



## Spatial transformation of remote working spaces of university students receiving studio education during the pandemic

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### Abstract

The problem of interacting in the distance learning education process comes to the forefront, especially in applied and in-studio courses such as design education. To increase this, a unilateral effort is not enough; a different mutual effort is required compared to face-to-face education. One of these efforts is the construction of the learning environment. Based on this, this study focuses on how studio education students organize their physical learning environments during their distance education process. In this study, it is aimed to observe transformations caused by the learning process in the home components. The study was held with students who received design studio course at Muğla Sıtkı Koçman University, Department of Architecture and Karabük University, Industrial Design and Graphic Design departments. The search in the process of creating a personal learning space, the relationships between old-new positions or situations, and the reasons for which these transformations are needed are examined. The ability to establish this interaction even in different environments will carry the perception and awareness of learning to a different point and enable the discovery of unique processes in a personal sense. The current position can be considered an intertwined 'breaking' moment when everything becomes complicated and seems unresolved. In this study, which is a search for spatial arrangements made by students within their possibilities, the primary research question is 'how does spatial transformation take place during the pandemic?'. This study reveals how students create learning codes for the physical space in which they will perform creative thinking and how these codes are reflected in the transformation of physical space. It is thought that codes related to personal learning can be developed with the hypothesis stating that efficient production stages can be realized by solving location-related problems with experience.

### Highlights

- The scope of the study will remain in the context of 'creating a workspace.'
- The fact that the individual cannot find another escape from home has led to an increase in both spatial and personal burdens.
- It seems that the concern of 'creating a place' is formed, unlike a pure learning space and being physically present there.

### Keywords

Remote learning; Design education; Belonging; Aura; Studio culture

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## Pandemi döneminde stüdyo eğitimi alan üniversite öğrencilerinin uzaktan çalışma alanlarının mekânsal dönüşümü

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### Öz

Uzaktan öğrenme sürecinde etkileşim kurabilme sorunsalı, özellikle uygulamalı ve tasarım eğitimi gibi stüdyolarda geçen derslerde kendini ön plana çıkarmaktadır. Bunu arttırabilmek adına tek taraflı bir çabanın yeterli olmadığı; karşılıklı olarak, yüz yüze eğitim sürecine göre daha farklı bir emek gerektiği açıktır. Bu bağlamda çalışmada ev içindeki bileşenlerin öğrenme sürecindeki dönüşümlerini gözlemlemek amaçlanmıştır. Kişisel öğrenme ortamı oluşturma sürecindeki arayışlar, bunların eski-yeni konumları ya da durumları arasındaki ilişkiler, hangi gerekçelerle bu dönüşümlerin yapılmasına gereksinim duyulduğu konuları irdelenmiştir. Farklı ortamlarda dahi bu etkileşimi kurabilme becerisi, öğrenme algısını ve bilincini farklı bir noktaya taşıyacak; kişisel anlamda özgün süreçlerin keşfedilmesine olanak sağlayabilecektir. Güncel konum her şeyin karmaşılaştığı, çözümsüz görüldüğü, iç içe geçen bir 'kırılma' anı olarak değerlendirilebilir. Öğrencilerin olanakları dahilinde yaptıkları mekânsal düzenlemelere yönelik bir arayış olan bu çalışmada öncül araştırma sorusu 'pandemide mekânsal dönüşümün nasıl gerçekleşmekte olduğu' üzerinedir. Konuma ilişkin sorunların deneyimlenerek çözümlenmesi ile verimli üretim aşamalarının gerçekleştirilebileceği hipotezi ile kişisel öğrenmeye ilişkin kodların da geliştirilebileceği düşünülmektedir.

### Öne Çıkanlar

- Çalışmanın kapsamı 'çalışma alanı oluşturma' bağlamında sınırlandırılmıştır.
- Bireyin evden başka kaçış yolu bulamaması hem mekansal hem de kişisel sorumlulukların artmasına neden olmuştur.
- Saf bir öğrenme alanı ve fiziksel olarak orada bulunma eyleminden farklı olarak, 'bir yer yaratma' kaygısının ortaya çıktığı görülmüştür.

### Anahtar Sözcükler

Uzaktan eğitim; Tasarım eğitimi;  
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## INTRODUCTION

There are some invisible and visible components in creating the space. While adding movable furniture to visible components during the design process, including the room's heat, light and acoustics, a set of psychological boundaries, competencies, and experience-based components also plays a major role. The resemblance between places manifests itself concerning the codes created as a result of experiences. Personal codes concerning the suitability for work, sleep, and eating may come to the forefront in this context.

In the remote education environment, more personal components play an active role in the learning process. Many codes for learning in the classroom or studio environment emerge naturally as soon as they are included in that environment. However, the codes inside the home are different. While the home is stationary due to a much higher level of belonging, the studio takes a dynamic position. The home is the place to rest, and the studio is the place to work. One of the most challenging situations in the physical, psychological, and sociological sense during the pandemic is the attempt to re-create these codes. When a troubled period within itself is combined with the efforts to create these codes, sometimes gains and sometimes losses can occur.

A design studio is an environment with its unique language, understanding, and, therefore, culture. Time, communication, and interaction are established in a unique environment. The complete decontextualization of the course processes mentioned here has brought about the adaptation to this environment and the focus on the courses themselves. Therefore, the search for wide-ranging harmonization has manifested itself. The state of 'belonging to a place, to a function' in the studio environment brings about the obligations of being directly present in that environment when included in that space. The mission defined for the place shows itself at that point. The fact that the studio, which is a holistic environment where all participants learn from each other, suddenly manifests itself as a situation that is tried to be realized in front of the screen at home has created additional difficulties in the adaptation process. The fact that this process has come true has directly led to significant distinctions between those who can/cannot continue this adaptation process within various possibilities and those who catch/do not catch this process simultaneously. When many common situations in the studio environment suddenly turn into a situation where everyone is included from their place, the number of contexts suddenly becomes uncontrollable. This mutual

ambiguity of context has led to a studio partnership necessitating the participation of the student and the lecturer from a different environment almost every time. The inability to focus due to this variability causes the participant to try to create his/her own learning environment in order to capture a constant component in the study area.

While the purpose of users in the studio is to share something in common, the fact that each individual shares their own process in the home environment comes into play as a compelling component in the adaptation process. At this point, many distracting, demotivating, and obstructive factors are actively involved in the learning process.

Concerning this learning process, it is observed that studies have intensified after the Covid-19 pandemic. The subject of research has become experiences during the Covid-19 pandemic, and transformations after these experiences have started to be included in the literature as a new research area. It has become inevitable that this type of research would increase in applied studio courses such as design education, which are mostly held in a face-to-face and desk environment. While the themes of 'contact, dialogue, and future' have come to the fore, their meaning transformations have begun to be questioned. It is possible that the studio environment, which has been waiting for this research for a long time, has found itself in transformation due to necessity.

A comprehensive study of student returns during the first quarantine period in the Spring Semester of the 2019-2020 Academic Year was conducted at the University of Granada by Torres Martin et al. (2021). It has been pointed out that the said technological possibilities continued to exist before the pandemic but were not used unless it was necessary. It was emphasized that the first period required an urgent strategic plan, however, the necessity of conducting a more comprehensive content and method study in the following periods. Again, in the Spring Semester of 2020, Akış et al. (2020) at İzmir Institute of Technology, Faculty of Architecture, provide a comprehensive study on which platforms, applications, spaces and materials students use in this period. Türkkan's (2020) opinion letter, on the other hand, emphasizes that nothing will be the same as before and that a radical transformation in terms of architectural education is inevitable, both in terms of space and method, and states that this break has ultimately revealed itself with the COVID Pandemic.

In this context, the study by Acar et al. (2021) offers an alternative creativity area for the learning environment after the COVID Pandemic. While focusing on students' actions such as making decisions on their own, taking responsibility, approaching the design problem, thinking and acting, it is emphasized that the content of learning and the methods and tools that educators have used for many years become dysfunctional. It is thought that Acar's (2020) online experiences and opinions in TOBB Architecture Department are considered to be one of the pioneering steps for the first year of architectural design education in Turkey. The experience of augmented reality in architecture and construction, studied by Hajirasouli and Banihashemi (2022), also indicates that developments in this context are manifested in many places and also applied sciences.

Within the scope of increasing studies in the literature, learning pursuits such as remote, distance, virtual and online learning, which seem similar but focus on different approaches, came to the fore in this period. During the social distance period of the process, especially in the pandemic event, collective face-to-face productions were replaced by research for a new experience environment to

be carried out in the environments we call interface. Uncertainties about how to use interfaces efficiently at the beginning enabled social media to be actively involved in the learning process. "Interaction", which is a natural part of the education process in a face-to-face environment, has become more active in many areas in virtual environments. Actions such as interaction, sharing and discussion, which are an integral part of design-oriented schools, have tried to adapt to their different environment over time. Accordingly, in addition to these learning approaches, studies on learning through social media have been frequently included in the recent period.

Many experiences in this process have taken place in the literature, especially within the scope of "remote learning". Within the scope of design education, how the studio lessons, which are mostly one-to-one and with intense discussions, can be "online" or "remote" has become a research topic in itself. Most of the studies have focused on the education process and learning methodology. Within the scope of this research, the multi-component, latent area of the process was focused and the transformations in the home environment in the learning process were studied. Therefore, these invisible components constitute the original aspect of the study.

Due to the pandemic, many studies on remote studio education focus on the distance education model, the efficiency of education, or the learning difficulties experienced by students in the process. Undoubtedly, the studio environment may seem like a classroom with tables and chairs, but in essence, it is much more than that. The student takes an active role in the studio. According to the needs of the project subject, the studio is the place for active learning, sometimes evaluating, sometimes designing, and sometimes producing. The physical deprivation of this environment has caused each student to establish this area for himself in his home environment physically. Based on the idea that the learning environment cannot be considered independently of learning, this work aims to reveal how students organize their learning and production environments in home conditions. In this sense, this research, which differs from other studies, reveals the learning codes of the students who receive studio education and how they associate these codes with the space. In this context, this study, 'what are the spatial components in the process of creating a learning environment, how suitable can the home be for this situation, how can it be transformed,' focuses on seeking answers to questions. With the answers to these questions, the student's learning codes were revealed and examined how they used these codes to construct the physical space. This research is located at the home-studio intersection in a spatial context. When studio gains and expectations are integrated with experiences in the home environment, it can be regarded as research for a student who is constantly involved in the home learning environment to have an active learning process. In line with this, student-lecturer and student-student learning relations are at the forefront. When the current themes and research are examined through the literature review, the study differs in the following aspects:

- Bilateral examination of the process: While most studies address the process through the learning environment on a single side, the present study tried to highlight the part where this subject is two-sided in particular. Although this component is sometimes overlooked in the face-to-face learning process, it contributes to learning on a large scale that cannot be ignored in the remote learning process. The question of how to intervene in this unfamiliar component with limited visibility, in a sense, is a very sensitive issue.

- Avoiding template propositions: The study highlights possible situations tried to be shared instead of suggesting a template learning environment as elements that must be evaluated in these multifaceted situations. The study especially avoids making a stereotypical suggestion. While improvements can be made regarding the process, students satisfied with their situation should not be ignored.
- Being a study at the intersection of industrial products - architecture – furniture: Design research, which is always open to different disciplines, has been addressed together with the furnishings or products in which it is actively involved in the remote learning process.

## LEARNING ENVIRONMENT PERCEPTIONS

Learning is defined as a holistic process of self-discovery rather than memorizing pure knowledge. In the process of self-discovery, learning and maturation develop interrelatedly for the individual. While some core resources such as previous experiences, motivation and attention play an effective role in this development, they also differentiate simultaneously (Miller, 2009; Senemoğlu, 2020). Ellis-Ormrud (2013) defines learning as the long-term changes that occur in our mental symbols and connections as a result of experience. The emphasis here is on the fact that change should have a certain permanence rather than being instantaneous. Similarly, instead of an involuntary action like any reflex, it must have been consciously acquired as a result of experience.

The acceleration of the pace of daily life affects the learning method, approach and environment. The fact that the process of internalizing and becoming permanent knowledge takes place in shorter and shorter time intervals is a necessary outcome of life. Therefore, as Özden (2003) emphasizes, one of the most fundamental features of the 21st century is the introduction of new and different approaches to how individuals can access increasing information and how their needs can be met within this time period. New approaches should be sought to bring new skills to the fore. These skills are discussed in the literature under the headings of creativity and innovation, critical thinking, problem-solving, decision making, learning to learn, metacognitive awareness, communication, and collaboration (Binkley et al., 2012). Again, for an active learning environment, participation and collaborative work come to the fore (Colomer et al., 2020).

The process of acquiring these skills also creates a culture in itself. A unique learning culture develops in environments such as design education that operate on a project-based structuring model. Project-based learning provides individuals with a series of vital skills that integrate with lifelong learning, such as co-working skills, meeting, making plans, setting goals, arranging tasks, and time management (Yurtluk, 2005; Bilen 2002). Therefore, it is not possible to separate the learning culture in the design studio from the vital achievements. When interpreted in the context of design education, especially the way of information production in the studio environment is integrated with the discussion, experience and transfer of the information produced in this environment and is intertwined with design information (Acar, 2021). It seems clear that the quality of knowledge and skill acquisition in environments that do not provide continuity in this direction will not be valid in the long term in the 21st century.

Capturing current debates in education depends on being able to realize transformations together with digitalization (Torres Martin et al., 2021). Emphasizing the quality of education can be realized by being involved in this process. Distance learning approaches used as a transition and emergency solution should be included in careful, careful, and non-random planning (Portillo et al., 2020). The paradigm on learning to learn is now turning into a problematic of creating an environment (Aydınlı & Kürtüncü, 2014). Thus, the environment itself is a direct component of learning. In fact, with the COVID Pandemic, the learning environment with all its definitions has tried to recreate itself. The interactive, shared and controversial nature of the studio environment seeks itself in different environments through alternative approaches.

Studio environments involving the act of design contribute to this discovery process. The transformation of this contributing environment or the production of alternatives creates a potential for the future. In addition to this whole learning process, it is regarded important to discover one's spatial learning tools and experience more efficient production in which the environment is an important part of this process in a personal context. This process has the potential to be built on destroying the one-sided learning environment. While this potential can close itself if the computer is perceived as a uniform screen and a didactic transfer is made, it will be possible to encounter another learning environment by using the situation efficiently and conducting research.

Loris Malaguzzi (1996), the founder of the Reggio Emilia approach, stated that there are three kinds of teachers during the education process of children. The first one is their interactions between parents and teachers. Then the second one is their peers and friends. And the last one is the environment around them (Biermeier, 2015). Correspondingly, the environment can be called the third teacher. According to this approach, the social surroundings are as important as the physical components. So, an expanse area is designed for the children to provide them with a space where social interaction can occur in it. Although this approach is for preschool children, it can also be thought for undergrads. A thesis study by Tam (2022) from MIT, focuses on this pedagogical methodology and alternative learning environment for architecture students. An interaction space which is established outdoors instead of indoors is emphasized in this thesis.

Except for a defined studio space, all around can be named as a learning space. It can be also a digital platform or an interface. Interaction and space components play an important role in this process. According to Katz (1987), the learning process is in communication with four categories on the environment: Knowledge, skills, dispositions, and feelings. These categories also feature the relation between environment-space and senses-aura.

When the space is evaluated as a volume with boundaries within itself, some additional components support the need for limitation, despite time-dependent and even main dependent variables triggering the formation of this space. At some points, a partnership is established in spaces with common experiences and subconscious codes. In a sense, this commonality is among the data that are somewhat 'ready' or 'fixed'. Subconscious codes take them as a common component in creating boundaries for space. However, creating this limit in cases when it is not in the same place at the same time requires activating some other additional parameters. Moreover, the issue of trying to

revive another function in a place without a function is also effective in limiting the space as a separate problem.

Actions are the biggest component that defines the space. These actions, which can be observed in an infinite, unlimited number, may depend on quantitative situations such as the number of people in a place. They also depend on qualitative situations that may develop in relation to the emotional state. Within this endless catalog of actions, space organization is made according to the basic requirements. From the relations of spaces with each other, the whole arrangement of the furniture in that space is included in this organization. Additionally, many components (heat, light, sound, acoustics, etc.), called immaterial, also affect this order.

The inclusion of all spatial components in this experience unlimits the parameters, as mentioned before. At this point, the questions to be asked are 'how long will the definition of "border" remain in the search for a future-oriented learning environment, is there a need to redefine the boundaries, what is the design studio, how and in what direction can its new meaning be transformed.' When considered on this axis, there are concrete and abstract components related to the border theme. In the survey conducted within the scope of this study, questions were prepared based on identifying the components in both directions. At the next stages of the study, which can be gradually examined, it is aimed to investigate the findings obtained here. Therefore, while performing a due diligence study, such as revealing the general situation and highlighting the main topics that can be addressed, at another level that can be developed accordingly, a solution search will be carried out by focusing on one of these situations. However, the first step has been taken, based on the situation that a studio environment can be transformed in time-space limitlessness, which is felt primarily due to the proliferation of components.

Staying away from the design studio during the pandemic has necessitated making various changes in terms of method and then space. Accordingly, although a learning environment that can be constructed does not create a 'studio' perception with its current definitions, it is extremely important in adapting to a contemporary learning environment where the definition of this space is transformed and re-interpreted by pushing the boundaries. It is also possible to obtain new data on the transformation of these spaces with the codes in the background thrown into the collective self. As stated by Aldoy and Evans (2021, 300), it is important to develop awareness of digital tools, which are among the components of the environment, and make discoveries in this direction in a pedagogical sense. At this point, it is required that habits related to motivation renew themselves. This situation, which requires mutual renewal, is valid for both the student and the lecturer.

Space can be considered a real situation created in the consciousness of a person who experiences it (Öksüz, 2016). This perception of reality may differ from person to person. When generalization is made, working in a quiet environment may be regarded a situation increasing focus. According to another person's opinion, productivity in the aura of a crowded place is more efficient. In some cases, the home environment is more suitable for work, while the opposite may occur in other cases. This can also emerge as a process occurring at different times of the day for the same person. In the active learning process, the person should be able to create this special area for themselves. It is thought that determining how to internalize information efficiently, rather than a process like



memorizing it directly, is important in self-realization. Therefore, asking the question of 'in what environment, in what aura can I learn information' is important for a student.

## **AURA AS THE COMPONENT OF LEARNING ENVIRONMENT**

When Norberg-Schulz coined the concept of genius loci in the 1970s, he added an area of research to himself with Zeitgeist. While the disconnection of modernism from location connected it to time, it was claimed that the place itself said something and had a soul as if it were a living being. While the place-context-environment was important, it suddenly changed its dimension and started to be discussed as a direct component of life. The spirit of this place paved the way for the idea that even if not tangible, some spiritual situations and feelings about the place could also limit an environment and create a space. Therefore, while the separation of the two concepts after modernism is observed, during the critical periods starting from the 1960s, the concept of the spirit of place was attached importance, especially by architects (Auge, 2016). Another limiting space component of this spirit is regarded to be the aura.

The concept of aura was brought to the forefront with Walter Benjamin's texts on art. Benjamin (2020) defines the aura as a light that surrounds the original work of art, adding the difference to it and making it unique - a halo. The aura gives the object the effect of being present momentarily. Instant existence is the indicator of its reality and the emphasis on its originality and uniqueness. This spiritual wall is located in the specific area of each work of art. Therefore, the so-called culture industry has a different position from many products that have entered mass production. In an age when everything is produced in mass and works of art are reproducible, this periphery gradually loses its meaning and disappears. Attributing this disappearance to society after a point, Benjamin believes that this will lead to social depression. One of the most significant reasons for this is being taken out of context. Beings removed from the context are doomed to experience this loss after a point. Even if the disappearance in question cannot be observed on the mass in the beginning, it manifests itself in a more internal area in terms of meaning. Its meaning changes over time. After a certain point, it may try to produce its new meanings to survive. The handling of the concept of aura on a spatial scale within the scope of the study was firstly matched with the theme of disconnection from the context.

Aura is defined as a subspace area limiting the existence of an object, surrounding it, and facilitating potential interaction (Fahlen and Brown, 1992). The presence of the aura in a subconscious cycle shapes the habits of the place according to that experience. In a new place, traces of the old are searched and coded there. As life continues in the new space, it continues to create its unique codes. It is possible to follow and define it even from childhood traces. Especially at this point, 'home' can be defined as a place where both external codes and personal codes are loaded. The home is a haven in the theme of shelter, protected from external impacts. It would be extremely limiting to interpret this as a protected instinct only against external physical conditions. Under today's conditions, it is a place where all kinds of behavioral reflections regarding daily life are avoided. The home is a protector against many spiritual feelings desired to be avoided in daily life. In some cases, although this may not find its exact equivalent, it is a private nature in itself.

Since the aura creates its reactive state, an environment without the aura can create a desire to distance itself (Öksüz, 2016). To get used to a place, an individual first starts to worry about creating an aura by themselves by making use of his/her personal experiences. This is one of the subconscious codes made to feel belonging to a place rather than a situation that the person can define. A place without an aura does not make you feel the belonging. It creates a feeling of being away from there. A place with an aura is a place to stay, a place with a high sense of belonging, a place to visit and choose. An individual has to feel the belonging to survive in a place. Accordingly, it creates an aura that has continuity in its daily life. As much as the individual contributes to this, they also receive support from their environment with some natural and artificial arrangements. Therefore, in the process of transforming a place into a productive one, the effort to create an aura is of great importance.

Along with the pandemic, the definitions of the distinction between 'public/private' area have changed, and many special situations or places have included themselves in the sharing area. Publicity is no longer just coming in contact; it has become integrity that can be realized with simultaneous online connections. Apart from its special meaning, each home has become a place that everyone can see and, in some cases, internalize as if they were there. The transformation process starts with the search for a place in the house for all work-related actions. Then, when the education and learning process is added to this, the home finds many missions more burdensome. The fact that the individual cannot find another escape at this point has led to an increase in both spatial and personal burdens. The aura of the home has evolved from being a sheltered escape to a closed and inescapable place where all life passes. Although different features of various home types emerge as a component here, homes that are disconnected from the environment and have no relation with the outside experience these loading problems much more in the long term.

While the aura is in transformation in this process, the individual who tries to create and live it encounters various difficulties. When the pandemic condition in the cycle of transience and permanence is integrated with the psychology of the process, this transformation manifests itself as a process that includes concern beyond a curious design process. Accordingly, creating a semi-permanent working/production space inside houses becomes necessary. A workspace layout, which can be affected by the number of people living in the house, their occupations, and even their daily routines, shows itself as a situation with too many components and, therefore, problems in cooperation. Depending on this, disruptions may occur in the realization of interaction. Alcocer and Martella (2020) emphasize that homes will probably need to be designed, built, and arranged to include spaces where it is possible to configure work devices and where they can be used efficiently together, probably with the possibility of teleworking in mind from now on. In the process of transforming this temporary situation into a potential, all the components related to the space - the house - should be re-questioned on a large scale.

Within the scope of all these mentioned, a need for a widespread redefinition in many fields is quite evident. Since the permanence or transience of these definitions is questioned, making this construction on a flexible platform will ensure that internalization will be much more articulated in the future. In the survey questions made with students within the scope of the study, a transformation story was interpreted through both the components under the effect of this aura and the furniture, which are the concrete elements in the arrangement process.

## METHODOLOGY

The main research question of this study, which is a search for spatial arrangements made by students within their possibilities, is 'how spatial transformation takes place during the pandemic.' In the sub-headings of this question, the 'how' stage was opened and tried to be understood. Instead of producing point and temporary solutions for problems, it seems more appropriate to conduct research on the background with a systematic search for the process. All research and findings were evaluated in line with this view.

Karabük University Industrial Design, Graphic Design Department, and Muğla Sıtkı Koçman University Architecture Department, where the research was conducted, started the transition process to distance education synchronously and continued with this method. Karabük University provided studio training in Adobe Connect and Microsoft Teams sessions, which only relevant university students can enter in synchronous education. At Muğla Sıtkı Koçman University, on the other hand, he carried out studio training with Course Management System Automation and Zoom videoconference sessions, which only relevant university students can enter in synchronous education. Studio education is organized in such a way that one class hour is half an hour, which is determined by the distance education lesson plan of the universities. In this studio training, it was tried to ensure that all students presented their projects and that the evaluations they receive are listened to by other students. In the distance education of the 1st year studios, which require intensive work primarily in terms of the number of projects, course hours are used for evaluation, study, and production.

The data in the study were collected by employing a survey method. Survey research is a research method used to collect data about people's preferences, thoughts, and attitudes. This method can be used for descriptive, exploratory, and explanatory research (Bhattacharjee, 2012, p. 73; Thomas, 1998). This study focused on how students who took the studio course through remote education transformed their existing spaces for the studio course and tried to learn their preferences, thoughts, and attitudes regarding this transformation.

The researchers created the data collection tool used in the study. There are 36 questions in total in the prepared questionnaire. The survey questions were prepared as yes/no, multiple choice and open-ended and arranged in three parts. The first part focuses on the demographic characteristics of the participants, the second part focuses on the current situation analysis, and the third part focuses on spatial transformation preferences. The questions in the first part focus on age, gender, department, and class information. The participants' living space information and stakeholders were learned in depth in the first part. The second part focuses on the current study areas of the participants. In this section, the indoor location of the study area, the furniture used in this area, the distance education access devices, and the changes made in case the area is moved or shared with another person are learned in depth with open-ended and multiple-choice questions. In the last part, which focuses on spatial transformation preferences, what the participants paid attention to when creating their current study areas, the expectations of the study area, and the relationship of the current study areas with these expectations were learned in depth through open-ended questions.

According to Büyüköztürk (2005), one of the methods used in survey application is data collection on the internet. The remote data collection method is preferred in samples that cannot be observed directly (Bhattacharjee, 2012). Since the study was conducted under pandemic conditions and the students lived in different countries and cities, the questions were prepared on the digital survey platform. The survey link was sent through closed online communication groups that department students use to communicate. After the survey link remained open for 48 hours, the system was closed, and no new responses were accepted. Filling out the questionnaire takes approximately 15 minutes. The data were collected in the spring semester of the 2020-2021 academic year. For this reason, all students who received distance studio education in the fall term and therefore had to organize a study area at home to be used in distance education were included in the study.

While the clustering method was used for open-ended questions in data analysis, central distribution measures (mean) were calculated for numerical data. The clustering method was used for open-ended questions in data analysis. Cluster analysis is used to classify multivariate, unknown, and ungrouped data. Clustering is a reductionist technique enabling data collection in different clusters in line with similarities according to units or variables (Çakmak, 1999, p. 188). Clustering is performed by classifying variables according to the measure of closeness (Çakmak et al., 2015). This study created codes by gathering similar answers in a group, and group frequencies were calculated and analysed.

The scope of the study will remain in the context of 'creating a workspace.' However, since there is no doubt about an active relationship with other spaces in the house, other spaces can also be mentioned based on the relationship at this point.

## **THE PROCESS OF EXPERIENCE: PARTICIPANTS**

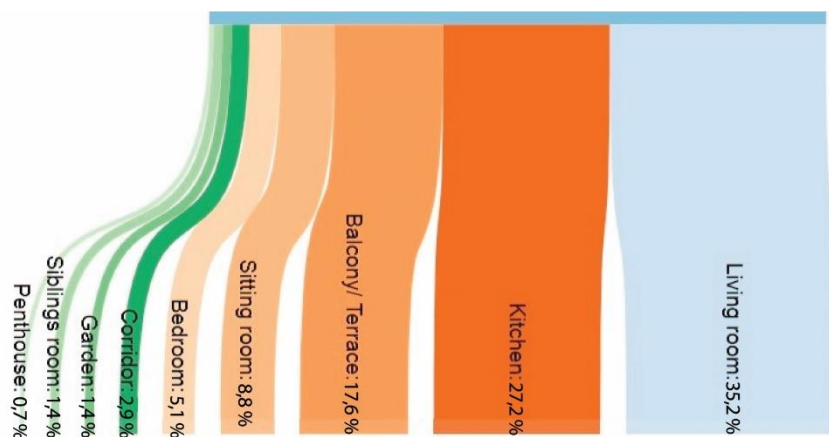
The study was carried out with 136 students from Karabük University and 40 students from Muğla Sıtkı Koçman University. One hundred seventy-six students in total participated in the study. Participation in the survey was voluntary. One hundred fourteen students from Karabük University Department of Industrial Design, 22 students from the Department of Graphic Design, and 40 students from Muğla Sıtkı Koçman University Department of Architecture answered the questionnaire. The participants' mean age was 21.7, and the age range varied between 18-27. Sixty-one percent of the participants were male, and 39 percent were female. Thirty-six percent of the participants were first-year, 35 percent were second-year, 25 percent were third-year, and 4 percent were fourth-year students. Ninety-two percent of the participants stated that they shared their living space with their family, 5 percent with their friends, 2 percent lived alone, and 1 percent with their relatives.

As seen from Table 1, most students stated that their living space stakeholders also conducted remote work or distance education. A significant part of the students indicated that they had their rooms and carried out their studies in these rooms.

**Table 1 - Living area information of the participants.**

Living area information of the participants	Yes	No
Do the people you live with conduct distance education or work distantly?	123	53
Do you have your own room?	124	52
Do you have your own workspace?	133	43
Do you share your workspace with others at home?	96	80
Do you have to move your workspace to different places according to the internal dynamics of the house?	103	73
Has the pandemic caused you to make changes in your workspace?	124	52

Although most students stated that they had a defined workspace at home, most of them indicated that they shared this space with people who worked or studied remotely at home. Accordingly, they said that they had to change the working place according to the internal dynamics of the house. According to Figure 1, the most used space in this context is the living room/sitting room, followed by the kitchen and balcony. The preference for open and semi-open spaces in additional space preferences is associated with model-making. It is noteworthy that the kitchen is preferred as a working area and is in a position ahead of other places.



**Figure 1 - Other areas where remote education is carried out.**

## FINDINGS

As a result of the data analysis obtained from the students participating in the research by clustering, the answers given were grouped, and themes were formed. After the themes were determined, the codes included in these themes were revealed. All the codes that come to the fore within the scope of the study can be examined in Figure 2. In this direction, the research was evaluated over five main themes. These themes are expectations of the workspace aura, spatial factors determining the order of the workspace setup, the effect of distance education tools on workspace setup,

expectations of the workspace environment, and difficulties related to the distance education environment.

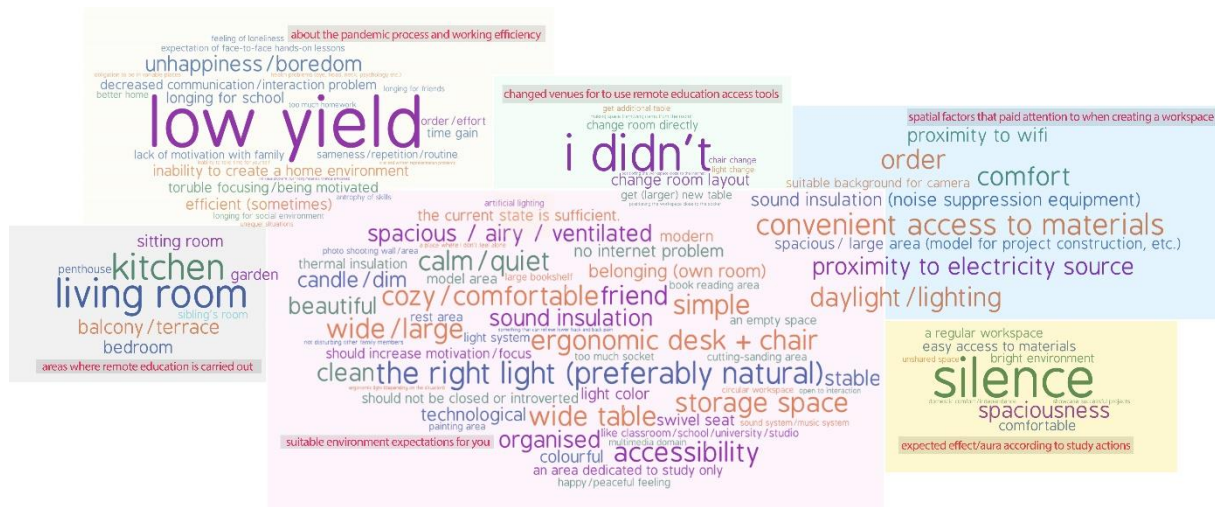


Figure 2 - All the codes that come to the fore within the scope of the study.

## Expectations of the Workspace Aura

Within the scope of the study, it was tried to learn what kind of aura students wanted to create according to their working actions. Students had to transform the study area into a learning and production environment. In what environment students can gain knowledge and in what environment they can produce more efficiently has been a guide in determining the needs of the transformation. The first need we encountered was the order to reinforce the sense of belonging to the area and continue their production efficiently in this area. The need of students to place lecture materials and mock-up materials close to the workspace has led to the need for order. For this reason, 34.5% of students need order in their study area. Students only have the materials they will use that day in the study area they use in-studio lessons. However, in the working area located in the house, all materials should be stored, and technological devices should also be located there. In parallel, it is thought that the students' need for order is reinforced. Students stated that they designed the order to easily access the materials they used during the lecture and study. It is observed that this arrangement also plays a decisive role in selecting furniture to be used in the space.

Another variable needed to create the aura of the workspace is silence with 20.5%. Unlike the studio environment, the difficulty of meeting this need in the home environment caused students to search for alternative solutions. Students experiencing more efficient production in a quiet environment stated that they tried to get away from ambient sounds by employing methods such as moving the workspace to the most silent part of the house, using sound insulation materials in the workspace, using headphones, or listening to the music they preferred. The need for silence in the learning and production environment is followed by spaciousness with 20%. It is observed that students are to create a spacious workspace. Since the smallest rooms of the house are usually given to children, students who have narrow spaces compared to the studio workspace started to perform activities such as working, listening to lectures, storing course materials, and sleeping and resting

in this little space with remote education. Therefore, spaciousness appears as a variable that is needed to create an aura for most students but cannot be realized.

It is determined that the items in the house are used to fulfill different functions in the production and learning process. Placing a work desk in front of the bed in the room, using the bed for sitting, arranging the kitchen table or the dining table as a worktable, and using the chairs designed for eating as office chairs caused a decrease in the satisfaction levels with all the furniture mentioned above. This dissatisfaction led to the emergence of comfort as another variable needed to create an aura. 20% of the students stated that they needed comfort. For the situations mentioned above, feeling psychologically and physically comfortable comes to the forefront in the study. The home environment, which is one's own safe and comfortable environment, has suddenly become a place that everyone can see with the use of cameras in online classes. It is observed that students try to create an area where they will feel psychologically comfortable when they encounter such situations. While defining this comfort zone, foci such as hiding in-room clutter and not entering the camera angle if someone enters the room during the class play a decisive role.

The expectation of a bright environment with 11% emerges as a variable that students pay attention to while creating an aura. It is observed that they take care to provide this with natural lighting. Students are in search of a studio environment as much as they search for a bright environment. 11% of the students stated that they tried to make the environment look like a studio environment to create a workspace aura. What is tried to be simulated here is not only the physical work area but also the provision of actions such as cooperation and communication, which can be done in the studio environment through online applications. It is thought that the search for a studio environment remains in the background compared to other codes due to the intense participation of first and second graders in the research. While the second-year students participating in the study received face-to-face studio training for more than half a semester before the pandemic, the first-year students consisted of students who had never received face-to-face education. It is thought that these students do not see this as a need since their in-class relations are not as intense as in other classes, and there is relatively little or no face-to-face studio experience. These preferences are summarized in Figure 3.

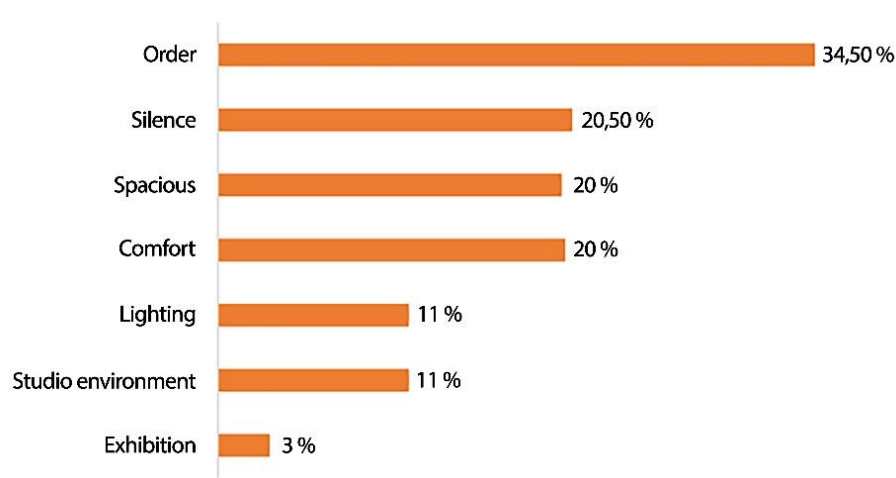


Figure 3 - Ambient expectations for workspace aura.

Exhibiting the works in a place is a variable that 4% of students pay attention to when creating an aura. It is thought that exhibiting works in a space is caused by the desire to strengthen the sense of belonging to the space and make the workspace look like a studio environment.

### **Spatial Factors Determining the Order of the Workspace**

One of the research focuses was on what kind of spatial factors students paid attention to while creating a workspace. When the answers given were analysed, six clusters of spatial aspects were obtained. Easy access to materials is one of these clusters with %38,9. Students stated that they took care to ensure that the distance between the study area and the area where study materials were stored was both spacious enough for them to move freely and close enough to ensure easy access to materials.

In the studio environment, all physical components are arranged for use in design, technical drawing, and model production. This situation may not remain so pure in working areas organized in a home environment. Therefore, interventions may be required for all actions in question. While it is clear where the student will work most of the time in the studio environment, the disruption of spatial continuity in the home environment causes the order to be reconstructed with a new setup. This situation reveals the need for space for model making with 31.6%. If this area is not wide enough, it turns out that the area is redesigned by considering all the processes of action. They emphasized that they took care to keep the workspace wide and spacious to position tools such as tablets, laptops, and phones they used to connect to the lesson and the model materials, drawing materials, tools, and equipment required during the study.

25% of the students stated that they defined an area in the room to create a workspace. Emphasizing the importance of order in this area designated for the study, students indicated that they cleaned the site from all items they thought would disrupt the order.

The internet has been added to studio courses as a new component in the distance education process. Students indicating situations such as disconnection of the internet and insufficient internet quality during the lesson said that they preferred places close to the internet source when creating a workspace. In the long-lasting studio lessons, the charging needs of the lesson access tools led to the search for proximity to the electricity source while preparing the working environment. Students stated that they located their workspace close to electricity sources. For this reason, 15% of the students stated that they considered these components when organizing their study areas. Again, due to the long duration of studio lessons, students said that they prioritized comfort with 9,5% in creating a workspace. While some students changed their chairs to ensure comfort, some changed their desks by stating that they worked more comfortably at tables with large surface areas.

The last element that is paid attention to while creating a workspace is lighting with 9,5%. In particular, students who wanted to take advantage of daylight stated that they placed their workspace in places receiving the most daylight in the room. These preferences are summarized in Figure 4.



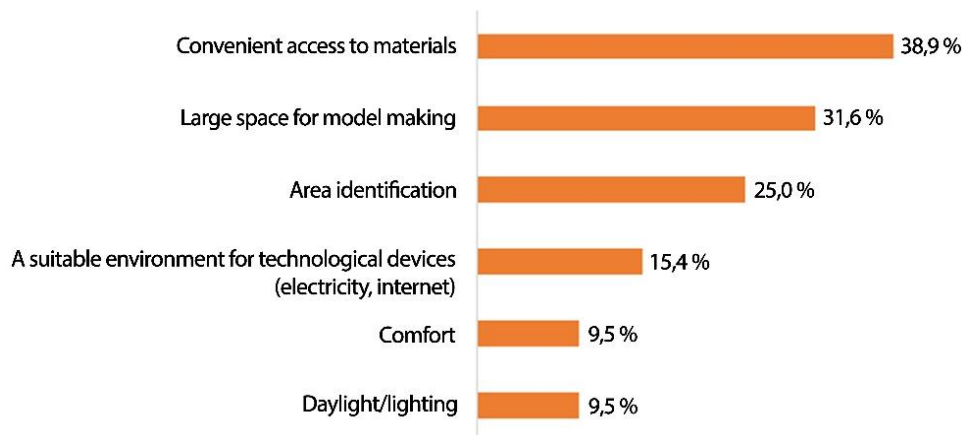


Figure 4 - Spatial factors that determine the workspace editing.

### The Effect of Remote Education Tools on Workspace Setup

It is found that students use laptops, phones, tablets, and desktop computers to access remote education, respectively. Integrating these devices into the working environment is seen as a new design component in the construction of the environment. Due to the lack of such a component in the studio environment, these components cannot become a natural part of the environment. A dual situation arises here. Students who continue to work manually need to position these components in their work areas and define a space for work. In parallel, students who continue their studies via computers use separate devices for work and participating in the educational environment, so it is necessary to design the area for two separate functions. For the comfortable and long-term use of these devices, 50% of the students stated that they changed their existing rooms or changed the layout of their rooms while establishing a study area. Students stated that they chose places close to sockets when repositioning their workspace. Since training is conducted over the internet, the workspace location close to the internet resource is another element paid attention to when creating a study area.

The positioning of remote learning tools in learning and production areas has also caused insufficient space for study. 36.7% of the students stated that they changed/arranged the workspace furniture to solve this problem. To provide a large working area, a different desk is placed in the area, or the existing desk is replaced with another desk of a larger size. For these changes to be made, students stated that they removed unnecessary items from the room.

For access to remote education, some students with 35,2% said that they did not make changes to the workspace. Some students indicated they could not make changes because they were using the existing items, while others stated they did not need to make changes. Some students said that they wanted to make changes, but they could not do it due to the unsuitability of the space. These preferences are summarized in Figure 5.

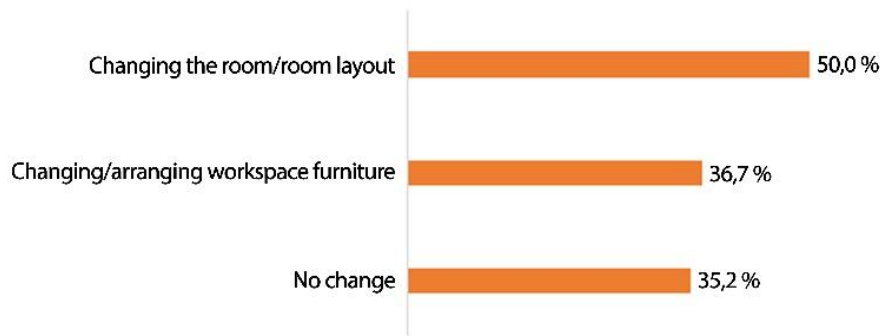


Figure 5 - Changes made to be able to use remote education tools.

### Expectations of the Workspace Environment

It is noteworthy that the priority in the expectations of an appropriate environment is the need for a large area with 55%. Another element that completes this environment is silence with 33%. The aura created by non-physical items and furniture also clearly shows the search for a studio environment in this case. The past codes direct students to a requirement for efficient production. The narrowness of the working area increases the need for a room with large tables.

Following this group of codes, responses on ergonomics with 26,4% and simplicity with 22% are in the second place. The aura created by non-physical items and furniture clearly shows the search for a studio environment with 19.1%. Past codes lead students to a requirement for efficient production. The narrowness of the workspace increases the need for a room with large desks. Accessibility to many different materials simultaneously and furniture placement become essential at this point. While width and simplicity are expected, especially due to the space requirement related to model construction, 11,7% of students have an airy space expectation to avoid being affected by the smell of glue.

In the third code group, the issue of open-semi-open space relations and the need for storage space for materials come to the forefront. Furthermore, the search for a personalized space that integrates with the feeling of 'belonging' in its essence draws attention with %11. Although it is a critical component, it is expressed too little and highlights the priority status of the boundaries of the students' definitions belonging to them. All these expectations are summarized in Figure 6.

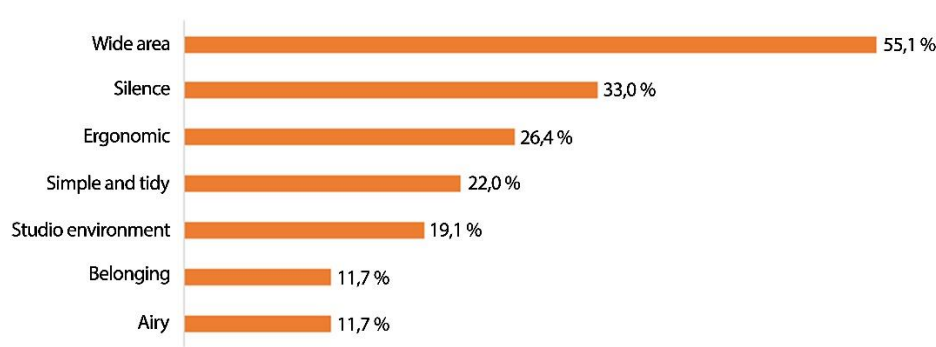


Figure 6 - Students' workspace expectations.

The past studio experiences of the students constitute a reference in determining the working environment expectations. Spacious and quiet spaces that students wish to have at home and airy spaces suitable for drawing and modelling are, in essence, nothing more than the qualities of a studio. On the other hand, students who did not have a face-to-face studio experience designed the space in line with the needs they felt in the studio lessons they conducted remotely in the fall semester. While this area is designed in the home environment, different expectations are placed for actions such as model production, drawing requirements, and positioning access devices to attend the lesson. It is thought that many activities that can be done quickly in the studio environment cannot be done in the home environment, reinforcing the need for the studio environment.

### Difficulties Related to the Remote Education Environment

It seems that the biggest common problem during the pandemic is low productivity. There are many subcomponents of low efficiency. Some of these subcomponents appear as one of the most significant problems of the pandemic period, the out-of-routine communication, and the decrease in interaction. This subject, undoubtedly, constitutes a research base that needs to be spread over the long term, although there are various attempts to search for exchange. The same problem is experienced mutually, and awareness will also enrich the search for solutions to the problem. Codes for creating a personal space, which is intertwined with the topic of 'interaction' and forms the main focus of the study, are also encountered in this question. This condition, referred to as the 'inability to create an environment at home,' causes problems such as the inability to focus and low motivation, but it can also show the effects of boredom and depression from a psychological perspective. In addition to these negative situations, there is also a group of students who find the new order productive, although not at a very high rate, and can increase their studies in this direction. The condition of not being together has made students lonely and alienated them from a standard social life order. Hence, second-degree codes also usually consist of themes of sociability, longing, and loneliness. Statements that the motivation to work has been lost due to the 'home' aura caused by life with the family also draw attention. The fact that everything happens routinely in the same order after a while causes all the problems to be experienced every day, sometimes equally, sometimes increasingly. Figure 7 shows these problems.

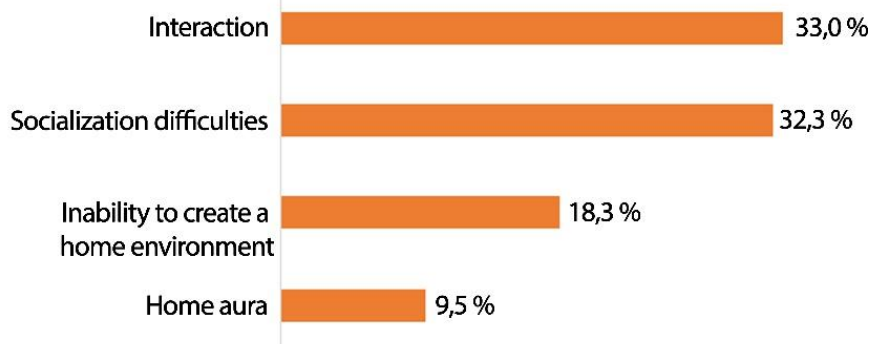


Figure 7 - Problems related to the remote education environment.

## CONCLUSION

Since trying to re-create the codes can be regarded as breaking in a sense, it is one of the most challenging and most resistant periods. While going out of the ordinary leads to a profitable period for those who produce their spatial reality, it has caused those who could not do this to experience a problematic working period. Therefore, the abstract-concrete meaning cycle of objects has played an essential role in defining the workspace at this point. It is possible to see the reflections of this dual situation with certainty in the survey results.

In this context, the scope of the research was limited to the home environment of the student. The experiences that can be included in this home environment and their reflections in the physical setup of the space are directly included in the content of the work. Research such as the effect of studio space on the education process and how it should be are also excluded from the subject of the study.

While the physical changes and transformations in the home environment are taken into account within the scope of the study, a potential reference is made to the future working environments. The background of physical quests, resembling or searching for a place, should be dragged towards a direction that can realize the said contact in virtual environments. A new space setup, in which the symbols of the real thing come to the fore, can completely transform the habits of the learning environment. Therefore, while constructing different learning environments, interfaces that can create that effect and capture that aura can be created instead of looking for physical objects in a classroom or studio. It is thought that instead of interpreting both methods separately in order to create a potential for future studies, new definitions should be introduced in an integrated manner. For this reason, in the study, first of all, preliminary research and evaluation were made about what the physical components are, how they feel and why they are adopted.

When today's learning environment is evaluated holistically, it seems that the concern of 'creating a place' is formed, unlike a pure learning space and being physically present there. In this context, it is impossible to think of the current searches done to create the working aura away from technology. Therefore, more than just furnishing and furniture arrangement, technological components should be included in this arrangement with all their aspects as an active component. The effects of the pandemic do not continue strictly enough to lock all participants in homes as they did in the beginning. In the education model applying remote education and face-to-face education together, students should know themselves, explore their unique working and producing environments, and realize their boundaries. If these happen, it is thought that students will be able to create effective learning environments within the educational process that needs transformation.

## Conflict of Interest Statement

There is no conflict of interest for conducting the research and/or for the preparation of the article.

## Financial Statement

No financial support has been received for conducting the research and/or for the preparation of the article.

## Ethical Statement

Ethics committee approval (Decision no: 2021/05-08) was obtained from Karabük University. All procedures followed were in accordance with the ethical standards.

## Copyright Statement for Intellectual and Artistic Works

In the article, copyright regulations have been complied with for intellectual and artistic works (figures, photographs, graphics, etc.).

## Author Contribution Statement

A. Fikir / Idea, Concept	B. Çalışma Tasarısı, Yöntemi / Study Design, Methodology	C. Literatür Taraması / Literature Review
D. Danışmanlık / Supervision	E. Malzeme, Kaynak Sağlama / Material, Resource Supply	F. Veri Toplama, İşleme / Data Collection, Processing
G. Analiz, Yorum / Analyses, Interpretation	H. Metin Yazma / Writing Text	I. Eleştirel İnceleme / Critical Review

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In 2008, she graduated from Dumlupınar University, Simav Faculty of Technical Education, Department of Furniture and Decoration Education. In 2012, she completed her master's degree at Muğla Sıtkı Koçman University on 'Determination the Effect of Vine Pruning Stalks Impregnated with Olive Black Water Containing Boron were Manufactured Particleboard on Mechanical, Physical and Decay Resistance.' She worked as a research assistant at Karabük University Department of Industrial Design between 2010-2018. In 2018, she completed her Ph.D. on 'Determination of Teenage Bedroom Design Criteria in the Direction of User Expectations' at Karabük University. Now she is working as an assistant professor in Karabük University, Faculty of Fine Arts and Design. Since 2014, she has been giving Basic Design Education and Design Management courses in the Departments of Industrial Design and Graphic Design.

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In 2008, she graduated from Karabük University Safranbolu Fethi Toker Fine Arts and Design Faculty Department of Architecture. In 2011, she completed her master's degree at Istanbul Technical University (ITU) on 'The Role of Critical Thinking in Architectural Education: First Year Design Education'. She worked as a research assistant at Karabük University between 2009-2012, as an architect at Ankara Çankaya Municipality Directorate of Cultural and Social Affairs at 2013, and as a research assistant at Architecture Department of Yıldız Technical University (YTU) Faculty of Architecture between 2014-2017, in İstanbul. In 2017, she completed her PhD on 'Active Studio Experiences in Architectural Design Education' at Yıldız Technical University. Now she is working as an assistant professor in Mugla Sıtkı Kocman University, Faculty and Department of Architecture.