Temporary Foldable Children's Socialization Spaces After Earthquake: Interior Architecture Workshop Experience

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Abstract

Earthquakes are among the natural disasters that leave behind severe psychological, sociological, and economic damage. The significant earthquakes that struck our nation on February 6, 2023, with their epicenter at Kahramanmaraş, resulted in numerous fatalities and destruction of property. All kinds of entrepreneurs are essential to the post-disaster recovery process because they offer creative fixes and advancements. Within the framework of the Interior Architecture Project-IV course, an online workshop on "Temporary Foldable Children's Socialization Spaces After the Earthquake" was conducted with students from Selçuk University Faculty of Architecture and Design, Department of Interior Architecture. A three-stage systematic approach for design-oriented learning is employed, comprising stages for implementation, creative decision-making, and analytical comprehension. The outcomes of the workshop show that students studying interior architecture are capable of coming up with original solutions to design issues. Foldability has been highlighted as a key idea that influences form choices in function solutions and has given students the capacity to design at various scales, ranging from space design to equipment design.

Keywords: _Temporary space, children's spaces, collapsible design, interior design workshop._

Deprem Sonrası Geçici Katlanabilir Çocuk Sosyalleşme Mekânları: İç Mimari Atölye Deneyimi

Öz

Doğal afetler içerisinde depremler; ekonomik, sosyolojik ve psikolojik yönden derin yaralar açan felaketlerdir. Ülkemizde yaşanan 6 Şubat 2023 Kahramanmaraş merkezli büyük depremler çok sayıda can ve mal kayıplarına yol açmıştır. Afet sonrası toparlanmada, her meslek dalından girişimcilerin yenilikçi çözümler ve iyileştirmeler sunması kritik bir rol oynamaktadır. Bu bağlamda, Selçuk Üniversitesi Mimarlık ve Tasarım Fakültesi İç Mimarlık Bölümü öğrencileri ile İç Mimari Proje-IV dersi kapsamında 'Deprem Sonrası Geçici Katlanabilir Çocuk Sosyalleşme Mekânları' konulu bir çevrimiçi atölye çalışması gerçekleştirildi. Kullanılan metod, tasarım odaklı öğrenmeye yönelik analitik anlama, yaratıcı karar verme ve uygulama aşamalarını içeren 3 aşamalı sistematik bir yöntemi içermektedir. Atölye sonuçları, iç mimarlık öğrencilerinin tasarım problemlerine yaratıcı çözümler üretebilme yeteneklerini ortaya koymaktadır. Katlanabilirlik, fonksiyon çözümlerinde form kararlarını belirlemede rehberlik eden önemli bir kavram olarak vurgulanmış ve öğrencilere donatıdan mekân tasarımına kadar farklı ölçeklerde tasarım yapabilme yeteneği kazandırmıştır.

Anahtar kelimeler: _Geçici mekân, çocuk mekânları, katlanabilir tasarım, iç mimari atölye._

1. Introduction

Natural disasters pose one of the gravest challenges to humanity. Disaster is generally defined as a combination of natural and anthropogenic events that cause physical, economic, and social losses to people and disrupt normal life and human activities. Disasters are classified into two groups, namely, human-made and natural disasters (Acerer, 1999). Among natural disasters, earthquakes are particularly devastating calamities that cause profound economic, sociological, and psychological scars. The major earthquakes that struck our country on February 6, 2023, centered in Kahramanmaraş, resulted in significant loss of life and property. The lives of people residing in the affected provinces were severely impacted, especially in the areas of economy, health, education, and socio-cultural aspects.

Unlike other natural disasters, earthquakes are unpredictable geological events that typically happen suddenly and without warning. It takes a while for damaged areas to rebuild and for survivors to get back to their regular lives after an earthquake. As a result, meeting people's needs in the areas of social life, the economy, transportation, health, education, and the workforce—especially housing—is crucial. Through their creative problem-solving and improvement efforts, entrepreneurs of all stripes contribute significantly to the post-disaster recovery process. The fields of professional architecture and interior architecture are leading among these. Through the use of a multidisciplinary approach, these professions can actively contribute to the planning of post-disaster reconstruction, social engagement, and awareness-raising initiatives, temporary shelter and space design during recovery operations and post-disaster psychosocial assistance. They can also help communities quickly return to normal by offering innovative and long-lasting solutions. In this context, the goals are to create lasting and creative solutions in the wake of disasters, present original designs that raise awareness, and educate interior architecture students receiving design discipline training about natural disasters.

The goal of the research was to provide recommendations for solutions that would address the play, educational, and spatial needs of these kids while assisting those who were most impacted by the earthquake in overcoming their traumatic experiences. The Selçuk University Faculty of Architecture and Design, Department of Interior Architecture, organized the workshop titled "Temporary Foldable Children's Socialization Spaces After the Earthquake" for third-grade students as part of the Interior Architecture Project-IV course for the 2022–2023 spring term. The internet platform was utilized to perform the survey.

The workshop focus included developing proposals for the folding tent design and defining design difficulties related to the design's limitations, particularly those related to qualities like foldability, modularity, lightness, portability, manufacturability, flexibility, and packability. The essay assessed the project's particular technique to quantify workshop experiences. During the workshop, the "Process-Based Model in Studio Teaching" approach created by Salama was employed. This methodology comprises three stages: analytical comprehension, creative decision-making, and application. It is a three-stage systematic approach to design-oriented learning. Even though the data collection method is a part of the analytical phase, the shell and interior design processes creatively used the collected data to create the original form.

By defining the parameters of the interior architecture students' search for a solution to the design problem at the end of the workshop, the students were able to use creativity in making decisions about form, function, and structure, which led to the creation of unique designs. This study's major goal is to inspire students studying interior architecture to come up with solutions for contemporary social problems and to create projects that tackle these problems practically and sustainably. The study provides a distinct viewpoint in this regard. Students benefit from these applications in the classroom by gaining valuable experiences that they can carry with them for the rest of their lives.

2. Conceptual Background

Earthquake and child are the two key ideas that steer the article. This heading discusses the relationship between earthquakes and children as well as temporary space solutions following natural disasters. These topics make up the article's conceptual framework. First, under the heading

"Temporary Places After Natural Disasters," significant earthquakes that have occurred in Turkey and throughout history were discussed, along with instances of temporary shelters that sprang from them. It was discussed how the immediate need for housing was satisfied in the wake of these earthquakes, how societies came together in solidarity during this time, and how to find temporary shelter solutions. The challenges that children faced following the earthquake and how these challenges affected family, social life, everyday life activities, and education are examined under the heading of post-earthquake children and space. Children's relationships with their families, the social environment, and the psychosocial effects of the earthquake were all assessed. Furthermore, a literature review was conducted to investigate the factors that guarantee the continuation of education following the earthquake and the studies conducted in this particular context.

2.1. Temporary Spaces After Natural Disasters

Disasters have a significant impact on the housing sector, resulting in the destruction or severe damage of many homes. As a result, families residing in these homes are faced with the urgent need to find shelter promptly (Limoncu & Bayülgen, 2005). In Turkey, the post-disaster housing problem is tackled in three stages: emergency aid, rehabilitation, and finally, reconstruction (Sey & Tapan, 1987; Ervan, 1996; Çınar et al., 2018; Şengün, 2007).

The first of these, the emergency aid period, includes a short period of time. The goal of any natural disaster is to save lives and assist the injured. In order to satisfy the need for shelter, it also involves creating sleeping spaces beneath a shelter (tent, etc.) that are psychologically secure (Taş, 2000).

A crucial concern in the aftermath of an earthquake is bridging the gap between immediate needs (emergency or temporary shelter) and long-term needs (permanent shelter). At this stage, the housing problem is generally surmounted in three ways: temporary settlement in other regions outside the disaster area, collective temporary shelter in the disaster area, and temporary housing (Sey & Tapan, 1987; Taş, 2000).

According to Sey &Tapan (1987), temporary shelter in non-disaster areas refers to housing earthquake victims temporarily in neighboring public buildings or in camps set up specifically for this purpose until permanent housing is constructed. Tentative camps for earthquake victims are located in easily accessible centers within the earthquake zone, providing them with temporary housing while they are displaced from their immediate surroundings (Ervan, 1996). These camps may be established using tents and containers as tent cities, or they may encompass specialized structures such as prototypes and easily producible tiny houses (Abulnour, 2014). Depending on the specifications of the temporary housing, families may be allocated a single unit, or victims of the earthquake may reside in shared dorms (Ervan, 1996).

In the production of temporary housing, it is critical to provide innovative, adaptable, flexible, mobile, modular, lightweight, portable, and simple-to-install solutions. It needs to be modular so that it can adapt to additions or modifications as needed to be user-customized. Because of this, the temporary housing unit needs to be adaptable enough to enable quick and easy changes (Felix et al., 2013). Furthermore, it is advisable to use straightforward building systems with tiny components that are simple to assemble, disassemble, and use (Arslan & Cosgun, 2007). Regarding the quality and comfort of temporary shelter units, it is believed that significant factors like protection, security, privacy, comfort, the standard of living, appropriate dimensions, location, thermal and sound performance, lighting, ventilation, and durability should be taken into account (Felix et al., 2013). Because these elements are essential to giving tenants of temporary housing units a safe, comfortable, and healthy living environment. Furthermore, it is of the utmost importance that the temporary homes that are to be built have adaptable designs that can be changed to accommodate future reuse and various actions.

Observing the cases following Turkey's major earthquakes, we can observe that while temporary housing has improved over time, suitable housing solutions have not yet been implemented. Due to the massive scope of the disaster, low stock levels, and subpar tents, it was challenging to quickly address the shelter need following the 1999 Marmara earthquake. The earthquake is a rather significant disaster that calls into question the laws and regulations currently in place and highlights

their shortcomings and implementation challenges (Çınar et al., 2018; Şengün, 2007). Following the 2011 Van earthquake, earthquake victims were relocated to temporary housing (container cities), and all tent cities were quickly shut down. As a result of the Syrian civil war, which began in April 2011, there was a significant migrant influx into Turkey. As a result, AFAD (DEMA-Disaster and Emergency Management Administration) opened 20 makeshift shelters in 10 Turkish provinces (Şengün, 2007). Similarly, efforts have been made to revitalize the region in Northern Syria with temporary housing using the traditional adobe house architectural style, undertaken by many internally displaced people and individuals searching for shelter (Hasan & Koç, 2022). It is challenging to discuss whether Turkey has a coherent policy on short-term housing from the point at which emergency aid ends to the point at which people move into permanent homes and resume their regular lives. Reviewing the procedures reveals that, like in many other countries, Turkey cannot solve its temporary housing crisis by going straight from emergency shelters to permanent housing (Ervan, 1996).

In world examples, different designs have been developed for temporary shelter after an earthquake. In addition to earthquakes, temporary shelter measures have also been implemented in response to other natural disasters like hurricanes, storms, floods, and fires, in order to address the immediate need for shelter. The infrastructure in the communities affected by these disasters is severely damaged or rendered useless, necessitating an immediate accommodation solution. For instance, following the 2011 tsunami in Japan, indoor shelters were built for the homeless, who were housed in an indoor basketball court to meet their basic needs and live in privacy. Paper shelters have been developed as private areas between individuals since it is a lightweight, renewable material that is not harmful to the environment. Following the same catastrophe, textile materials that are easy to carry, and useful for creating parachutes were also used to create shelters (Nasution, 2017). A further example is the disaster shelter in Mongolia that is a circular planned "yurt." Composed of a single room and equipped with all the amenities of a house except for the wet volume, these tents, known as "dzud" in Mongolia, are made as a vital defense against frigid disasters that can reach temperatures of -40 to -50 °C (as cited in Nasution, 2017; Fernandez Gimenez et al. 2012). In this context, temporary shelters constructed following a typhoon in the Philippines, snow and landslides in Afghanistan, and a cyclone wind in Bangladesh can all be cited as examples.

2.2. Children and Space After Earthquakes

Unlike other natural disasters, earthquakes frequently happen without warning, but they also have a severe, wide-ranging impact that frequently lasts for a long time. After an earthquake, the survivors' resettlement may take years because of disruptions. Short-term psychiatric conditions like depression, sleep disorders, and substance abuse can be brought on by natural disasters like earthquakes (Chen et al., 2007). Research (Ke et al., 2010; Chou et al., 2007) has demonstrated that earthquakes severely impair survivors' quality of life (QOL). Simultaneously, a study discovered that earthquake victims who suffered the anguish of losing relatives had higher psychological stress and significantly lower quality of life scores than the general population (Seplaki et al., 2006). Put another way, it highlights the fact that natural disasters cause more than just physical harm; they also have a significant impact on people's psychological well-being and quality of life. In light of this, it is imperative to stress the value of disaster victims having access to psychosocial support and rehabilitation services as well as the tools they need to aid in their communities' difficult process of recovery.

Years after the earthquakes, children and adolescents in Turkey and other countries have reported significant long-term PTSD (Post-Traumatic Stress Disorder) symptoms and mental health issues (Dai et al., 2016; Salcioglu et al., 2003). Three years after the Marmara earthquake, 31.4% of adolescents exhibited moderate, 24.2% severe, and 3.8% very severe traumatic stress reactions, per Bal's 2003 study. Additionally, migration or displacement brought on by earthquakes may have unfavorable effects. Relocating, whether temporarily or permanently, can cause social support networks to break down and lead to more interpersonal stress and conflict, which can worsen psychological distress (Eray et al., 2017). These communities may become even more vulnerable if social service buildings catering to the elderly, disabled, children, and women collapse as a result of an earthquake. Because demolishing these buildings could worsen the already precarious living circumstances of vulnerable

populations and put them at greater risk. This emphasizes how crucial it is to create specialized plans and infrastructure for pre- and post-disaster preparation and response, particularly for dependent groups that are more vulnerable. Consequently, it is critical to safeguard and educate society's most vulnerable members, in particular, about the risks associated with disasters, and to include safety measures for these populations in disaster plans (TERRA, 2023). Furthermore, these structures are typically designed to offer emergency services in the event of a disaster (Çınar et al., 2018). Following an earthquake, it may also make it more difficult for the affected community to react swiftly and efficiently to the immediate post-disaster needs, particularly if these buildings sustain damage.

After housing, one of the areas where children and young people are most impacted following an earthquake is their educational life. Children's educational experiences can be severely impacted by earthquakes, particularly when it comes to issues like structural damage to schools, the death of instructors and students, community breakdown, loss of educational supplies and resources, and psychological trauma. To lessen these effects and allow kids to finish their education, emergency education services must be carefully planned and put into action (Aral, 2023). In the February 6, 2023, Kahramanmaraş-centered earthquakes that occurred in Turkey, school infrastructures in the regions were seriously damaged. To avoid longer school disruptions, flexible registration procedures were put in place. 242,904 preschoolers, primary school students, secondary school students, and an unknown number of university students were placed in schools in other provinces outside the disaster area to complete their education. Similar to their parents and teachers, students also suffer from trauma, which negatively affects their capacity to learn as well as their physical, mental, and emotional well-being. As a matter of fact, children are among those who suffer from the earthquake the most because of the painful memories they will never forget (TERRA, 2023). The educational experiences of children after an earthquake are impacted in a variety of ways by physiological issues, trauma, stress from losing family members, financial difficulties stemming from unstable economic conditions, and social and cultural factors (Erkan, 2010; Aral, 2023; Bozkurt, 2023).

It is rather crucial to consider these various impacts of earthquakes on children when organizing and carrying out emergency response plans as well as long-term rehabilitation initiatives. To support children's safety, health, and general development, a holistic approach is necessary. The analysis and research covered in this conceptual framework served as the foundation for the project that is the subject of this study, including the creation of child- and earthquake-oriented approaches as well as suggested solutions.

3. Material and Method

To ensure the sustainability of life following the earthquake, it is crucial to fulfill children's and youths' right to education after addressing their most basic need for shelter (Sakarya & Kavut, 2023; Tüzün, 2002). The research has shown that socialization, one of the purposes of educational facilities, mitigates the psychological trauma people suffer from earthquakes (Sakarya & Kavut, 2023). The majority of the earthquake victims reported psychological symptoms like sleeplessness, anxiety, fear, irritability, difficulty concentrating, and worry about the future, according to Bozkurt's (2023) study on the social effects of the devastating earthquakes that struck Kahramanmaraş on February 6, 2023. The author added that these traumatic events have a greater detrimental impact on women, children, and the poor than on other groups (Bozkurt, 2023). Similarly, according to Peek (2008) noted in the study that due to their greater physical and psychological vulnerability as well as unique needs compared to adults, children are among the most vulnerable groups to the harmful effects of disasters (Peek, 2008).

Reconstruction following an earthquake must prioritize housing, so measures are being taken to address this. Yet, there are not many educational structures—especially ones meant for kids. The main issue of the study was coming up with solutions to address the deficiencies in the education and socialization spaces that were identified for children following the earthquake based on the literature. The study's objective was to provide recommendations for solutions to the unmet play, educational, and spatial needs of the kids most impacted by the earthquake so they can move past their traumatic experiences. In this particular context, the study's focus—on designing spaces for children to socialize after an earthquake—was completed as part of an interior architecture studio course model setup.

In response to the evolving and changing global landscape, design pedagogies in architectural education are likewise evolving. Many design pedagogies were developed after the late 1960s when criticisms of the understanding of design and design approaches in architecture started to emerge (Salama, 2015). Among these, critical inquiry and process-oriented design pedagogy emerged between 1990 and 2010, and they remain an effective educational model in contemporary architecture and interior architecture studios. Although Aydınlı (Aydınlı & Kürtüncü, 2014) defines the "student-centered, educational strategy," there is discussion of the formation that should be provided to the candidate architect; the paradigm shift, which has led to the evolution of the paradigm toward the paradigm of learning to learn, and the problem of the creative mind's development and the creation of diverse learning environments in research. Consequently, the architectural design studio is a "studio environment" rather than a course. The "parallax room" is a collective experiment environment that Aydınlı and Kürtüncü proposed, utilizing a "process-oriented design education model" (action-oriented process-oriented development of the creative mind) (Özbayraktar, 2019; Aydınlı, 2015; Aydınlı & Kürtüncü, 2014). The 'Process-Based Model in Studio Teaching' created by Salama and this suggested model have overlaps.

According to the project's subject and methodology, a process-oriented design education model was used in the study. Because this model overlaps with the problem of children and earthquakes, it is important to ask critical questions and look for solutions at every step of Turkey's ongoing earthquake process. 'Process-Based Model in Studio Teaching' created by Salama was applied in the workshop as a result. The model seeks to both enhance students' comprehension of pertinent information for particular design problems and foster the development of alternative design solutions. There are three main tenets of the model. These are:

- Possessing a small pool of resources for concepts generated outside of design problem-solving methods,
- Difficulty researching subjects involving more complex formal and visual principles,
- Seldom do design solutions incorporate a variety of variables and requirements.

The model for design-focused learning consists of four stages based on analytical understanding and creative decision-making; discovery, information collection and analyses, interpretation, and schematic design (Salama, 2005) (Figure 1).
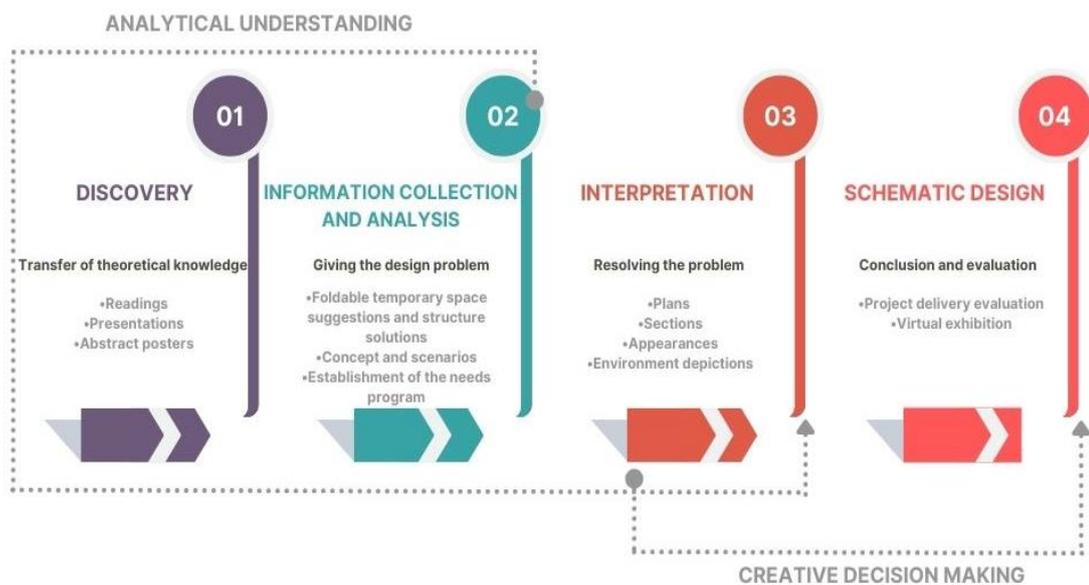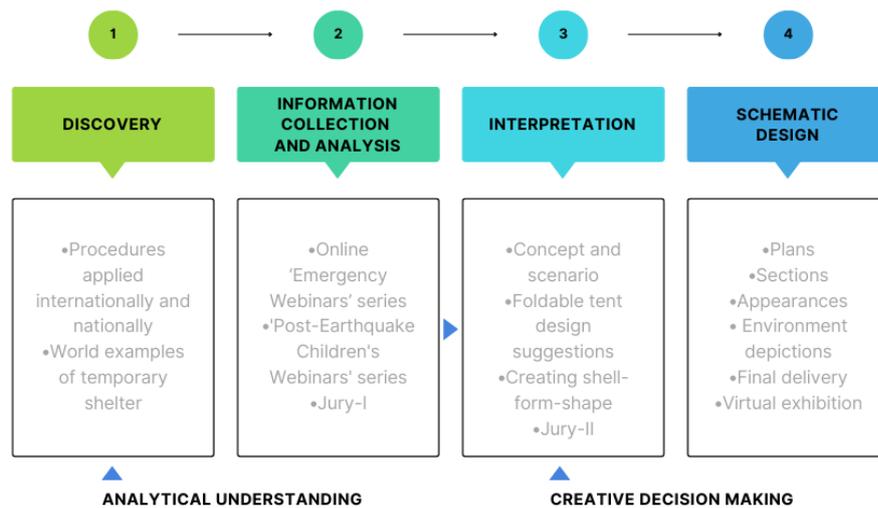

Figure 1. The process-based model used in the study (edited by the authors according to Özbayraktar, 2019; Salama, 2005:183)

The model is compatible with multiple theories of intelligence and is defined using various logical, visual, and verbal learning methods (Salama, 2005; Salama, 2015). The model emphasizes that not every student possesses the same level of intelligence. Different exercises were developed for the

students as a result of the process. In addition to providing students with the chance to gather data during the analytical phase of the four-stage studio process, the creative phase allowed them to create original forms. Students were able to think critically and come up with original solutions thanks to this. The model's current effectiveness as well as its influence on students' learning processes have been assessed through a thorough evaluation process that has been applied to both the process and the final products. This assessment offered recommendations for enhancing instructional techniques, developing future educational practices, and giving students a better learning environment.

3.1. Interior Architecture Workshop Process Stages and Final Products

Within the framework of Selçuk University's Faculty of Architecture and Design, Department of Interior Architecture, 2022–2023 Education Spring Term, Interior Architecture Project–IV course, an online study on the topic of "Temporary Foldable Children's Socialization Spaces After the Earthquake" was carried out with third-grade students. In this case, the goals are to educate interior architecture students about natural disasters, to create lasting and creative solutions in the wake of disasters, and to showcase original designs that do the same. Figure 2 defines the four-stage method process phases employed in the workshop.

1	2	3	4
DISCOVERY	**INFORMATION COLLECTION AND ANALYSIS**	**INTERPRETATION**	**SCHEMATIC DESIGN**
• Procedures applied internationally and nationally • World examples of temporary shelter	• Online 'Emergency Webinars' series • 'Post-Earthquake Children's Webinars' series • Jury-I	• Concept and scenario • Foldable tent design suggestions • Creating shell-form-shape • Jury-II	• Plans • Sections • Appearances • Environment depictions • Final delivery • Virtual exhibition

ANALYTICAL UNDERSTANDING   **CREATIVE DECISION MAKING**

Figure 2. Process-based model diagram used in the study

Students gathered information in the first stage by carefully analyzing national and international protocols, as well as instances of temporary housing, covering the recovery phase following natural disasters in Turkey and around the world. By outlining the data and sample projects they had acquired thus far in the online studio course, each student provided information.

In the second phase, Selçuk University Faculty of Architecture and Design's online "Emergency Webinars Series" provided the students with a comprehensive conceptual foundation. Concurrent with these webinars, the authors arranged and invited experts in the field to talks and interpretations pertaining to the project named "Post-Earthquake Child" as part of the Project IV course. All of the documents were gathered together with an interim jury to conclude the analysis phase with presentations.

Within the problem defined specifically for the project, foldable tent design suggestions were developed during the third and fourth phases of the interpretation and schematic design process, which includes the creative phase. The constraints of the shell design were characterized as foldable, modular, lightweight and portable, manufacturable, flexible, and packable as a design problem in order to sketch a path for students in design. In addition, it was anticipated that the shell would be designed with user-focused, superior, and eco-friendly solutions. The child is the primary user of the area that needs to be designed. Visual perception is the basis of the spatial perception formed in the child (Yurtgün & Demirkan Türel, 2023). In this regard, selecting the right colors and materials for a space that is suitable for children's ergonomics and psychology has emerged as a crucial design consideration. The information gathered during this process was used to create original shell designs.
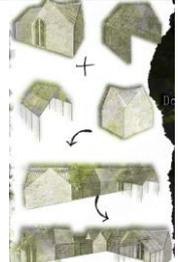
Original form generation was done in the creative stage of the interior design process, specifically for the scenario that was created. Below is a detailed explanation of the development and result products that were based on five sample projects from the workshop results over 14 weeks.

Table 1. 'Hug' child socialization center design project.

Keywords	Concepts	Form-Formulation-Module	Material board/ Moodboard	Final Product
Hug Integrity Unity Sociability Trust				

The idea that "Good therapy is provided by love and unity" served as the inspiration for the project, which was completed by Ayşe Nurbanu PENEKLİ, Esra YILDIZ, and Fatma Nurşen ERYILMAZ. Throughout the design process, the therapeutic value of hugs was taken into consideration. When creating the Hug; soft, curvilinear shapes were used to evoke a sense of warmth and flexibility. While the Hug's smallest module symbolizes the beginning of the hug, play areas were made in the middle module where tiny bodies surround and interact with one another while sharing common pains. The outermost layer in the design is regarded as the most integral and wraparound module. Throughout therapy, families and other family members work to build relationships with the children to facilitate their interaction with their surroundings. This layer also seeks to improve children's healing by fostering a greater sense of connection between them and the outdoors and nature (Table 1).

Table 2. 'Green Grass' child socialization center design project

Keywords	Concepts	Form-Formulation-Module	Material board/ Moodboard	Final Product
Nature Trust Sustainability Flexibility Belonging				

In the project led by Tuğçe OKYEL and Emine Günsu KOCAER, a strategy was used to address the sense of dislocation that children experienced following the earthquake tragedy. Rebuilding an atmosphere beneath a tree where kids can feel secure, interact with nature, spend therapeutic time, and hold on to life with meaningful, worthwhile, healthful, and social activities is the foundation of this approach. According to research, kids' drawings of homes with gable roofs frequently depict a parent-child bond and a haven. Based on these fundamental details, the project has created a setting where kids can feel secure, engage with the outdoors, play therapeutic games, spend time with each other, and make new friends. 'Green Grass' was the project name, and it was designed with kid-friendly colors and sustainable materials (Table 2).

Table 3. 'Döngü' child socialization center design project

Keywords	Concepts	Form-Formulation-Module	Material board/Moodboard	Final Product
Cyclical Birth Circulation Continuity Solidarity				
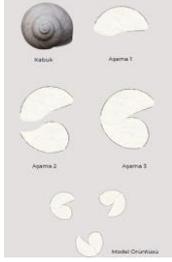
In the project led by Büşra DO\AN and Canan KAYA, a shell with a loop form was created as an inspiration from the snail's shell. The snail shell metaphor, which gives the house and its occupants a sense of coziness, served as inspiration for the design of the children's socialization area. Children can construct a house from a snail's shell in one module, and a circular layout in multiple modules guarantees that children can engage with and learn about the life cycle (Table 3).

Table 4. 'Reunıon' child socialization center design project

Keywords	Concepts	Form-Formulation-Module	Material board/Moodboard	Final Product
Hope Game Puzzle Piece All				

The goal of Merve ÇAKMAK, Metehan UYANIK, and Selinay YILDIRIM's project is to use toys as corrective tools in communication with kids and as healing instruments for kids. In this case, the kid-favorite puzzle game served as inspiration for the project. The idea that compares every person to a piece of a puzzle highlights how crucial every piece is to the puzzle coming together, and it expresses structurally how vital every person is to our nation (Table 4).

Table 5. 'Safe Roof' child socialization center design project

Keywords	Concepts	Form-Formulation-Module	Materialboard/Moodboard	Final Product
Triangle Balance Roof Linearity Hierarchy				

The pentagonal floor and backward hierarchical layout of the three-module tent in the project by Kader Deniz ÇOBAN and Kadriye YÜKSEL reinforced its triangular roof feeling. Linear expressions were used in both exterior and interior design by integrating the idea of linearity into the concept. The three tent modules were brought from different directions and assembled in the same spot in an attempt to evoke the sense of people coming together under one roof. Sharp lines outside give the impression of

solidity and safety. Orange, a warm color, and various shades of blue, a cold color, were combined to create a striking contrast in the interior (Table 5).

The interior architecture project's outcomes show that the students created unique and creative designs for kids' socialization areas. Various suggestions for solving the problem were generated at each step of the designed method, and critical assessments were conducted. Foldable module ideas were provided, and distinctive forms were exposed within the framework of keywords in the developed shell designs. Features like foldability, modularity, portability, manufacturability, and flexibility are highlighted in these module shells. Appropriate material and color choices have been made in spaces intended for child users, taking into account the needs of child psychology and ergonomics. The project's goals and objectives have been successfully attained, as evidenced by the obtained results.

4. Conclusion and Suggestions

Following natural disasters, it is crucial for the child age group—which is known to be especially vulnerable—to carry on with their daily activities both physiologically and psychologically (Bozkurt, 2023). After housing, one of the areas most impacted by the largest earthquakes to ever strike Turkey and the world was children's educational experiences during the post-earthquake recovery period. Children's educational experiences are severely impacted by earthquakes, particularly when it comes to factors like structural damage to schools, the death of instructors and students, community collapse, loss of educational supplies and resources, and psychological trauma (Aral, 2023).

Children are impacted by the earthquake in a variety of ways, including physiological issues, stress and trauma from losing family members, financial difficulties brought on by unpredictability in the economy, social-social issues, and challenges in their academic lives (Erkan, 2010; Aral, 2023; Bozkurt, 2023). Following Turkey's earthquake on February 6, 2023, it was found that children's social and educational opportunities were inadequate and that the majority of their needs could not be satisfied (TERRA, 2023). Children are exposed to traumatic psychosocial effects, family dynamics, and interactions with the social environment during the earthquake. Planning and execution are needed for both long-term rehabilitation procedures and emergency response in light of these numerous effects. It is critical to take a comprehensive approach to support children's safety, health, and overall development to lessen these effects and create more age-appropriate environments.

Reconstruction following an earthquake must prioritize housing, so measures are being taken to address this. Yet, there aren't many educational structures—especially ones meant for kids. The main issue of the study was coming up with solutions to address the deficiencies in the education and socialization spaces that were identified for children following the earthquake based on the literature. The study's educational model, which addresses these issues, and the final products it produces are significant for interior architecture education and design because they fill a knowledge gap and encourage the generation of novel ideas. Additionally, it has been a crucial tactic for increasing awareness among interior architecture students to come up with creative fixes and exert effort following natural disasters. The issue of providing children, who were the group most affected psychologically and physiologically after the earthquake, with temporary socialization spaces so they can resume their regular lives and unfinished schooling was brought to light within the parameters of the study. By creating solutions for children's spaces after the earthquake, the study aimed to safeguard human health, ensure the sustainability of education, and create comfortable use areas for social area.

According to the project's subject and methodology, a process-oriented design education model was used in the study. Because this model overlaps with the problem of children and earthquakes, it is important to ask critical questions and look for solutions at every step of Turkey's ongoing earthquake process. 'Process-Based Model in Studio Teaching', developed by Salama in the Interior Architecture Project-III workshop, was designed specifically for the project. As per the proposed educational model, students were directed to generate solutions to the given problems and exercise analytical thinking at the end of the 14-week study period. This allowed them to gain experience in creating unique designs. Based on the findings, it was observed that students who faced new challenges in every component of

the educational model made significant progress during the study. The student now possesses the skills necessary to think analytically, generate solutions, think abstractly based on a tangible product, think in multiple ways by overlapping formal expressions with concepts, organize space, think in three dimensions, see problems clearly, and transfer his ideas to the space step by step. Their original design skills were further enhanced by the function, form, and structural solutions they developed in response to the constraints of the design problem. Furthermore, foldability was mentioned as a guiding term in the function solutions to the given problem, and unique shell designs appeared with the concept they developed.

The application's final products and findings indicate that, as a result of the problem-solving training program, interior architecture studio studies will be specifically directed toward interior architecture education, facilitating the formation of unique forms and shapes, the creation of concrete spaces from abstract ideas, and design at various scales, ranging from equipment to space design. It is believed that the recommendations made in this context can serve as a model and source of information for children's spaces following the earthquake. They can also offer a thorough understanding and awareness of similar applications. The students said they were happy to work on such social responsibility projects because they produced resolutions for a painful and social reality, which increased their motivation to work. As a result, the benefits that these methods deliver during education can last a lifetime.

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Author Contribution and Conflict of Interest Declaration Information

1st Author % 60, 2nd Author %40 contributed. There is no conflict of interest.

References

Abulnour, A. H. (2014). The post-disaster temporary dwelling: Fundamentals of provision, design and construction. *Hbrc Journal*, *10*(1), 10-24. doi: 10.1016/j.hbrcj.2013.06.001. Access Address (12.07.2023): https://www.sciencedirect.com/science/article/pii/S1687404813000461

Acerer, S. (1999). *Afet konutları sorunu ve deprem örneğinde incelenmesi* (Doctoral dissertation, Fen Bilimleri Enstitüsü). Access Address (10.07.2023): https://polen.itu.edu.tr/500

Aral, N. (2023). Depremin çocuklara etkileri. *Çocuk ve Gelişim Dergisi*, 6(11), 93-105. doi: 10.36731/cg.1299175. Access Address (25.01.2024): https://dergipark.org.tr/en/pub/cg/issue/78869/1299175#article_cite

Arslan, H., & Cosgun, N. (2007, October). The evaluation of temporary earthquake houses dismantling process in the context of building waste management. In *International earthquake symposium. Kocaeli, Turkey*. Access Address (20.08.2023): https://www.scribd.com/document/537171346/678-678

Aydınlı, S. & Kürtüncü B. (2014). Paralaks Oda. İstanbul: Cenkler Matbaacılık.

Aydınlı, S. (2015). Tasarım eğitiminde yapılandırıcı paradigma: öğrenmeyi öğrenme'. *Tasarım+ Kuram*, 11(20), 1-18. Access Address (25.01.2024): https://dergipark.org.tr/en/download/article-file/208042

Bal, A. (2008). Post-traumatic stress disorder in Turkish child and adolescent survivors three years after the Marmara earthquake. *Child and Adolescent Mental Health*, *13*(3), 134-139. ISSN: 1475-357X doi: 10.1111/j.1475-3588.2007.00469.x Access Address (07.07.2023): https://acamh.onlinelibrary.wiley.com/doi/epdf/10.1111/j.1475-3588.2007.00469.x

Bozkurt, V. (2023). Depremin toplumsal boyutu. Avrasya Dosyası, 14(1), 77-99. Access Address (22.01.2024): https://dergipark.org.tr/en/pub/avrasyadosyasi/issue/78803/1303147#article_cite

Chen, C. H., Tan, H. K. L., Liao, L. R., Chen, H. H., Chan, C. C., Chen, C. Y., ... & Lu, M. L. (2007). Long-term psychological outcome of 1999 Taiwan earthquake survivors: a survey of a high-risk sample with property damage. *Comprehensive Psychiatry*, *48*(3), 269-275. doi: 10.1016/j.comppsych.2006.12.003. Access Address (03.08.2023): https://www.sciencedirect.com/science/article/pii/S0010440X0600143X

Chou, F. H. C., Wu, H. C., Chou, P., Su, C. Y., Tsaı, K. Y., Chao, S. S., ... & Ou-Yang, W. C. (2007). Epidemiologic psychiatric studies on post-disaster impact among Chi-Chi earthquake survivors in Yu-Chi, Taiwan. *Psychiatry and Clinical Neurosciences*, *61*(4), 370-378. ISSN: 1323-1316. doi: 10.1111/j.1440-1819.2007.01688.x. Access Address (17.07.2023): https://onlinelibrary.wiley.com/doi/epdf/10.1111/j.1440-1819.2007.01688.x

Çınar, A. K., Akgün, Y., & Maral, H. (2018). Afet sonrası acil toplanma ve geçici barınma alanlarının planlanmasındaki faktörlerin incelenmesi: İzmir-Karşıyaka örneği. *Planlama*, *28*(2), 179-200. doi: 10.14744/planlama.2018.07088. Access Address (20.07.2023): https://jag.journalagent.com/planlama/pdfs/PLAN-07088-RESEARCH_ARTICLE CINAR.pdf

Dai, W., Chen, L., Lai, Z., Li, Y., Wang, J., & Liu, A. (2016). The incidence of post-traumatic stress disorder among survivors after earthquakes: a systematic review and meta-analysis. *BMC psychiatry*, *16*(1), 1-11. Access Address (10.08.2023): https://bmcpsychiatry.biomedcentral.com/articles/10.1186/s12888-016-0891-9

Eray, Ş., Uçar, H. N., & Murat, D. (2017). The effects of relocation and social support on long-term outcomes of adolescents following a major earthquake: A controlled study from Turkey. *International journal of Disaster Risk Reduction*, *24*, 46-51. doi: 10.1016/j.ijdrr.2017.05.026. Access Address (09.08.2023): https://www.sciencedirect.com/science/article/pii/S2212420917301942

Erkan, S. (2010). Deprem yaşayan ve yaşamayan okul öncesi çocukların davranışsal/duygusal sorunlarının karşılaştırmalı olarak incelenmesi. *Pamukkale Üniversitesi Eğitim Fakültesi Dergisi*, 28(28), 55-66. Access Address (22.01.2024): https://dergipark.org.tr/en/pub/pauefd/issue/11115/132908#article_cite

Ervan, M. K. (1996). Deprem sonrası acil barınma sorunu ve çözüm önerileri. *Erzincan ve Dinar Deneyimleri Işığında Türkiye'nin Deprem Sorunlarına Çözüm Arayışları, TÜBİTAK Deprem Sempozyumu Bildiriler Kitabı*, *15*(16), 303-312. Online ISSN: 9789754030341, 9754030340. Access Address (12.08.2023): https://search.worldcat.org/title/tubitak-deprem-sempozyumu-ankara-15-16-subat-1996-erzincan-ve-dinar-deneyimleri-sgnda-turkiyenin-deprem-sorunlarna-cozum-arayslar-bildiriler-kitab/oclc/41454881

Félix, D., Branco, J. M., & Feio, A. (2013). Temporary housing after disasters: A state of the art survey. *Habitat International*, *40*, 136-141. doi: 10.1016/j.habitatint.2013.03.006. Access Address (15.08.2023): https://www.sciencedirect.com/science/article/pii/S0197397513000386

Fernandez-Gimenez, M. E., Batkhishig, B. & Batbuyan, B. (2012). Cross-boundary and cross-level dynamics increase vulnerability to severe winter disasters (dzud) in Mongolia. *Global Environmental Change*, *22*(4), 836-851. doi: 10.1016/j.gloenvcha.2012.07.001. Access Address (27.07.2023): https://www.sciencedirect.com/science/article/pii/S0959378012000684

Hasan, G. & Koç, C. (2022). Kuzey Suriye'de iç mülteciler için konut üretiminde kerpiç malzemenin rolü. *Journal of Architectural Sciences and Applications*, *7*(1), 442-463. doi: 10.30785/mbud.1093786. Access Address (02.08.2023): https://dergipark.org.tr/en/download/article-file/2334088

Ke, X., Liu, C., & Li, N. (2010). Social support and Quality of Life: a cross-sectional study on survivors eight months after the 2008 Wenchuan earthquake. *BMC Public Health*, *10*, 1-11. doi:

10.1186/1471-2458-10-573. Access Address (25.07.2023): https://bmcpublichealth.biomedcentral.com/articles/10.1186/1471-2458-10-573

Limoncu, S., & Bayülgen, C. (2005). Türkiye'de afet sonrası yaşanan barınma sorunları. *Megaron*, *1*(1), 18. Access Address (03.08.2023): https://www.proquest.com/scholarly-journals/türkiye-de-afet-sonrası-yaşanan-barınma sorunları/docview/2066486275/se-2?accountid=16935

Nasution, I. W. (2017). Doğal afetler sonrasında kullanılacak geçici barınak tasarımı üzerine bir çalışma: Endonezya–Sinabung örneği. Doi: 10.21324/dacd.307100. Access Address (22.07.2023): https://dacd.artvin.edu.tr/en/download/article-file/331619

Özbayraktar, M. (2019). Süreç odaklı tasarım pedagojisi üzerine bir deneme: roman kahramanına yaşam alanı tasarlamak. Access Address (22.01.2024): https://yapidergisi.com/surec-odakli-tasarim-pedagojisi-uzerine-bir-deneme-roman-kahramanina-yasam-alani-tasarlamak/

Peek, L. (2008). Children and Disasters: Understanding Vulnerability, Developing Capacities, and Promoting Resilience — *An Introduction. Children, Youth and Environments*, 18(1), 1–29. Access Address (30.01.2024): http://www.jstor.org/stable/10.7721/chilyoutenvi.18.1.0001

Sakarya, H. K. & Kavut, İ. E. (2023). Afet sonrası inşa edilen mobil eğitim yapılarının incelenmesi: Baan Huay Sarn Yaw afet sonrası okulu örneği. *Journal of Architectural Sciences and Applications,* 8(Special Issue), 42-57. doi: 10.30785/mbud.1269465. Access Address (29.01.2024): https://dergipark.org.tr/en/pub/mbud/issue/81225/1269465

Salama, A. M. (2015). Spatial design education. Ashgate Publishing Limited. Access Address (27.08.2023): https://dergipark.org.tr/en/pub/mbud/issue/81225/1269465

Salama, Ashraf M. (2005*).* A process oriented design pedagogy: KFUPM sophomore studio. *Centre for Education in the Built Environment Transactions,* 2 (2). pp. 16-31. ISSN: 1745-0322. doi: 10.11120/tran.2005.02020016. Access Address (12.07.2023): https://strathprints.strath.ac.uk/50241/1/Salama_A_Process_Oriented_Design_Pedagogy_CEBE_Transaction_2005.pdf

Salcioglu, E., Basoglu, M. & Livanou, M. (2003). Long-term psychological outcome for non-treatment-seeking earthquake survivors in Turkey. *The Journal of nervous and mental disease*, *191*(3), 154-160. doi: 10.1097/01.NMD.0000054931.12291.50. Access Address (10.07.2023): https://journals.lww.com/jonmd/Fulltext/2003/03000/Long_Term_Psychological_Outcome_for.00003.aspx

Seplaki, C. L., Goldman, N., Weinstein, M. & Lin, Y. H. (2006). Before and after the 1999 Chi-Chi earthquake: traumatic events and depressive symptoms in an older population. *Social science & Medicine*, *62*(12), 3121-3132. doi: 10.1097/01.NMD.0000054931.12291.50. Access Address (18.07.2023): https://www.sciencedirect.com/science/article/pii/S0277953605006672

Sey, Y. & Tapan, M. (1987). Afet sonrasında barınma ve geçici konut sorunu raporu. *Yayınlanmamış Akademik Çalışma, İTÜ, İstanbul.*

Şengün, H. (2007). Afet yönetimi sistemi ve Marmara depremi sonrasında yaşanan sorunlar. *Sosyal Bilimler Enstitüsü, Yayımlanmamış Doktora Tezi, Ankara Üniversitesi, Ankara*. Access Address (01.08.2023): https://tez.yok.gov.tr/UlusalTezMerkezi/tezDetay.jsp?id=Usii_AbdqSaUI25qF2rxoQ&no=-q54qvLsk3UTTjlEgwuW7Q

Taş, N. (2000). Afet sonrası geçici konut üretimi. Access Address (01.08.2023): https://acikerisim.uludag.edu.tr/bitstream/11452/31907/1/6_1_10.pdf

Türkiye Earthquakes Recovery And Reconstruction Assessment (TERRA). (2023). Presidency of The Republic of Turkey Presidency of Strategy And Budget. Access Address (12.07.2023): https://www.sbb.gov.tr/wp-content/uploads/2023/03/Turkiye-Recovery-and-Reconstruction-Assessment.pdf

Tüzün, E. (2002). Ev/Yaşama mekânı: Afet sonrası gereksinimler. *Fen Bilimleri Enstitüsü, Doctoral Dissertation, İstanbul Teknik Üniversitesi, İstanbul.* Access Address (30.01.2024): https://polen.itu.edu.tr:8443/server/api/core/bitstreams/210d38b8-038b-42b2-8759-26b1b1addfa4/content

Yurtgün, H. & Demirkan Türel, G. (2023). Evaluatıon of desıgn elements ınfluencıng how chıldren perceıve space ın pedıatrıc patıent rooms worldwıde. *Turkish Online Journal of Design Art and Communication*, 13(3), 651-670. doi: 10.7456/tojdac.1289165. Access Address (23.01.2024): https://dergipark.org.tr/tr/pub/tojdac/issue/78321/1289165#article_cite