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AN EVALUATION ON PLANTING DESIGN IN SHOPPING CENTER INTERIORS: THE CASE OF FORUM TRABZON

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ABSTRACT: In addition to its ecological effects, planting designs help to obtain a more whole and aesthetic landscape by softening the harsh appearance of the built environment, reducing the visually disturbing features, creating more pleasing and inviting spaces, and integrating the structures into the environment. Plants have become a material that is frequently encountered in many buildings, used to make the space attractive and increase productivity. Shopping centers, where people spend their free time and have social relations, are among the places where planting designs are frequently used, with circulation areas symbolizing streets and squares and spaces supporting recreational activities. In the study, the use of plant materials in the interiors of shopping centers is discussed through the example of the Forum Trabzon. The study consists of 3 stages. In the first stage, a literature background was created by researching the use of plant materials in interiors and shopping centers. The second stage includes the steps of obtaining the data related to the study area, revealing the plant use types in the study area and examining them in the context of functionality, naturalness (living/artificial), mobility (fixed/mobile), and design method (solitary/group). In the third stage, all the collected data was turned into a summary table and the results related to functionality, mobility, naturalness, and design method were revealed in line with the obtained data. Evaluation of the criteria determined in this study, in which planting design is handled through shopping malls, can be a reference for future studies in spaces that serve different purposes.

Keywords: Mall, indoor plants, plantation, Trabzon

ALIŞVERİŞ MERKEZİ İÇ MEKÂNLARINDA BİTKİSEL TASARIM ÜZERİNE BİR DEĞERLENDİRME: FORUM TRABZON ÖRNEĞİ

ÖZET: Bitkisel tasarımlar ekolojik etkilerinin yanı sıra yapılı çevrenin sert görünümünü yumuşatarak görsel açıdan rahatsız edici özelliklerin azalmasını, göze daha hoş gelen, davetkar mekânlar oluşturulmasını ve yapıların çevreye entegre edilmesini sağlayarak daha bütün ve estetik bir görüntü elde edilmesine yardımcı olmaktadır. Bitkiler günümüzde pek çok yapıda sıklıkla karşılaşılan, mekânı çekici hale getirmek ve üretkenliği arttırmak için kullanılan bir materyal haline gelmiştir. İnsanların serbest vakitlerini geçirdikleri ve sosyal ilişkiler gerçekleştirebildikleri alışveriş merkezleri de sokakları ve meydanları simgeleyen sirkülasyon alanları ve rekrasyonel etkinlikleri destekleyen mekânları ile bitkisel tasarımların sıklıkla kullanıldığı mekânlardan biridir. Çalışmada alışveriş merkezi iç mekânlarında bitkisel materyallerin kullanımı Forum Trabzon AVM örneği üzerinden ele alınmıştır. Çalışma 3 aşamadan oluşmaktadır. İlk aşamada, iç mekânda ve alışveriş merkezlerinde bitkisel tasarım öğelerinin kullanımı üzerine araştırma yapılarak literatürel alt yapı oluşturulmuştur. İkinci aşama çalışma alanına ilişkin verilerin elde edilmesi, çalışma alanındaki bitki kullanım tiplerinin ortaya konulması ve işlevsellik, doğallık (doğal/yapay), hareketlilik durumu (sabit/hareketli), tasarım yöntemi (soliter/grup) bağlamında irdelenmesi adımlarını kapsamaktadır. Üçüncü aşamada ise toplanan tüm verilerin özet bir tablo haline getirilerek elde edilen veriler doğrultusunda işlevsellik, hareketlilik, doğallık ve tasarlama yöntemine ilişkin sonuçlar ortaya konmuştur. Bitkisel tasarımın alışveriş merkezleri üzerinden ele alındığı çalışmada belirlenen kriterlerin farklı amaçlara hizmet eden mekanlarda da değerlendirilebilmesi sonraki çalışmalar için referans oluşturabilir.

Anahtar kelimeler: Alışveriş merkezi, iç mekan bitkileri, bitkilendirme, Trabzon

INTRODUCTION

Planting design, which is a phenomenon that occurs as a result of the interaction between nature, humans, and space, aims to increase the quality of human life and to restore the balance between nature and humans while achieving an aesthetic appearance. Planting designs provide a more livable and lively appearance in the areas where they are applied. Planting designs provide people with the opportunity to meet nature by getting rid of the pressures of daily life. Planting designs help to obtain a more whole and aesthetic appearance by softening the harsh appearance of the built environment, reducing its visually disturbing features, creating more pleasing, attractive, and inviting spaces, and integrating the structures into the environment. Although plants are often used as materials for aesthetic purposes, their functional use is also quite common (Tuğluer and Gül, 2018; Tuğluer and Çakır, 2019). Applications for versatile use and benefit can be realized with the designs by using appropriate plant species and appropriate design principles and elements. Plants, which are complementary living materials visually, functionally and ecologically, are used in landscape designs (Oğuz et al. 2009). Plants, with their features such as form, texture, scent, seasonal coloration (flower, leaf, fruit, branch-shoot, and stem), temporal changes (growth, defoliation), contribute to people's satisfaction with the places they live and create dynamic and more livable spaces (Sarı and Karaşah, 2018; Ekren and Çorbacı, 2022). Plants, as the main structural elements of green areas, fulfill many important functions in terms of functional, aesthetic and ecological aspects (Kılıçaslan and Dönmez, 2016).

Planting designs have always been a remarkable and interesting application for people living in crowded cities that have little connection with natüre (Çorbacı and Ekren, 2021). Most human activities take place on the streets, in social and public spaces, workplaces, homes, and in natural or artificial structures that enhance their visual and functional quality. At this point, planting design emerges as one of the best solutions to make spaces more attractive.

People expect the existence of plant materials in every indoor environment where they live, work, and spend time, as well as outdoors. The conservation and green living movements have rapidly increased the popularity of indoor plants since the beginning of environmentalism (Pakvaran, 2010). The use of plants in the interior can also be defined as a design variety or a complementary holistic approach. For a successful interior design, a well-designed landscape is an important resource for the interior designer. The limits of the use of planting materials in the interior have been expanded to a great extent with people giving more importance to the places they live in. Apart from the aesthetic and visual aspects of the indoor environment, plants also affect the general ecology and health of the environment (Baturlar, 2011). At this point, the design and use of plant materials are important in order to create a sustainable design that provides an aesthetic, comfortable, and healthy indoor environment.

Plants can be found in the interiors of buildings of all sizes, such as residences, schools, hospitals, and airports. Shopping centers are places where people spend their free time and establish social relations. They are among the places where planting designs are frequently used, with circulation areas symbolizing streets and squares, and spaces supporting recreational activities. Bozkurt and Ulus (2014) stated that users need an indoor landscape design in shopping centers in order to meet their social needs and relax psychologically. Plants, which are indispensable elements of a natural landscape, can respond to some functional needs besides creating aesthetic, physical, and psychological effects on people. The use of plant materials that meet some functional requirements in the interior is a solution frequently used by interior designers. In this study, the plant materials used in the interior are evaluated in terms of functionality, mobility, naturalness, and design method and discussed through the example of Forum Trabzon.

Plants in Interior Designs

Indoor means all spaces that are closed. On the other hand, indoor plants are defined as plants that can survive in indoor environments similar to their own growing environments, artificially provided in pots or various containers by removing them from the ecological environment in which they naturally grow (Ulus, 1993). Plants, which carry traces of nature in artificially created spaces, serve as complementary elements of interior design, live among the artificiality created by modern technology and connect with nature, have an important place in interior organization (Çorbacı et al., 2012). Indoor plants are frequently preferred due to the interest in nature, and the demand for indoor plants in modern interior architectural designs is increasing day by day. However, the ability of plants to perform the functions expected of them depends on the determination of some criteria. These are determining the spatial characteristics such as the size and shape of the space, the purpose of use of the plant, the ecological factors affecting the development of the plant, and, in parallel, the selection of species with suitable growing conditions (Sezen et al., 2017). For this reason, the dimensions of the space, the formal features of the space, the characteristics of the equipment and accessories in the space should be taken into account, as well as the characteristics of the growing environment of the plants. The

characteristics of plants, such as color, texture, form, size, and shape, play an important role in forming effective compositions in indoor spaces (Ulus, 2006).

Artificial plants can be used indoors as well as living plants. While the use of living plants indoors is possible by providing suitable environmental conditions, artificial plants are preferred, especially when indoor growing conditions are insufficient or there are no maintenance opportunities. Both types of usage affect the spaces positively in terms of aesthetics, functionality, and psychology, provided that the right designs are applied.
Indoor plant design methods can be realized in two ways: solitary (single) use and group design. Solitary design refers to the act of being used alone as it is interesting in terms of flower, fruit, trunk, stem, branch, and leaf arrangement. (Dönmez et al., 2016). Group design means arranging more than one plant species together to form a composition. In both design methods, the necessity of a functional and visual harmony between the plant and its environment comes to the fore; the plant species used in group design should also be arranged in such a way that a visual unity is achieved among them.

Plants have become materials used to make the working environment attractive and increase productivity, which is frequently encountered in shopping malls, hotels, airports, public buildings, offices, banks, other commercial buildings, etc. (Davison, 2017). The purpose of the design made with indoor plants is to evaluate plants as architectural elements by using their various features and to organize livable spaces for plants and functional and aesthetic spaces for people (Yazgan et al., 2003). Indoor plants can have different functions, such as providing space organization, directing or controlling pedestrian traffic, creating a different space by dividing the space, reducing glare and reflection from strong lights, preventing unwanted views or creating privacy (Davison 2017). Plants used indoors also carry ecological functions with their features, such as filtering the noise of the environment, providing acoustic control, keeping dust, producing oxygen, and cleaning the air. They are also used for purposes such as preventing glare and reflection (Bozkurt and Ulus, 2014). The use of plants in the interior also adds an identity to the space and increases its memorability.

Planting Designs in Shopping Centers

The phenomenon of urbanization, which started with industrialization and the industrial revolution, has led to the proliferation of business centers, commercial structures, and shopping centers in cities. Today, the number of large and multi-storey shopping centers has started to increase, especially in big cities, with the effect of advances in technology (Çakar, 2010; Akten and Çetinkaya, 2014).

Shopping centers are public spaces that allow city residents to spend their free time and socialize. The main purpose of the shopping centers, which construct the dynamics of the city in a closed space, is to consume and make people spend more time here (Bozkurt and Ulus, 2014). Places have also changed with the process of economic and social change experienced. In particular, the change in consumption habits, rapid consumption, the density of urban life, and time constraints have also changed people's expectations of shopping centers and have led to the formation of today's shopping centers (Kösa and Güral, 2020). Shopping centers are urban attraction points that have the idea of presenting the positive features of outdoor and indoor spaces together, offering suitable environments and options for activities that can appeal to all users, as well as shopping, thus aiming to be places preferred by everyone (Baudrillard, 1997; Acar, 2006).

The use of plants in shopping centers has been a preferred solution in interior design from the past to the present, as it has a relaxing effect and increases working efficiency. The presence of indoor plants in shopping centers, their species, areas of use and usage patterns, and all of the functional benefits they provide at the points where they are located are important factors affecting indoor plant design. The use of plant designs in the interior, taking into account all of these factors, strengthens the design and makes the space more effective (Kösa and Güral, 2020). The use of plant materials in circulation areas in shopping centers is beneficial, especially in terms of orientation. According to Akar (2010), the most important factor to consider is the positioning of the plants in shopping centers; that the plants should be located at points that do not block the front of the stores; and that artificial plants should be preferred when the necessary conditions for living plants cannot be provided.

The use of plants in shopping centers has been the subject of various research from the past to the present. Birol (2005) reinterpreted the urban texture in contemporary shopping centers; Acar (2006) focused on landscape design in shopping malls; Khabbazi (2009) determined the usage parameters of indoor plants used decoratively in shopping centers; Bozkurt and Ulus (2014) focused on the use of indoor plants in shopping malls and organization; Kösa and Güral (2020) conducted studies on the evaluation of herbal design in the interiors and terraces of shopping centers. On the other hand, this study is about the evaluation of plant materials used in shopping center interiors in line with the determined parameters (functionality, naturalness, mobility, design method) and the effects of the use of these materials on the formation of space organization. This study was carried out at the Forum Trabzon.

MATERIALS AND METHODS

The study, in which the use of plant materials in the interiors of the shopping center is evaluated through Forum Trabzon, consists of 3 stages. In the first stage, the theoretical background on the subject was created by citing journals, books, and research related to planting design in interiors and shopping centers. Based on this theoretical background, parameters for which the use of indoor plants can fulfill functions were determined (Table 1).

Table 1. Functional Parameters of indoor Plant Use

Functionality	References
Decorative/Aesthetic purposes	(Acar et al., 2003), (Khabbazi 2009), (Önder and Akbulut, 2011), (Bozkurt and Ulus, 2014), (Amıraslanlı, 2016), (Sezen et al., 2017), (Erdemir, 2020), (Selim, 2021)
Removing the monotony of the space	(Yazgan et al., 2003), (Amıraslanlı, 2016), (Sezen et al., 2017), (Yerli and Kaya, 2018), (Erdemir, 2020)
Adjusting the occupancy-gap ratio in the space	(Yazgan et al., 2003), (Acar et al., 2003), (Sezen et al., 2017)
Creating/defining an accent effect in the space	(Acar et al., 2003), (Baturlar, 2011), (Önder and Akbulut, 2011), (Sezen et al., 2017), (Yerli and Kaya, 2018), (Kösa and Güral, 2020), (Selim, 2021)
Orientation in space	(Yazgan et al., 2003), (Baturlar, 2011), (Önder and Akbulut, 2011), (Sezen et al., 2017), (Davison, 2017), (Yerli and Kaya, 2018), (Erdemir, 2020), (Kösa and Güral, 2020), (Selim, 2021),
Bordering and dividing space	(Yazgan et al., 2003), (Amıraslanlı, 2016), (Davison, 2017), (Sezen et al., 2017), (Yerli and Kaya, 2018), (Erdemir, 2020), (Kösa and Güral, 2020), (Selim, 2021)
Creating barriers and limiting access	(Önder and Akbulut, 2011), (Yerli and Kaya, 2018), (Erdemir, 2020)
Blocking unwanted views	(Yazgan et al., 2003), (Önder and Akbulut, 2011), (Davison, 2017), (Erdemir, 2020)

The data related to the study area was collected in the second stage, which consists of three steps. In the first step, general information about Forum Trabzon (location, year of construction, environmental features, floor plans and functions, etc.) was obtained. In the second step, the plants in the circulation and common use areas of the shopping center were determined and divided into usage types according to their design and composition (formal, type of plant used, design features, etc.). In the third step, the characteristics of each type were explained in the context of the plant species used, naturalness (living/artificial), mobility (fixed/moving), design method (solitary/group) and their positions were marked on the plan. The evaluations were made for the purposes of use.

The third stage includes the steps of evaluating all the collected data by turning it into a summary table. This table contains information about the functionality, naturalness, mobility, and design method of each type. In the light of all information obtained, suggestions have been made regarding the current situation.

Study Area

Forum Trabzon, located in the Kalkınma neighborhood in the district of Ortahisar, province of Trabzon, was opened in 2008. The Coastal Road, Eyof Park, 100. Yıl Park, and Karadeniz Technical University are located in the immediate vicinity of the building, which was established on a land area of approximately 72.000 m² (Figure 1). In addition, the Forum Trabzon Shopping Center, which is located at the central point of the city with its proximity to the bus terminal and the airport, is heavily used by the residents of the city.

Figure 1. The Location of Forum Trabzon and (Obtained via Google Earth) and Outdoor Images ("Forum Trabzon AVM", 2021)

The architectural project of Forum Trabzon, whose concept design was undertaken by TT Design (The Netherlands), was drawn by CPU Architects (Portugal) and Arup Engineering (Turkey). Forum Trabzon also has an important place in terms of the city's urban identity, with its roof designed based on the waveform, skylights in the form of ship windows, and an elevator axis designed in the shape of a lighthouse. Forum Trabzon has 4 floors and there is a car park for approximately 1700 vehicles in -1 basement floor. While the basement and ground floor are generally areas where shops are located, the first floor has dining, entertainment, and terrace areas (Figure 2).

Figure 2. Forum Trabzon Floor Plans and Functions on the Floors (Adapted from Kurak Açıcı et al., 2018; Kumaş, 2020.)

The Forum Trabzon has approximately 34.600 m² of stores, 4.000 m² of hypermarkets, 5.000 m² of DIY stores, 2.200 m² of restaurants, 2.500 m² of entertainment areas, and 3.000 m² of cinemas (Kumaş, 2020). The building, which has wide circulation areas, also hosts various events from time to time.

RESULTS

Within the scope of this study, which aims to evaluate the plant materials used in the interiors of Forum Trabzon in terms of functionality, naturalness, mobility, and design method, seven types of uses were determined in the Forum Trabzon.

•*Type 1*

Type 1 is a group composition created with living plants by using Peace Lily (*Spathiphyllum wallisii*) under a Benjamin fig tree (*Ficus benjamina*) in a wooden pot. There are 10 Type 1 uses on the basement floor of the shopping center. These plants, which can grow in shady conditions but also respond positively to abundant sunlight, can benefit from natural light since the roof of the section where they are located is glass. Type 1, which can be moved and relocated when desired, is organized by placing seating elements between them along the corridor where it is used in the basement. Thus, it helps to define the seating areas in the space and direct the circulation. Since it is located in the middle of the wide circulation area, it acts as a divider in the space. At the same time, it provides a visual ratio of occupancy-gap in the space (Figure 3). Known for its ability to clean the air and generally effective with its leaves, the Peace Lily draws attention and makes the place attractive with its large and garish flowers during the flowering season (late winter and early spring).

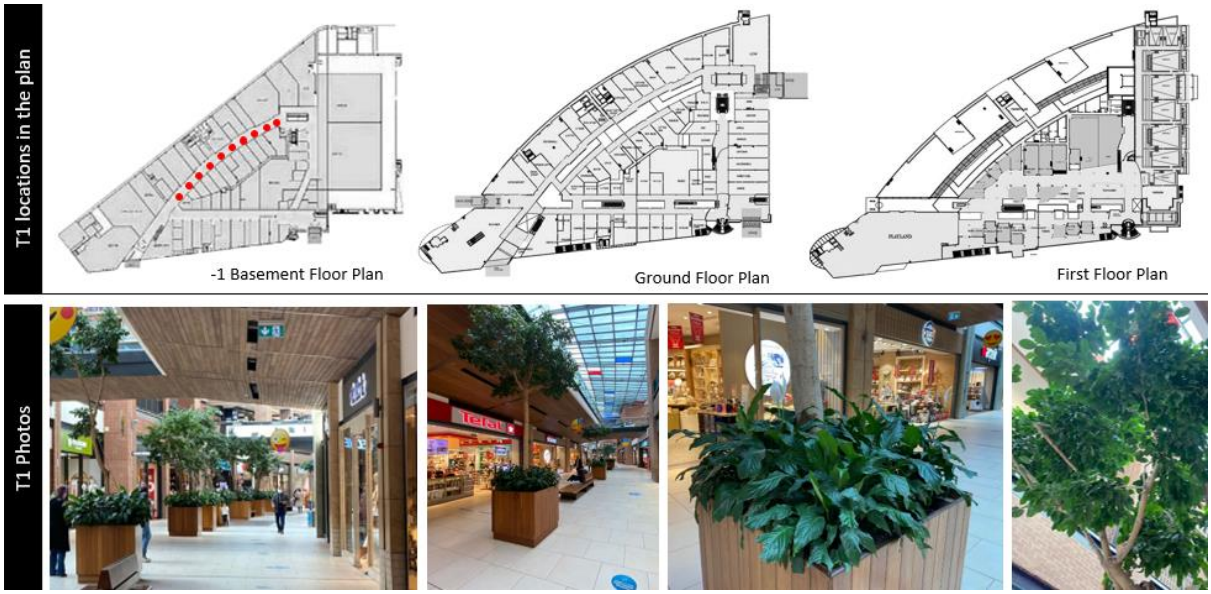

Figure 3. Images of Type 1 and Locations in the Plan

•***Type 2***

Type 2, which has similar characteristics to Type 1, is a group composition in which living plants were created by using Peace Lily (*Spathiphyllum wallisii*) under Areca Palm (*Dypsis lutescens*) in a wooden pot. There are two Type 2 uses on the ground floor of the shopping center. Type 2, which can be moved, is located on both sides of the seating element located at the beginning of the gallery space on the ground floor in the circulation area. Thus, it defines the seating area and provides partial privacy. Furthermore, it contributes to the visual integrity and aesthetic appearance of the space by providing a balance of occupancy and gap (Figure 4). The Areca Palm, an exotic plant that creates a visual feast with its weeping leaves on its thin trunk, provides a tropical atmosphere to the space. The Areca palm is also known to have the potential to clean the air by absorbing polluting gases in the air.

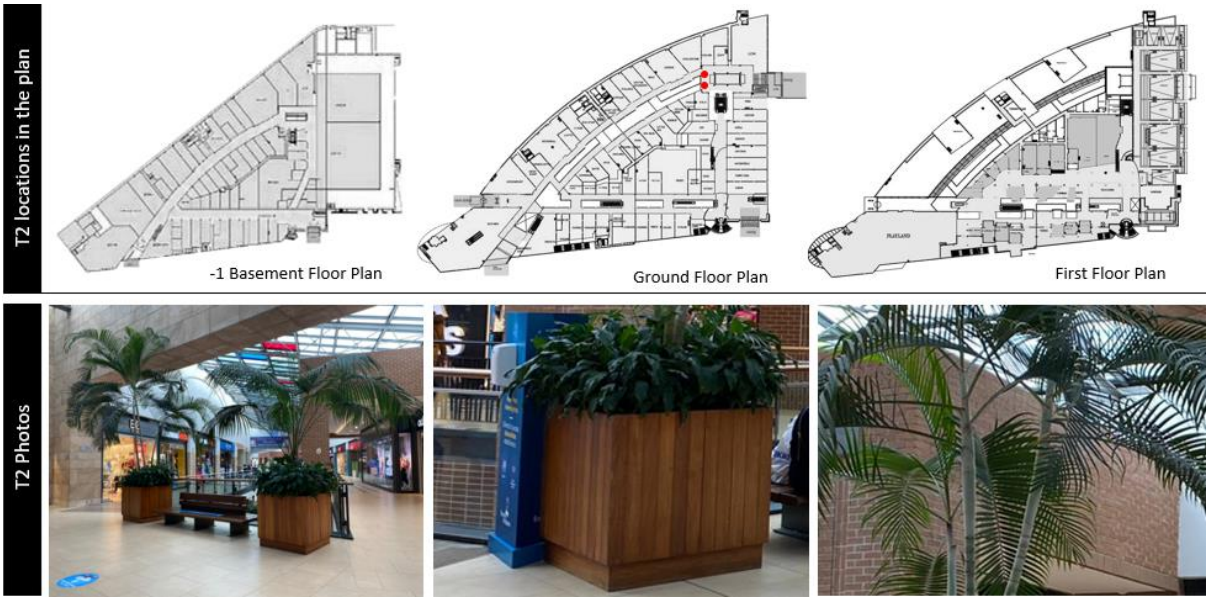

Figure 4. Images of Type 2 and Locations in the Plan

•***Type 3***

Type 3 is a solitary design that is solved with the use of an artificial Date palm (*Phoenix dactylifera)* and dolomite stone in a wooden pot. There are 32 Type 3 uses on the basement floor of the shopping center. Type 3 is fixed and cannot be moved. Type 3 is located on the basement floor in a way that coincides with the gallery space and reaches the ground floor in vertical height. Thus, it provides an aesthetic appearance for both floors. Type 3, which provides the definition and emphasis of the seating areas, also acts as a divider in the space, as it is located in the middle of the large circulation area in the basement floor, helps to direct the circulation and provides a visual balance of occupancy and gap in the space (Figure 5).

Figure 5. Images of Type 3 and Locations in the Plan

•***Type 4***

Type 4 is a group composition created by using artificial Peace Lily (*Spathiphyllum* sp.) and Squills (*Scilla* sp.) in a wooden pot. There are a total of 17 Type 4 units: 2 at each entrance on the basement floor, 2 at the west entrance on the ground floor, 4 at the north entrance, and 7 on the first floor of the shopping center. Type 4, where artificial plants are used and can be moved and relocated when desired, acts as a divider between the entrances of the shopping center and the interior, providing a controlled transition. Thus, it creates a buffer zone and prevents its visitors from entering the shopping center without going through the security control and X-ray device. It also provides an aesthetic appearance to the space visually. On the first floor, it is used to limit the passage between the circulation area and the cafeteria area and to separate them from each other (Figure 6).

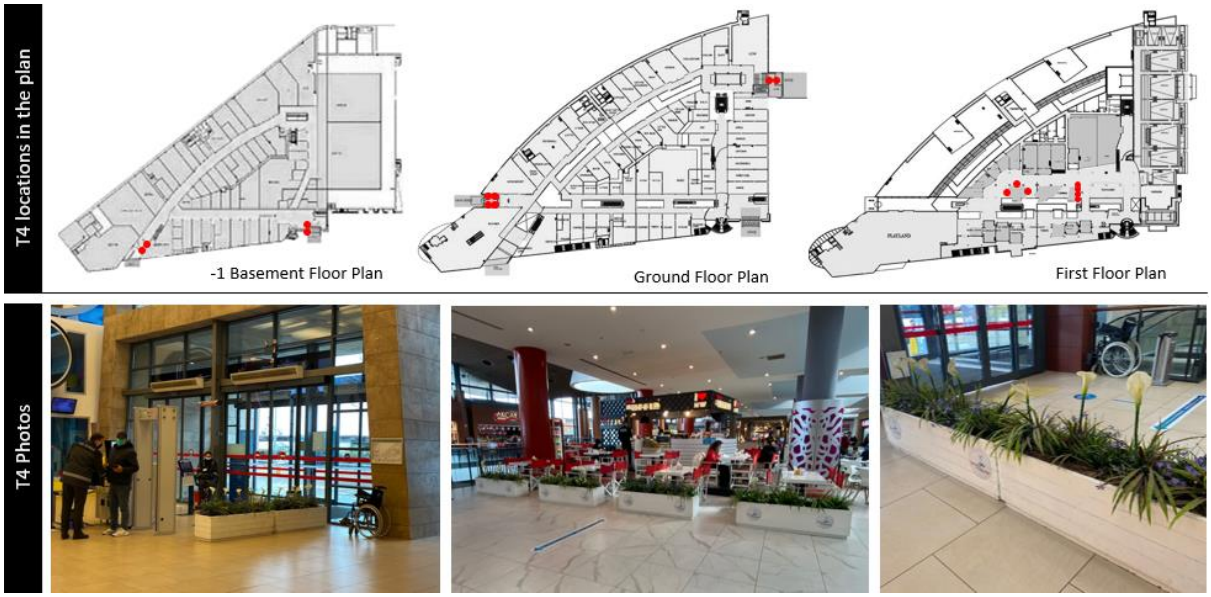

Figure 6. Images of Type 4 and Locations in the Plan

•***Type 5***

Type 5 is a solitary use created by using an artificial flowering fruit tree and dolomite stones in a white pot. There are a total of 20 Type 5 units, 3 in the basement, 5 on the ground floor, and 12 on the first floor of the shopping center. Type 5, which can be moved when desired, is located on the ground floor opposite the west entrance, on both sides of the information area and on both sides of the stairs leading to the car park entrance on the basement floor. Thus, it defines and highlights the sections of the consultation area and entrance. Furthermore, it contributes to the visual integrity and aesthetic appearance of the space by providing a balance of occupancy and gap in the space. Type 5 was also frequently used in first-floor dining areas. Its use in dining areas is for both decorative purposes and to provide privacy by reducing the visual interaction between the tables on the floor, which has a large dining area (Figure 7).

Figure 7. Images of Type 5 and Locations in the Plan

•***Type 6***

Type 6 is a solitary use created by using an artificial unidentified plant and dolomite stones in a circular flowerpot. There are eight Type 6 units in total in the ground floor circulation areas. The fact that it can be moved and easily transported provides a flexible use. The location of the shops on the ground floor of the shopping center in various places, such as in front of the columns, is used for privatization, aesthetic, and decorative purposes, eliminating the monotony visually in the circulation areas (Figure 8).

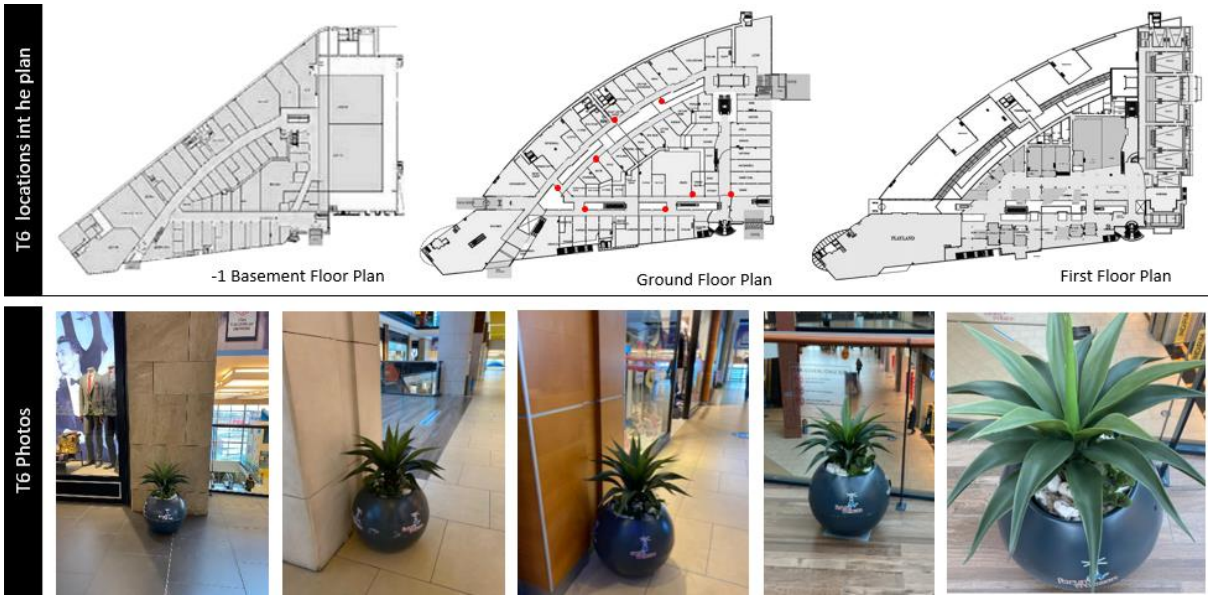

Figure 8. Images of Type 6 and Locations in the Plan

•***Type 7***

Type 7, which has similar usage characteristics to Type 6, is a group composition created by using Spider plant (*Chlorophytum* sp.) and Begonia (*Begonia* sp.) and decorative stones in a white pot with broken lines. There are 19 Type 7 units in various parts of the ground floor circulation area. The fact that this composition, designed using artificial plants, can be moved and easily transported, provides a flexible use. It eliminates the monotony visually in the circulation areas by using the location on the ground floor of the shopping center in various places, such as in front of the columns, for privatization, aesthetic, and decorative purposes (Figure 8).

Figure 9. Images of Type 7 and Locations in the Plan

DISCUSSION AND CONCLUSIONS

Many studies have been carried out on indoor plant preferences, the evaluation of plants in terms of design criteria, and the satisfaction of users. For example, Sezen et al. (2017) investigated the effects of indoor plants on individuals and spaces in residential areas, hospitals, schools, public institutions, shopping centers, and offices in Erzurum city center. It has been seen in the survey results of their study that the colors of leaves, flowers, and fruits of the plants used in space designs and whether the plant is flowering or not have positive effects on the individual and the space. In the survey, it was revealed that the plants that are effective with their leaves add vitality to the indoor space, and those of tropical origin create a tropical atmosphere. In addition, it is also among the results that the use of plants in the right place has effects such as accentuating the space, helping to direct the space, limiting the space and creating a screen effect. In the study conducted by Selim (2021), indoor plant preferences in hotels were evaluated within the scope of planting design principles. As a result of the study, it was stated that the people responsible for the planting designs of the hotels were mostly experts with plant knowledge, and it was seen that the designs made by the experts were positive. The author stated that ensuring the sustainable use of indoor plants in hotels depends primarily on the fact that the plant designs are made by experts and the maintenance requirements are fulfilled. As a result of the study conducted by Kösa and Güral (2020) in 6

shopping centers, it was determined that most of the indoor plants were used in pots. This situation reveals that it is possible to use plants indoors, either individually in pots or in groups in plant beds, and that they can provide various functional benefits in plant designs with these uses. The authors found that highlighting was the most functional benefit of all shopping malls. The functional benefits that follow the emphasis on the interior are determined as orientation, limitation, and separation of spaces, respectively. It has been determined that the most important problem encountered in planting designs in all shopping centers is the inadequacy of species diversity and plant use. Sezen et al. (2017) stated that using plant species that are quite tall and attract attention with their broad leaves in an empty and wide space is the right approach. According to the authors, the use of large plants in narrow spaces may not only restrict the use of the space but also negatively affect the psychology of individuals. The ecological demands of the plants also determine the places of use. A shade-loving plant can easily be used in front of north-facing windows or in corridors away from windows, on facades without windows. Plants that love bright environments should be used on facades that are constantly exposed to sunlight during the day.

The use of plants in the interiors of shopping centers, which allows people to get rid of the routine of daily life and meet many needs, evaluate their free time, and socialize, provides aesthetic, psychological, ecological, and functional benefits. The inferences of the 7 types identified in the study, in which the use of planting designs in the interiors of the shopping centers was evaluated in the light of the determined parameters, on the example of Forum Trabzon, are summarized in Figure 10.

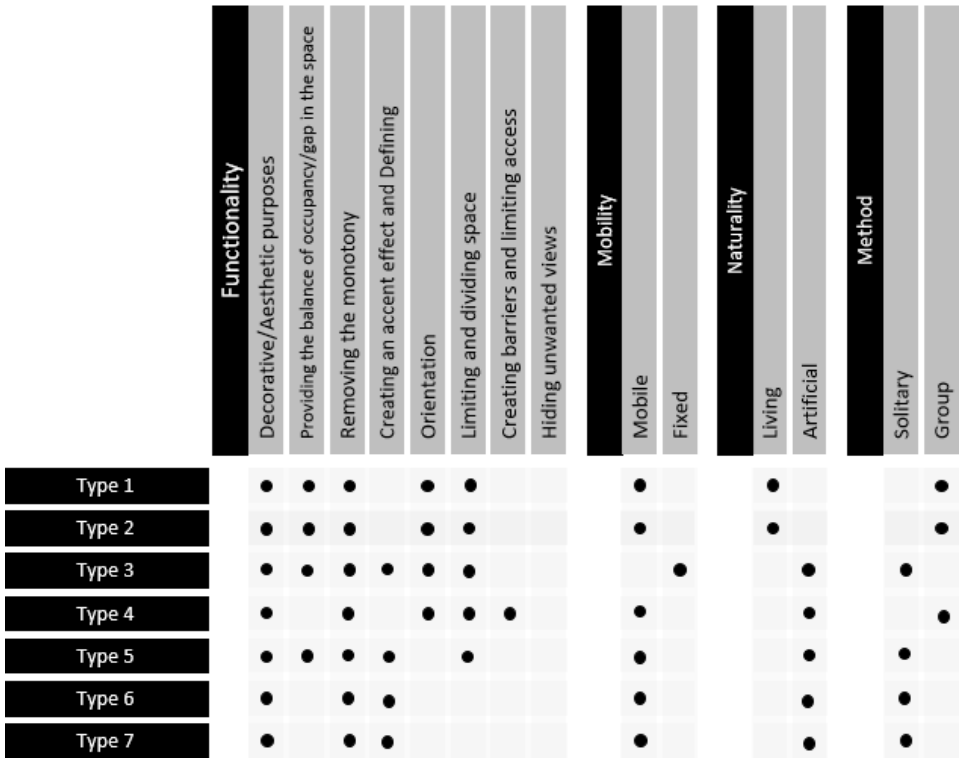

Figure 10. Evaluation of Usage Types in Line with the Determined Parameters

In line with the obtained data in the study, the results regarding functionality, mobility, naturalness, and design method are listed below:

•It is seen that all of the 7 types of use identified in the interior of Forum Trabzon are for aesthetic purposes and to add vitality by removing the monotony in the space. In addition, it is seen that the plants are frequently used for functional purposes such as establishing a balance of occupancy-gap, dividing and directing the space, creating an emphasis effect, and defining the area. At this point, it is possible to say that plant materials are a source that interior designers can refer to both aesthetically and functionally. No example has been found to hide unwanted views in the shopping center. The plant used to create a barrier was used only to provide controlled passage at the entrance of the shopping center.

•It is seen that five types of planting designs used in the shopping center were created with artificial plants, while only two types were created using living plants. In order for the plant materials to survive, the necessary environmental conditions must be provided. It is also known that there are a number of indoor plants that can thrive indoors under various growing conditions. It is a preference that most of the usage types consist of artificial plants. It is thought that the lack of technical personnel to take care of the plants in the shopping center is the reason for this. It is seen that Type 1 and Type 2, where living plants are used, are located in the glass ceiling part, in places that can receive natural light. However, it is possible to create compositions with shade-tolerant plant species such as *Schefflera* sp., *Monstera* sp., *Dieffenbachia* sp., *Dracena* sp., *Aspidistra* sp., and *Sansevieria* sp. in shaded areas.

•The vast majority of plants used in the shopping center are designed as movable items. From time to time, some events are held in the circulation areas and common areas of Forum Trabzon. The fact that the plant materials can be relocated in such cases allows flexible use.

•It is seen that both solitary and group compositions are used as a design method in usage types. Type 3 and Type 5, which are designed as solitary, also customize the area where they are located. Similarly, Type 6 and Type 7 are often found to highlight the boundaries of stores or where columns are located. This is associated with the feature of customizing, emphasizing, and highlighting where the solitary design is used.

•Plants used indoors can make the space attractive by giving energy to the users. But growing and managing plants indoors is a technical matter and requires the implementation of necessary cultural maintenance activities at regular intervals. On the other hand, unsuitable environmental conditions for plant growth and development can adversely affect plants. In this busy world, people may not have enough free time to take care of living plants, especially in home interiors. At this point, artificial plants can offer a good opportunity to people who want to bring the beauty and attractiveness of nature to their living and working environments. It is a known fact that especially high-quality artificial plants produced close to nature are in great demand in these environments. However, the use of very poor quality and ugly-looking artificial plant species, which are not found in nature, also causes bad views in the space.

•Artificial plants have various advantages and disadvantages compared to living plants. Plants are dynamic and can present different views throughout the seasons. When a Saucer Magnolia (*Magnolia soulangeana*) is given as an example, it blooms before foliation in spring, emerges leaves in mid-spring, stays leafy throughout the summer, starts to turn yellow in autumn, and then sheds leaves and stands out with its calligraphic structure in winter. These seasonal changes do not occur in artificial plants, and they present the same view throughout the year. Artificial plants have fewer maintenance requirements than living plants, and it is possible to provide a more realistic appearance with various leaf applications. In addition, living plants

need air, water, and sunlight. However, when choosing artificial plants, there is no need to take into account the characteristics of the habitat. Artificial plants that do not have special requirements can be placed anywhere. Most artificial indoor plants are produced from chemicals and PVC, which are very harmful to the environment and living people. Artificial plants only beautify the place where they are located. Unlike living plants, they do not provide ecosystem services. Therefore, benefits such as cleaning the air, sequestering carbon and releasing oxygen cannot be expected from artificial plants. For the reasons mentioned above, although artificial plants may seem like a good choice for creating changes in the appearance of space, they do not provide any benefit to humans or the environment as a whole.

If a successful design is to be created indoors; compositions should be created by taking into account the harmony of the plants to be used with the space and each other. While creating the compositions, the design features and ecological characteristics of the plants should be investigated, and the compositions should be created according to certain criteria such as light, water, and temperature.

AUTHOR CONTRIBUTIONS

İrem Bekar: Designing the research, writing and reviewing the manuscript, obtaining the materials for conducting the research. **Mert Çakır**: Writing and reviewing the manuscript and supervising.

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The authors declare no conflict of interest.

ETHICS COMMITTEE APPROVAL

This study does not require any ethics committee approval.

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