mann-Whitney U	66,000
Wilcoxon W	391,000
Z	-1,923
Asymp. Sig. (2-tailed)	,054
Exact Sig. [2*(1-tailed Sig.)]	,162[b]

a. Grouping Variable: Age

b. Not corrected for ties.

APPENDIX G.1: Imagined Situation Statistical Output Sheet-1

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Selfidentity	25	100,0%	0	0,0%	25	100,0%

Descriptives

			Statistic	Std. Error
Selfidentity	Mean		4,32	,854
	95% Confidence Interval for Mean	Lower Bound	2,56	
		Upper Bound	6,08	
	5% Trimmed Mean		3,76	
	Median		3,00	
	Variance		18,227	
	Std. Deviation		4,269	
	Minimum		0	
	Maximum		21	
	Range		21	
	Interquartile Range		5	
	Skewness		2,637	,464
	Kurtosis		9,363	,902

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Selfidentity	,197	25	,014	,740	25	<,001

a. Lilliefors Significance Correction

APPENDIX G.2: Imagined Situation Statistical Output Sheet-2

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Privacy	25	100,0%	0	0,0%	25	100,0%

Descriptives

			Statistic	Std. Error
Privacy	Mean		3,88	,740
	95% Confidence Interval for Mean	Lower Bound	2,35	
		Upper Bound	5,41	
	5% Trimmed Mean		3,66	
	Median		3,00	
	Variance		13,693	
	Std. Deviation		3,700	
	Minimum		0	
	Maximum		12	
	Range		12	
	Interquartile Range		6	
	Skewness		,843	,464
	Kurtosis		-,172	,902

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Privacy	,174	25	,049	,884	25	,008

a. Lilliefors Significance Correction

APPENDIX G.3: Imagined Situation Statistical Output Sheet-3

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
SocialAffiliation	25	100,0%	0	0,0%	25	100,0%

Descriptives

			Statistic	Std. Error
SocialAffiliation	Mean		5,08	1,463
	95% Confidence Interval for Mean	Lower Bound	2,06	
		Upper Bound	8,10	
	5% Trimmed Mean		4,02	
	Median		3,00	
	Variance		53,493	
	Std. Deviation		7,314	
	Minimum		0	
	Maximum		32	
	Range		32	
	Interquartile Range		8	
	Skewness		2,387	,464
	Kurtosis		7,110	,902

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
SocialAffiliation	,244	25	<,001	,713	25	<,001

a. Lilliefors Significance Correction

APPENDIX G.4: Imagined Situation Statistical Output Sheet-4

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
TechnologicalTendencies	25	100,0%	0	0,0%	25	100,0%

Descriptives

			Statistic	Std. Error
TechnologicalTendencies	Mean		,56	,201
	95% Confidence Interval for Mean	Lower Bound	,15	
		Upper Bound	,97	
	5% Trimmed Mean		,46	
	Median		,00	
	Variance		1,007	
	Std. Deviation		1,003	
	Minimum		0	
	Maximum		3	
	Range		3	
	Interquartile Range		1	
	Skewness		1,570	,464
	Kurtosis		1,108	,902

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
TechnologicalTendencies	,432	25	<,001	,612	25	<,001

a. Lilliefors Significance Correction

APPENDIX G.5: Imagined Situation Statistical Output Sheet-5

Ranks

	Gender	N	Mean Rank	Sum of Ranks
Selfidentity	Female	11	12,00	132,00
	Male	14	13,79	193,00
	Total	25		

Test Statistics[a]

	Selfidentity
Mann-Whitney U	66,000
Wilcoxon W	132,000
Z	-,608
Asymp. Sig. (2-tailed)	,543
Exact Sig. [2*(1-tailed Sig.)]	,572[b]

a. Grouping Variable: Gender

b. Not corrected for ties.

Ranks

	Gender	N	Mean Rank	Sum of Ranks
Privacy	Female	11	13,91	153,00
	Male	14	12,29	172,00
	Total	25		

Test Statistics[a]

	Privacy
Mann-Whitney U	67,000
Wilcoxon W	172,000
Z	-,553
Asymp. Sig. (2-tailed)	,580
Exact Sig. [2*(1-tailed Sig.)]	,609[b]

a. Grouping Variable: Gender

b. Not corrected for ties.

APPENDIX G.6: Imagined Situation Statistical Output Sheet-6

Ranks

	Gender	N	Mean Rank	Sum of Ranks
SocialAffiliation	Female	11	15,27	168,00
	Male	14	11,21	157,00
	Total	25		

Test Statistics[a]

	SocialAffiliation
Mann-Whitney U	52,000
Wilcoxon W	157,000
Z	-1,431
Asymp. Sig. (2-tailed)	,152
Exact Sig. [2*(1-tailed Sig.)]	,183[b]

a. Grouping Variable: Gender

b. Not corrected for ties.

Ranks

	Gender	N	Mean Rank	Sum of Ranks
TechnologicalTendencies	Female	11	12,00	132,00
	Male	14	13,79	193,00
	Total	25		

Test Statistics[a]

	Technological Tendencies
Mann-Whitney U	66,000
Wilcoxon W	132,000
Z	-,762
Asymp. Sig. (2-tailed)	,446
Exact Sig. [2*(1-tailed Sig.)]	,572[b]

a. Grouping Variable: Gender

b. Not corrected for ties.

APPENDIX G.7: Imagined Situation Statistical Output Sheet-7

Ranks

	Age	N	Mean Rank	Sum of Ranks
Selfidentity	7-11 years	20	12,28	245,50
	12-14 years	5	15,90	79,50
	Total	25		

Test Statistics[a]

	Selfidentity
Mann-Whitney U	35,500
Wilcoxon W	245,500
Z	-,994
Asymp. Sig. (2-tailed)	,320
Exact Sig. [2*(1-tailed Sig.)]	,336[b]

a. Grouping Variable: Age

b. Not corrected for ties.

Ranks

	Age	N	Mean Rank	Sum of Ranks
Privacy	7-11 years	20	11,83	236,50
	12-14 years	5	17,70	88,50
	Total	25		

Test Statistics[a]

	Privacy
Mann-Whitney U	26,500
Wilcoxon W	236,500
Z	-1,614
Asymp. Sig. (2-tailed)	,107
Exact Sig. [2*(1-tailed Sig.)]	,112[b]

a. Grouping Variable: Age

b. Not corrected for ties.

APPENDIX G.8: Imagined Situation Statistical Output Sheet-8

Ranks

	Age	N	Mean Rank	Sum of Ranks
SocialAffiliation	7-11 years	20	13,20	264,00
	12-14 years	5	12,20	61,00
	Total	25		

Test Statistics[a]

	SocialAffiliation
Mann-Whitney U	46,000
Wilcoxon W	61,000
Z	-,284
Asymp. Sig. (2-tailed)	,776
Exact Sig. [2*(1-tailed Sig.)]	,818[b]

a. Grouping Variable: Age

b. Not corrected for ties.

Ranks

	Age	N	Mean Rank	Sum of Ranks
TechnologicalTendencies	7-11 years	20	12,00	240,00
	12-14 years	5	17,00	85,00
	Total	25		

Test Statistics[a]

	Technological Tendencies
Mann-Whitney U	30,000
Wilcoxon W	240,000
Z	-1,719
Asymp. Sig. (2-tailed)	,086
Exact Sig. [2*(1-tailed Sig.)]	,192[b]

a. Grouping Variable: Age

b. Not corrected for ties.

APPENDIX H: Letter of permission for the case study

Sayı:530/2022 **13.05.2022**
Konu: Seda Dönmez Proje Çalışması Hk.

T.C
ÖZYEĞİN ÜNİVERSİTESİ DEKANLIĞI'NA

[redacted] İstanbul adresinde 'Özel [redacted] Hastanesi' olarak hizmet vermekteyiz.

Özyeğin Üniversitesi Fen Bilimleri Enstitüsü, Mimarlık Fakültesi, Mimarlık Yüksek Lisans öğrencisi **Seda Dönmez**'in yürütücülüğünü üstleneceği **"Pediatri Hastalarının, Hasta Odalarına İlişkin Algılarının Mekansal Aidiyet Bağlamında İrdelenmesi"** başlıklı proje çalışmasını hastanemiz bünyesinde tedavi gören pediatri hastaları ile yapması uygun görülmüştür.

Saygılarımla,

[redacted]
Mesul Müdür/Başhekim
Hastane Direktörü

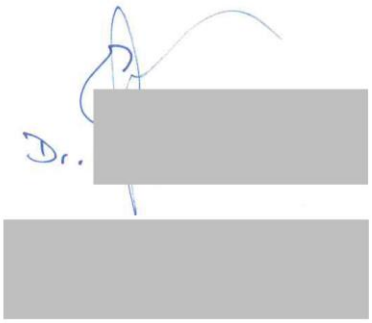
APPENDIX I: Letter of permission for the case study

09.09.2021

İlgili Makama,

Seda Dönmez'in **"Pediatri Hastalarının, Hasta Odalarına İlişkin Algılarının Mekansal Aidiyet Bağlamında İncelenmesi"** başlıklı ve **2021/14/01** etik numaralı yüksek lisans tez çalışmasında yer alan pediatrik hematoloji hasta ve refakatçilerine yönelik girişimsel çalışmayı kurumumuzda gerçekleştirmesine onay verilmiştir. Tez çalışmasında kişi ve kurum adlarının kullanılmayacağına karşılıklı olarak karar verilmiştir.

Bilgilerinize sunar, gereğini arz ederiz.



APPENDIX J: Letter of permission for the case study

Tarih: 14/08/2021
Sayı: 44121234-903.07.02-E.049692
0000049692

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YÖK İLİŞKİLERİ KOORDİNATÖRLÜĞÜ

Sayı : E-44121234-903.07.02-049692 14/08/2021
Konu : Seda Dönmez Alan Çalışması

[redacted] HASTANESİNE

Özyeğin Üniversitesi Fen Bilimleri Enstitüsü, Mimarlık Tezli Yüksek Lisans Programı öğrencisi Seda Dönmez'in "Analyzing Perceptions of Pediatric Inpatients in the Context of Place Attachment Regarding Their Inpatient Wards" başlıklı yüksek lisans tezinin alan çalışması kapsamında, Pediatrik Hematoloji Servisinde tedavi görmekte olan çocuklarla hastanenizde çalışma yapması hususunda izin verilmesini rica ederim.

Saygılarımla,

Prof. Dr. F. Esra Gençtürk
Rektör

EK: 1) Seda Dönmez Enstitü Onayı
2) Seda Dönmez Etik Kurul Onayı
3) Tez Danışmanı Gül Çanakçıoğlu'nun Dilekçesi

Bu belge güvenli elektronik imza ile imzalanmıştır.
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Yök İlişkileri İdari Yetkilisi
Telefon No: 216 564 90 00

APPENDIX K: Letter of permission for the case study

30/07/2021

ÖZYEĞIN ÜNIVERSITESI

FEN BILIMLERI ENSTITÜSÜ MÜDÜRLÜĞÜNE,

Özyeğin Üniversitesi Fen Bilimleri Enstitüsü, Mimarlık Tezli Yüksek Lisans Programı S025532 numaralı, tez danışmanı olduğum öğrencim Seda DÖNMEZ'in, "Analyzing Perceptions of Pediatric Inpatients in the Context of Place Attachment Regarding Their Inpatient Wards" başlıklı yüksek lisans tezinin alan çalışması kapsamında, aşağıda adres ve iletişim bilgileri yer alan, [redacted] ilçesine bağlı [redacted] Servisinde yatarak tedavi görmekte olan çocukların tedavi süreçlerini aksatmamak, çocukların birinci dereceden yakını olan refakatçilerinin imzalı onaylarının alınması ve çocukların alan çalışmasına gönüllü olarak katılmak istemeleri koşuluyla, "çocukların mekansal aidiyet ihtiyaç ve taleplerinin tespit edilmesine yönelik olarak tedavi görmeyi arzu ettikleri hasta odasına ilişkin yapacakları resimler" üzerinden incelenmek istenmektedir.

Tez danışmanı olduğum Seda DÖNMEZ'in, yukarıda ismi geçen hastanenin Pediatrik Hematoloji Servisinde tedavi görmekte olan çocuklarla alan çalışmasını gerçekleştirebilmesi için gerekli olan dilekçenin [redacted] Hastanesi Medikal Direktörlüğü"ne hitaben hazırlanmasını arz ederim.

Saygılarımla,

Dr.Öğr.Üyesi Nevşet Gül Çanakçıoğlu
Özyeğin Üniversitesi
Mimarlık ve Tasarım Fakültesi
gul.canakcioglu@ozyegin.edu.tr

APPENDIX L.1: Ethical committee report

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İNSAN ARAŞTIRMALARI ETİK KURULU
TOPLANTI TUTANAĞI

TOPLANTI SAYISI	:	**2021/14/01**
TOPLANTI TARİHİ	:	28.07.2021
TOPLANTI YERİ	:	Özyeğin Üniversitesi
KATILANLAR	:	Prof. Dr. G. Canan Ergin Dr. Sibel Oktar Thomas Dr. Ceren Hayran Şanlı

ARAŞTIRMA ETİK KURULU
PROJE BAŞVURU FORMU (FORM A)

Projenin Adı	Pediatri Hastalarının, Hasta Odalarına İlişkin Algılarının Mekansal Aidiyet Bağlamında İrdelenmesi
Proje Yürütücüsü	Seda Dönmez
Proje Yürütücüsünün İletişim Bilgileri	[redacted] Ataşehir / ISTANBUL
Projeye Katılan Diğer Araştırmacılar	
Projenin Süresi (Başlangıç ve Bitiş Tarihi)	15.08.2021 – 15.04.2022
Araştırmanın Amacı ve Özeti	Bu araştırma, kişinin bulunduğu mekanı kişiselleştime ihtiyacından yola çıkarak, pediatri hasta odalarında uzun süreli yatarak tedavi gören çocukların algılarını, mekansal aidiyet bağlamında nicel yöntemlerle incelemektedir. Araştırmanın iki temel amacı vardır. Birincisi, çocukların bulundukları odadaki mekansal aidiyet tercihlerini tespit etmek ve bu tercihleri yöntem kısmında açıklanan kategorilere göre sınıflandırmaktır. Araştırmanın ikinci amacı ise, çocukların, bulunmak isteyecekleri hasta odalarını resmettikleri bilişsel haritalar aracılığyla, mekansal aidiyet ve kişiselleştirme isteklerini tespit

APPENDIX L.2: Ethical committee report

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	edebilmektir. Projenin amaçları ve olası sonuçları, gelecekte tasarlanması öngörülen pediatri hasta odalarının, çocukların mekansal aidiyet ve kişiselleştirme ihtiyaçları göz önünde bulundurularak, daha fazla çocuk merkezli tasarım prensibiyle ele alınmasına öncülük edebilir.
Araştırmanın Yöntemi	a) Bu araştırmadaki veriler [redacted] Hastanesi, C Blok pediatrik hematoloji servisindeki, yatan hasta odalarında beş (5) günden fazla süredir tedavi gören, 7-14 yaş arasındaki çocukların çizeceği resimler aracılığıyla elde edilecektir. b) Literatür araştırması, çevre ve davranış, mekansal aidiyet, kişiselleştirme, öz kimlik, mahremiyet, sosyal bağlanma kavramları üzerinden yapılmakta ve pediatri hastalarının kendi yatan hasta odalarına ait mekansal aidiyet algıları, bu bağlamlarda incelenmektedir. Yüksek Lisans Tez Çalışması için kullanması planlanan verilerin toplanması iki şekilde düşünülmektedir. b.1. Hasta Odasının Gerçek Durumu: [redacted] Hastanesi, C Blok pediatrik hematoloji servisinde bulunan her bir odanın fotoğrafları, hasta yatışı başlamadan önce çekilecektir. Her bir hasta odasının dört görünüşü ile odanın giriş kapısının dış kısmı şeklinde olacak fotoğraflandırma, oda numaralarına ve tarihine göre düzenlenip arşivlenecektir. Araştırma kapsamına giren çocukların hasta odalarına yerleşmesi durumunda, hastanın refakatçisiyle, sorumlu hemşire eşliğinde görüşülüp, araştırmanın kapsamı ve amacı açıklanacaktır. Refakatçi araştırmaya katılmak ister ise, 'Hasta ve Refakatçi Onay Formu''na ve 'Gönüllü Katılım Onay Formu'na gerekli bilgiler yazılacak ve refakatçiden çocuğunun katılımına dair imzalı onayı alınacaktır. Çocuğun da araştırmaya katılmaya gönüllü olması esastır. Refakatçisi izin verse dahi, çocuğun rızası

APPENDIX L.3: Ethical committee report

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olmaz ise araştırmaya devam edilmeyecektir. Hastanın odada kalış süresi beş günü tamamladığında, odanın dört cephesinden ve giriş kapısının dış kısmından fotoğraflar yeniden alınacaktır. Bu işlem sırasında hastanın kendisi veya refakatçisi görsellerde olmayacaktır. Hastanın veya refakatçinin görsellerde arşivlenmesini istemediği bir nesne var ise o kısımlar sadece tip olarak belirlenecek, görsellerde bulanıklaştırılmış şekilde dökümantasyonu yapılacaktır. Fotoğraflamanın sonunda hastanın odayı kişiselleştirmek amaçlı yaptığı değişiklikler maddelenerek listelendirilecektir. Mekansal aidiyeti veri setini sunması öngörülen bu değişiklikler üç ana kategori üzerinde gruplandırılacaktır.

1) Öz kimliği (Self-identity) destekleyici değişiklikler (kişisel hobi belirteçleri vb.)
2) Mahremiyet (privacy) ihtiyacından doğan değişiklikler (kişisel alanı vurgulayan belirteçler)
3) Sosyal bağlanma (social-affiliation) ihtiyacından doğan değişiklikler (bireysel fotoğraflar vb)

Toplanan bu veriler, birinci aşamanın bağımlı değişkenlerini oluşturmakta olup, bu verilerle 'Hasta ve Refakatçi Onay Formu' üzerinden elde edilecek olan bağımsız değişkenler arasında ki kare testleri yapılacaktır.

b.2. Hasta Odasının Arzu Edilen Durumu:

Hastanesi pediatrik hematoloji servisinde beş günden fazla yatarak tedavi gören, 7-14 yaş arası çocuklarla bilişsel çalışma yapılması öngörülmektedir. Bu bilişsel çalışmada kullanılacak olan bilişsel harita yöntemiyle, çocukların mekansal aidiyet ihtiyaç ve talepleri, tedavi görmeyi arzu ettikleri mekana dair yapacakları resim üzerinden incelenecektir.

APPENDIX L.4: Ethical committee report

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	Refakatçinin imzalı onayı olduğu takdirde, sorumlu hemşire eşliğinde çocukla görüşme yapılacaktır. Çocuk da çalışmaya katılmak ister ise, bir beyaz A4 çizim kağıdı ve bir siyah kurşun kalem verilerek 'tedavi gördükleri odanın nasıl olmasını arzu ettiklerini' resmetmeleri istenecektir. Çocuklar resimlerine başladıklarında odadan çıkılacak ve 15 dakika sonra odaya tekrar girip, siyah kurşun kalem kırmızı kurşun kalemle değiştirilecektir. Çocukların resimlerini 15 dakika daha kırmızı kurşun kalemle devam etmeleri istenecek ve 30 dakikanın sonunda resimler alınacaktır. Bilişsel haritalarla toplanan bilişsel veriler, Madde 1'de açıklanan gerçek durum verileriyle istatistiksel olarak karşılaştırılacaktır. Bu karşılaştırma sırasında cinsiyet bağımsız değişken olarak kabul edilecektir. c) Katılımcılar araştırma sırasında herhangi bir fiziksel efor sarfetmeyeceklerdir. Çalışma esnasında bilişsel ve duygusal duygu durumlarının değişmesine yönelik bir dialog kurulmayacaktır. Araştırma tamamen gözlem esasına dayanarak yapılacaktır. d) Çocukların refakatçilerine, araştırmanın kapsamı ve amacı sözlü olarak açıklandıktan sonra kendilerine 'Gönüllü Katılım Onay Formu' sunulacak ve bu belgede bulunan bilgileri okumaları sağlanacaktır. Araştırmaya katılmayı kabul eden refakatçiler bu belgeyi imzaladıktan sonra, 'Hasta ve Refakatçi Onay Formu' kendilerine iletilecek ve o belgedeki bilgilerin doldurulması istenecektir. Refakatçinin imzalı onayının ardından, araştırmaya katılacak çocuğa araştırmacı kendisini tanıtarak, araştırmayı, çocuğun anlayacağı bir şekilde anlatacaktır. Çocuk da bu araştırmaya katılmaya gönüllü olmak ister ise yöntem kısmında açıklandığı şekilde araştırmaya başlanacaktır.

APPENDIX L.5: Ethical committee report

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	e) Araştırma tamamen gönüllülük esasıyla yürütülecektir. Refakatçinin 'Gönüllü Katılım Onay Formu' imzalaması durumunda, 'Hasta ve Refakatçi Onay Formu''ndaki bilgiler toplanacaktır. Çocuğun da araştırmaya katılması gönüllülük esasına dayanmaktadır. Refakatçi onayı olsa dahi, araştırmaya katılmak istemeyen çocuklarla araştırma yapılmayacak, çocuk istediği zaman araştırma durdurulacaktır. f) Araştırmaya katılan çocukların, tedavi gördükleri süreçte kreatif bir çalışmaya katılmaları ve kendilerini ifade edebilme olanaklarının oluşması onların kazanacağı bir fayda olarak düşünülebilir. g) Araştırma sırasında refakatçiden veya çocuktan saklanacak bir bilgi olmadığından geri bildirime ihtiyaç olan bir durum da bulunmamaktadır.
Etik ve Veri Yönetim Planı	a-b) Refakatçilerin imzalı onayına sunulacak 'Gönüllü Katılım Onay Formu' ve 'Hasta ve Refakatçi Onay Formu'nda sadece refakatçinin isim ve imzası bulunacak, katılımcı çocuklarının isimleri bu formlarda veya araştırmanın herhangi bir yerinde yer almayacaktır. Tüm formlar araştırmanın arşivinde saklanacak şekilde düzenlenecektir. Araştırma sırasında elde edilen verilerin araştırmadaki analiz süreçlerine dahil edilmesi, numaralandırma veya kodlama şeklinde olacaktır (Katılımcı 1, Katılımcı 2). Refakatçilere ve çocuklara, araştırmanın gönüllülük esasına dayandığı ve istenildiği takdirde araştırmadan çekilebilecekleri bildirilecektir. Çalışma kapsamında analizlerin ispatı olarak çocukların bilişsel haritalarının isim belirtilmeksizin tezin ekleri olarak sunulması da bu araştırmanın kapsamı içinde düşünülmektedir.

APPENDIX L.6: Ethical committee report

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Katılımcı Özellikleri	[redacted] Hastanesi Pediatrik Hematoloji Servisinde, 5 günden fazla yatarak tedavi olan, 7-14 yaş aralığındaki çocuklar hedeflenen katılımcı kitlesidir. Kız ve erkek katılımcı sayılarının, analizlerinin uygunluğu açısından yakın tutulmasına dikkat edilecektir. En az 30 çocuk katılımcı hedeflenmektedir.
Araştırma Bütçesi ve Kaynakları	Çalışma için herhangi bir ek bütçe gerekmemektedir.

Özyeğin Üniversitesi Fen Bilimleri Enstitüsü, Mimarlık Fakültesi, Mimarlık Yüksek Lisans öğrencisi **Seda Dönmez**'in yürütücülüğünü üstleneceği **"Pediatri Hastalarının, Hasta Odalarına İlişkin Algılarının Mekansal Aidiyet Bağlamında İrdelenmesi"** başlıklı proje değerlendirilmiştir.

Proje etik açısından uygun bulunmuştur. ☒
Projenin etik açısından geliştirilmesi gerekmektedir. ☐
Proje etik açısından uygun bulunmamıştır. ☐

İmzalar:

Prof. Dr. G. Canan Ergin Etik Kurulu Başkanı	Dr. Sibel Oktar Thomas Etik Kurulu Üyesi	Dr. Ceren Hayran Şanlı Etik Kurulu Üyesi

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