

Original Research Article

Measuring the Success Rate of Commercial Complexes in Organizing Leisure-Shopping Spaces (Case Studies: Modern Commercial Complexes in Tehran: Tiraje-Kourosh- Palladium and Tiraje2)*

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Abstract | The role of human secondary needs in general and the need for recreation in particular as an interface between architecture and the environment in commercial spaces is undeniably important. That is why the quality of recreation-shopping spaces in commercial complexes to meet the recreational needs of users is one of the tasks assigned to architecture. This issue can affect the success rate of a commercial complex. The present study examines the factors affecting the success of commercial complex spaces from the perspective of leisure-shopping spaces and evaluates their relationships and the relative importance of each and measures the success rate of 4 selected new commercial complexes in Tehran (Tiraje, Kourosh, Palladium, and Tiraje2). In organizing leisure-shopping spaces, models are provided for designing the environment of commercial complexes that help to make the architectural space more acceptable to the users. To this end, the main question is what are the factors affecting the success of leisure-shopping spaces? And according to the relative weight of each, what is the relative success rate of the selected commercial complexes? Therefore, after recognizing and extracting the components and effective factors from the opinions of experts in the field of place, through logical analysis and deductive reasoning, the proposed model of factors affecting the success of leisure-shopping spaces in commercial complexes was derived. Then, the accuracy of the proposed model was measured and sifted through the Delphi method, based on the opinions of architecture professors, relationships between these factors were measured, and with the help of the ANP (Analysis Network Process), the importance and weight of each factor were determined. The obtained results show the factors affecting the quality and success of leisure-shopping spaces in three general categories: "functional", "physical" and "perceptual", and the most important components based on the number and intensity of its sub-components, respectively, are the physical component. Then the perceptual component and finally the functional component were identified.

Keywords | *Measurement of Success, Leisure-Shopping Space, Commercial Complexes, Quality of place, The Need for Recreation.*

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Introduction Modern commercial complexes are the adaptation of recent centuries of architecture and urban planning from a bazaar (Abbasi, 2109). During the formation of Islamic cities, its success was tied to numerous social, economic, cultural, and physical functions. But with the changes that take place in the modern era, the traditional markets are no longer responsive to the needs of citizens, and the formation of new commercial spaces becomes a requirement of modern living conditions. In this situation, the type and consumption, and way of life of the people will undergo a vast transformation (Habibi, Mahmoudi Paty, 2017). Modern commercial complexes have been built in the cultural and economic context of society, which has promoted a special lifestyle and leisure. Nowadays, commercial spaces provide the most powerful field for social, economic, and cultural activities that lead citizens to consumerism and fashionism (Hasan Nejad Amjadi, Poormohammadi & Zali, 2021). On the other hand, due to the slow and progressive change in lifestyle and the increasing need for sociable public spaces with the ability to fulfill the need for recreation in society, which has not been realized in urban open spaces, the tendency towards such spaces has increased. Today, the consequences of removing some spaces related to the modern needs of society, such as recreation, leisure, and collective activities, and the purely economic view of these commercial complexes, have affected the quality of urban semi-public spaces. The weakness of modern commercial spaces in creating features such as diversity, surprise, ambiguity, vitality, and many other qualitative concepts of space has caused the failure to repeat the success of the Bazar in the form of some of these commercial complexes.

The users of shopping centers and commercial complexes are of various spectrums, including shopkeepers, buyers, and wanderers, and each group consumes and produces space in a different way, and not necessarily the productivity of the goods services of these centers (Kazemi & Rezaei, 2008). Nowadays, commercial complexes have taken the population from the city level inside and the freedom of social action has increased inside these spaces. The concept of entertainment and shopping is integrated. Practically, after the research of Jansen (1989) in Britain, shopping is considered a part of leisure and entertainment activities. This transformation has revealed a new human identity. Recreational and leisure spaces in shopping complexes, as semi-urban spaces with a significant number of users, play an important role in the formation of an active and cooperative society, because the places of life in social participation need to reread the leisure functions and the need to pay attention to the spaces and places that provide leisure opportunities. and they provide recreation at the city level, and activists which in practice should have the possibility of spending collective entertainment time, which

is necessary for urban studies and architecture (Fakouhi & Amiri, 2016). The construction of a commercial complex, despite the costs, difficulties, and problems, is considered the initial stage in creating a successful complex (Kim, 2002, 596). What differentiates a commercial complex from other complexes is not the beauty and splendor of the building and the multitude of different facilities, but the degree of its success in the mind of the users. However, many external and internal factors are involved in this success. The degree of success of commercial complexes in providing leisure-shopping places has been investigated in this research. The studies and examination of the case studies of this article show that giving priority to economic issues of commercial complexes by owners reduces the potential for success and the absence of users' optional activities in the space.

Problem Statement and Rationale of the Research

Despite being considered a symbol of the modern city commercial complexes are said to lead society to consumerism from a sociological point of view. In the last decade, about 300 commercial complexes have been built or are being built in the city of Tehran, which can meet some of the secondary needs of society and take steps towards the psychological improvement of society. The need for recreation and entertainment time are important actors of society which have been proposed by William Glasser's "Choice Theory", and if the effective components in the quality of the place are considered based on the need for recreation in the spaces of modern commercial complexes, it can be an effective step in ensuring the optimal functioning of these spaces in the urban environment.

The Importance of the Research

Alignment with societal needs in terms of space and location, taking into account the quality and acceptability of built space from commercial complex users and ensuring the decisions and design plans for the construction of these complexes, which are built at very high costs, demonstrate the importance of addressing this category. Modern commercial complexes as urban semi-public spaces, due to the public favor and the increase of social freedom within these spaces, have the ability to shoulder some of the shortcomings of urban spaces in the field of sociability and spending leisure time. Therefore, considering the physical, functional, and perceptual components (which have a variable and interactive nature) in complex buildings can help to improve their function in the city to meet the semantic needs of users and as a solution in urban design and planning.

Research Background

In the review of the background of the research, physical,

functional, and perceptual approaches regarding the quality of commercial spaces have been considered by the researchers, and due to the discussion in the field of semantic needs and the need for entertainment, specifically in this research, it seems more appropriate to present the following items. In America, chain stores increased in the late 1920s. In the 1930s, these stores flourished and became large discount supermarkets. World War II was a period of recession in America, and after that, in the 1950s, suburbanization grew massively. In 1956, with the establishment of the first covered mall in Southland by Victor Gruen and his utopian ideas, this mall became a place of gathering and social and civic hangouts (Khademi & Alipour, 2017). This trend continued in the following years and many shopping centers became covered malls. In the 1970s, "Mall culture" after adding additional uses - such as deli shops, cinemas, and theatres to them, became very popular (Guen, 2016). Almost everywhere in America, a large number of teenagers set their dates around suburban malls. In a research project that was published in the form of an article in 1985, 63% of mall users come there once or twice a week, and most of them spend one to five hours in this space. They rarely go to the mall alone and usually go to these places with their friends. Only half of these people have stated that shopping is their purpose for coming to the mall. Watching others including the opposite sex, playing computer games, and seeing friends and people were the main other reasons (Anthony, 1985). The coexistence of public areas and business units in commercial complexes has confirmed the superiority of leisure over shopping, and the organization of activities in these complexes is such that the possibility of spending leisure time and entertainment under the title of the shopping Centre is provided and it turns out that paying attention to the secondary needs of humans in general and the need for recreation, in particular, can have undeniable importance as a link between architecture and the environment in commercial complexes as a public space. According to William White, people's behavior in urban public spaces is strange and unpredictable, and what attracts people more than any other factor is the presence of other people in the space (Kashani Jou, 2010). Gehl believes that activity occurs in a place where an event had occurred because usually in a space where there is no activity, no new activity occurs. Based on this, he divides the activities of people in urban spaces into three categories: essential activities, selective activities, and social activities. Regarding social activities, before it is possible to consider the quality of the environment as the motivation for the formation of activities; It can be considered as a platform for doing it (Gehl, 2008). According to Gehl's classification of activities, selective activities are the foundation of social activities and are not performed in a low-quality environment. One of the factors in identifying the space as a

successful space is a possibility of carrying out social activities in it. It seems that commercial complexes are transforming into collective spaces (Khademi & Alipour, 2017). Montgomery identifies the key to the success of urban space as having a basis of "balance." It is not possible to create a successful urban space without the presence of economic activities at different levels and layers, and since exchanges are not limited to commercial activities, the urban space should also provide the possibility of creating social and cultural connections (Carmona, Heath, Tiesdel & Oc, 2009). Also, Carr considers the factors affecting the presence of people in urban spaces in five factors: Comfort, Easement, Passive preoccupation, Active preoccupation, and Discovery (Carr, 1990). Comfort: The basic need in space is the need to eat, drink, shelter or have a place to rest, all of these require comfort in the space. Easement: The distinction of easement is defined by comfort in having a person's degree of freedom in the space. In such a way that the feeling of spiritual comfort can be considered a prerequisite for the easement. Passive preoccupation: the environment around a person can create a sense of peace differently without involving the person directly. This feature includes interest, observation, and enjoyment and results from watching a passing scene. "Active preoccupation": This action is the result of direct experience of the place and the people present in it. This experience has a diverse range. Some people feel satisfied by seeing others, meanwhile, others desire to communicate directly. Discovery: From the perspective of Carr, the concept of discovery is defined and explained as the creation of various spaces and landscapes, and various activities to provide various attractions and experiences and create dynamics in the visitors of the space. The category of discovery is linked with the concepts of change and diversity. This category creates a break between everyday and monotonous issues and gives a sense of unexpectedness and suddenness. Also, the PPS public spaces project considers four key elements (Access, Comfort and Mental Image, Usability and Activity, and Sociability) as the key elements of a successful place (PPS, 2000). Physical elements are effective in the accessibility and perceptibility of space. "Why a place is successful and how to create that success is very difficult," says Montgomery. While the meanings of the place are rooted in the physical characteristics and related activities, those physical characteristics do not form the place; rather, it is human intentions and experiences that form the characteristics of a place. Therefore, what the environment provides is a performance that our valuable action shapes. Montgomery considers the successful public space in the type of space activity, which should be as diverse as possible; According to him, without the presence of basic economic activity, it is not possible to create a good place. The place should also provide social and cultural activities (Modiri, 2008). Vitality is also considered one of the important and

effective factors of commercial complexes in the success of leisure-shopping spaces. A lively atmosphere is a space in which the presence of a significant number of users and their diversity (in terms of age and gender) is visible in a wide period where their activities are mainly selective or social (Khastoo & Saeidi Rezvani, 2010). To create vitality in the environment, a stimulating and enthusiastic atmosphere should be provided and planned for its functional needs (Okhovat, 2003). What is almost accepted by contemporary psychologists is that environmental factors are effective in creating environmental vitality and the quality of the environment can promote vitality by providing tools that can be a part of leisure-shopping spaces in commercial complexes. According to Jane Jacobs (2006), diversity will lead to vitality, which includes diversity: in physical, functional, and activities. Kevin Lynch (2003) divides vitality into several parts, which are: survival, safety, adaptability, health, and biological stability. Charles Landry (Landry, 2000) examined the concept of vitality differently, he defined vitality and livability separately and dealt with the problem topically with four major approaches including Economic, Social, Environmental, and Cultural Vitality. He lists nine effective criteria to identify a lively and livable city: useful Density of people, Diversity, Access, Safety and Security, Identity and Distinction, Creativity and Collaboration, Organizational Capacity, and Competition. Although these factors have been introduced as a whole, it seems that they can also be considered to provide the vitality of public and semi-public urban spaces. Paumier (2007) introduces the factors affecting a successful and lively public place as follows: place Location, place Size, place Planning, and place Design (Khastoo & Saeidi Rezvani, 2010). Kourosh Golkar, in his research on urban vitality, defines urban vitality as one of the building blocks of urban design quality (Golkar, 2000). If the environment has the presence of an advanced culture, the need for a special space to perform collective activities is felt in it, and such an environment only becomes meaningful with the presence of people in the place, and it is such that the said space must have the quality of vitality. Besides that, the existence of a lively environment in which the presence of people is more active plays an effective role in establishing social interactions and information exchange. Therefore, the presence of a lively and dynamic environment increases the motivation to establish collective communication and exchange information. It facilitates and increases the interest of people in the environment and can be considered one of the success factors of the space. In the studies of Khademi and Alipour (2017) titled "Malls, the manifestation of today's public space in Tehran?" It has been stated: "Malls are a symbol of consumerism... which have been transformed into places for establishing social relations with a kind of metamorphosis in the desires of people, especially young people... and it is possible to take advantage of this

phenomenon from these places. used in the development of social interactions. The need for social interactions is one of the parts raised in the semantic needs of humans and the need for leisure of users in this research, and other components are also considered in this field. Investigating the influencing factors in the success of commercial spaces, such as sociability, liveliness, quality of the environment, etc., in the face of the need to entertain users in the three main functional, physical, and perceptual areas, to sum up, the component effects on the success and quality of commercial spaces in today's era, which is discussed in this article.

Theoretical Foundation

• Recreation in shopping

Users of commercial complexes buy for various reasons, some of which may not be related to the need for a product or service; For example, customers may shop for leisure needs (Puccinelli, Goodstein Grewal, Price, Raghubir & Stewart, 2009). Some evidence in quality of life studies has shown that there is a strong relationship between leisure and shopping (Heidarzadeh & Hasani Parsa, 2013). For example, Neal et al. (2007) showed that satisfaction with service dimensions has a significant role in the formation of overall satisfaction with the shopping center and plays an important role in the well-being of entertainment (Neal, Uysal & Sirgy, 2007). The degree of the perceived success of shopping in a commercial complex can be achieved through access to recreational facilities, the possibility of eating and drinking in the commercial complex, and considering recreational facilities for children, young people, and adults. In addition, recreational facilities not only increase the well-being of recreation but also increase the well-being of society and the well-being of social relations. People face each other in the commercial complex; create social relationships; are socialized; use leisure services, (for example, they watch movies); eat, talk about social issues, and so on. Carrying out these activities has a positive effect on the social, recreational, and life fields in society (Coclains, 2009). It seems that the combination of the concepts of entertainment, shopping, and leisure time in the spaces of commercial complexes can inspire the integration of uses and functions in the physical plan of the designs of commercial complexes.

• Effective factors in the quality of leisure-commercial shopping spaces

The good design of shopping centers enables users to go around with the least effort and anxiety and also have the greatest chance of encountering goals (oriented to shopping or leisure) (Bitgood, Davey, Huang & Fung, 2012). In other words, the architectural design of shopping centers plays an important role in the circulation of users. Studies emphasize that if shopping centers are well coordinated with the existing context, they can reduce the reluctance of

users to visit (Lorch & Smith, 1993). and make enjoyable use of time, and continue moving in the space after shopping. Some research shows that comfort has a significant effect on users' choices and increases their spatial awareness (Hedhli, Chebat & Sirgy, 2010). The arrangement and diversity of space also affect the user's ease of movement through the location of sales units and corridors (Turly & Chebat, 2002). The pleasant experience of walking in shopping centers has a lot to do with the attractiveness of the space, shops, windows, and service functions (Oppewal & Timmermans, 1999). Also, the variety of shops in terms of nature and appearance in shopping centers has a positive effect and brings excitement to shopping (Wakefield & Baker, 1997). Some researchers believe that the presence of people in public spaces in shopping centers can attract more people to that space. According to this research, a gathering of diverse groups of people of different genders in their shopping centers makes these crowded spaces attractive, safe and meaningful for others (Oppewal & Timmermans, 1999). Although the presence of the crowd for drinking and eating may be fleeting, it can be considered a supportive factor in social interactions for a specific group (Zachrias, 1993). Furniture and decoration are also important factors considered by researchers. The legibility of internal and external routes and the absence of disturbing obstacles can have a positive effect on the quality of users' circulation and their attention to the facilities of the complex (Oppewal & Timmermans, 1999).

Research Method

The purpose of this research is to measure the success rate of commercial complexes in creating leisure-shopping spaces. This research is practical in terms of purpose and descriptive-analytical in terms of data collection. The method of analysis in this research is qualitative-quantitative. The scope of the research includes the opinions raised in this field. By using the purposeful sampling method, the opinions of theorists were investigated in relation to this issue. The method for collecting data was first library studies and photographing and the interior spaces of the selected complexes were analyzed using a questionnaire. In the first part, the opinions of scholars were collected regarding the key factors affecting the quality of shopping spaces, focusing on the recreational function of the spaces. The interior spaces of the selected commercial complexes were analyzed based on the components extracted from the opinions of scholars, and using the opinions of architecture education professors based on the Delphi method, regarding the factors affecting the success rate of commercial complexes, the importance of each sub-component; It was questioned and evaluated. At this stage, the statistical population was determined based on Cochran's formula and out of a total of 188 professors of architecture faculty of architecture schools in Tehran

province and with an error rate of 0.1, the number of professors was 64. In the second part, the effective weight of the criteria and the importance of each one are scored based on the opinions of the professors, and the effective factors in the success of commercial spaces are analyzed based on the research topic, and in the third part, based on the weight of each sub-component in the researched commercial complexes, it is summarized. And the selection of the most successful commercial space is derived (Fig. 1).

Research Process

Talking about the success of commercial spaces in providing leisure-shopping places is talking about improving the quality of the environment, and it is undoubtedly related to different social, economic, cultural, and physical dimensions of an environment, and what is targeted in this research is measuring the success rate. Leisure-shopping spaces are commercial complexes that are important actors in the field of urban spaces. The way to deal with the quality of leisure-shopping places in commercial complexes in this research is according to Canter's model (1977). According to this model, known as the "place" model, the environment as a "place" consists of three interwoven dimensions, "form", "activities" and "image". Since the spaces of a commercial complex are bound to respond properly to various environmental dimensions, leisure-shopping components can be defined as components parallel to the building components of the place. Adapting Canter's "place" theory, it can be said that the success of commercial complex spaces in the field of leisure-shopping spaces is the result of three "physical" components. which includes the main "physical" sub-components and "spatial-architectural" elements. "Functional", which includes activities in space, and "perceptual", which can include components such as aesthetic meanings and issues related to the need for fun and comfort along with security. Each of them is responsible for fulfilling one of the three qualities of the environment, which are organized with an emphasis on leisure spaces during shopping. How to continue the research process based on the extraction of the analyst's indicators and the examination of concepts and criteria in the case studies, leads to the final analysis and the extraction of results.

Effective Components in the Success of Urban Public and Semi-Public Spaces

Multi-purpose commercial complexes are one of the most important public and semi-public urban spaces that have occupied a large area in big cities, especially Tehran, in the last decade. Factors and components that are effective in the success of urban spaces can also be examined in the form of these complexes. To obtain these components, the opinions of the scholars were consulted and they are compiled in the Table 1 with an emphasis on leisure-shopping spaces.

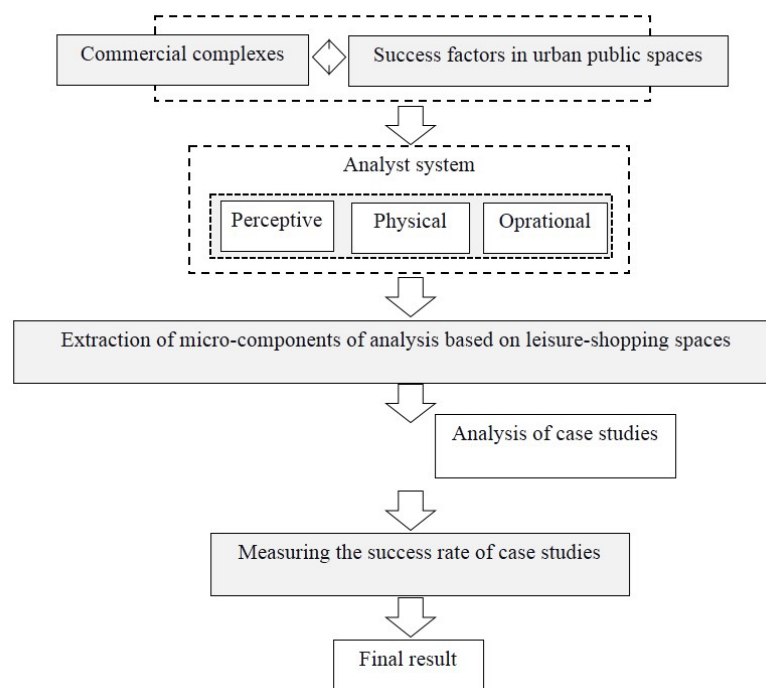


Fig. 1. Analysis Methodology Structure. Source: Authors.

Among the sub-components extracted from the opinions of the scholars, which are categorized in Table 1, according to the compatibility with the research approach and the possibility of examining and analyzing the space in commercial complexes, the refined parameters to perform the final analysis were categorized in Table 2. Based on this, in the three main functional, physical, and perceptual areas, the sub-components that can be considered in commercial complexes to improve the quality of the leisure-shopping space were extracted. The intensity of each effect was determined two by two and scored by Supervision software.

Case Studies

Welcoming users of different age and gender spectrums and spatial configurations different from arcades or shopping malls, as well as the existence of recreational service and entertainment aspects, has led to the emergence of diverse behavioral camps within commercial complexes, which makes it possible to evaluate their success based on gives a research approach. The selected commercial complexes of Tehran city are considered based on the similarity in the number of users and their acceptability, the diversity of spaces and uses in the commercial complex, and considering the location and geographical distribution of the complex in the city, and the possibility of performing spatial analysis for in-depth study, considered as case studies. And based on this, Tiraje, Kourosh, Palladium, and Tiraje 2 complexes were selected (Fig. 2). These complexes are located in different areas of Tehran city, which are different in terms

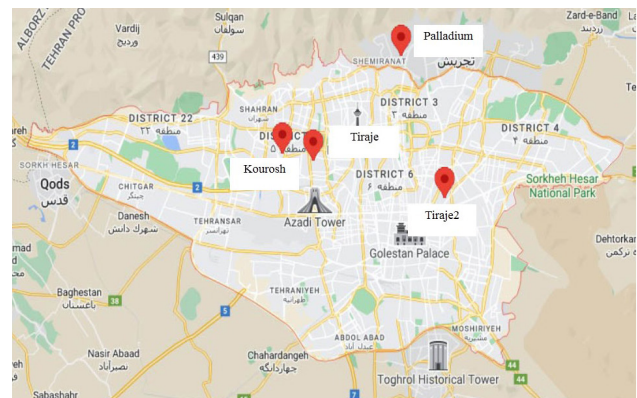


Fig. 2. Geographical location of four commercial complexes on the map of Tehran. Source: Authors.

of population composition and cultural context, and have operated in a trans-regional manner. The analyzes carried out are based on the examination of internal and external spaces based on the component and sub-components of the analyzer (Table 2).

Physical-Spatial Analysis of the Studied Commercial Complexes

• Tiraje commercial complex

This shopping center is located in the west of Tehran and district 5 of Ashrafi Esfahani highway. The oldest investigated complex in terms of construction and operation time is the Tiraje complex, which, however, is considered one of the most successful examples of such

Table 1. Effective components in the success of urban public and semi-public spaces from the perspective of scholars. Source: Authors.

Research components	Component subject	Scholars and theorists
Functional	Sociability Variety of uses	Gehl (2008) Wakefield & Baker (1997) Oppewal & Timmermans,
	Comfort, easement	Hedhli et al. (2010)
	Service functions	Oppewal & Timmermans (1999)
	Good design with the possibility to have fun	Bitgood et al. (2012)
	Environmental capability, compatibility of form and activity	Buchanan & Gillies (1990)
	Security	Lynch (2003) Landry (2000) Oppewal & Timmermans (1999)
	Environmental capability Facilitating side activities (recreational, social)	Wicker (2002) Franz & Wiener (2005)
	Compatibility of the environment with the substrate	Van Der Ryan & Cowon (1996)
Physical	Comfort affected by the balance of the physical variables of the environment	Aspinal (1980)
	Physical diversity	Carmona et al. (2009) Jacobs (2006) Landry (2000)
	Layout, spatial diversity, movement paths	Turly & Chebat (2002)
	Sociable uses, coffee shops, and food courts	Zacharias (1993)
	The attractiveness of furniture and decoration, the readability of interior paths	Oppewal & Timmermans (1999)
	Psychological perception, psychological-well-being values	Kaplan (1998)
Perceptual	Excitement, visual variety	Wakefield & Baker (1997)
	Aesthetic perception Aesthetic values	Kellert (2005) Appleuad1981)
	Lifestyle, norms, wants and needs	Kepes (1972)
	Spatial attraction	Oppewal & Timmermans (1999)

Table 2. Validation of analytical parameters effective in the success of shopping-leisure space of commercial complexes, extracted from the opinions of scholars. Source: Authors.

Perceptual component	Physical component	Functional component
<ul style="list-style-type: none"> - Mental comfort - Passion for sociability - Passion for recreational activity - Pleasantness caused by the beauty of space - Attractive environment - Visual view of the commercial space - Sensory richness - Attractive sounds and images - Norms, recreational, social, and economic needs - Security - Tranquility 	<ul style="list-style-type: none"> - Form and size of the space - Variety of uses - Suitable furniture - The quality of light in the space (natural and artificial) - Presence of natural elements in space - Cleanliness - Materials and colors - Thermal comfort - Spatial arrangement - Materials - Access to space on one level and different levels 	<ul style="list-style-type: none"> - Proper zoning of public, semi-public, and private spaces - Possibility of interaction - Physical efficiency to facilitate recreational activities - Integration of recreational-commercial activities - Fit form to function - Quality according to activity - Legibility of space - Access quality - Variety of movement paths - Flexibility of space - Collective and sociable spaces - Additional services related to the commercial space

complexes in terms of attention to the three analytical components of this research. The main entrance of the complex is considered from the southeast corner. Sub-entrances from other sides of the complex on the east, west, and south sides have also been considered. At the beginning of the entrance, a square is defined, which is mostly built to introduce the interior spaces of the complex, with a height of more than two commercial floors. The most beautiful interior of the complex can be seen through the entrance square towards the main hall. The unique simplicity and readability of the movement paths and at the same time the diversity of commercial walls (as seen in the plans) have attractive visual effects. The breaks of the main path are combined with special furniture. The use of natural elements in the space of this complex is unique among the studied complexes and inspires the audience with a beautiful feeling of being with nature. The furniture intended for relaxing and sometimes gathering on the ground floor is made of wood in an interesting harmony. The appropriate zoning of public, semi-public, and collective or private spaces increases the efficiency of the physical environment in line with the desire for sociability and activity in this commercial-leisure space. At the end of the entrance hall, there is a field dedicated to the use of a coffee shop. The level of user satisfaction with the number and quality of interactive spaces in this complex has been considered significantly by the designer of this complex. Because instead of movement spaces on all floors, areas designed to integrate commercial and social activities have been considered. The distribution of vertical communication elements and especially the appearance of escalators in the space is evaluated positively. Placing the escalator at the end of the main road allows the user to pass through the maximum number of commercial spaces. The proportions of the occupancy level of the complex are such that considering a service-sanitary space in the corner of the plan seems sufficient and no complaints have been registered by the users. The main foyer or the main aisle of this complex has a ceiling as high as the entire building, and the floors of the complex, which are placed in the form of stairs both on the level and in height, reveal all the surrounding spaces in the form of a huge atrium. In terms of the attractiveness of the environment and the visual landscape of the commercial space, it is very remarkable. On the first floor, in addition to the central atrium, three other spaces have been considered, as mentioned in the analysis of the commercial complex, as a factor to show the vibrancy of the users and also to show an attractive effect of the complex at different levels of use. and that it instills a sense of security. The movement paths around the voids increase the attractiveness of walking in the space. Also, the physical-spatial component is the leader in introducing a

sense of passion for activity in the space of this complex to the users, and the pleasantness caused by the beauty of the interior spaces of this complex, along with the quality of the space suitable for activity and function, meets the needs of the users to be present in the commercial-leisure space to Spending entertainment time is satisfying. On the third floor, the same principles have been observed in the attractiveness of the user's movement paths and their form and fit with the activity. The roof of the complex in the main row section allows natural light to pass into the interior spaces. Due to the staggered floors, you can take advantage of the attractiveness and quality of sunlight in a large part of the complex. Quality seems to have been neglected in today's designs of commercial complexes due to the use of the maximum building for commercial spaces, which undoubtedly affects the pleasantness and belonging, and attachment of the user to the place. opinions have been asked. A combination of game space for different ages and fast food restaurants will be the end of the user's commercial-leisure trip to this complex (Figs. 3-5).

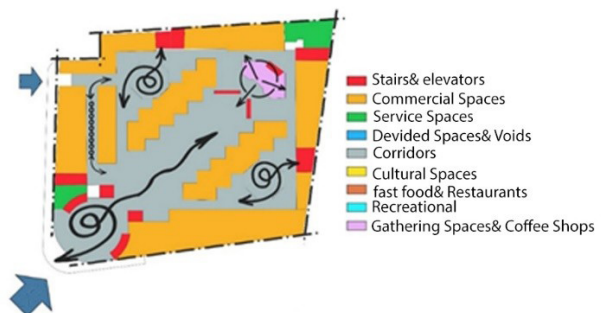


Fig. 3. Schematic plan of the ground floor of Tiraje. Authors.

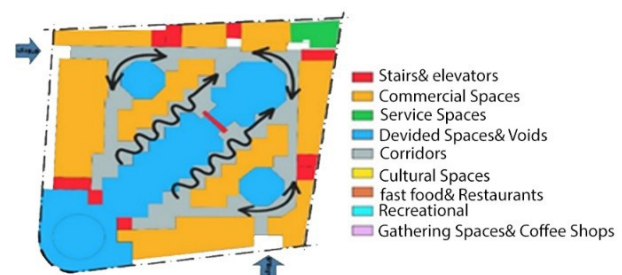


Fig. 4. Schematic plan of the first floor of Tiraje. Authors.

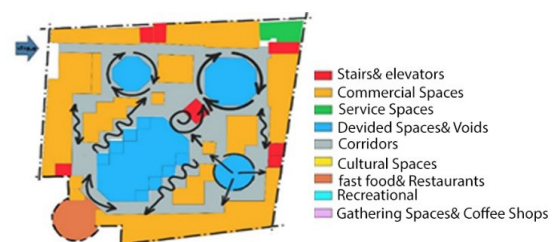


Fig. 5. Schematic plan of the second floor of Tiraje. Authors.

• Kourosh commercial complex

Kourosh complex is located in District 5 of Tehran, next to the intersection of Sattari Highway and Paiambar Street. The main entrance of this multi-purpose commercial complex is located on its southwest side, which after entering an irregular dividing space leads to the main corridor of the complex. Another entrance is located on the south side, which has a better functional position because it is connected to the main hall of the complex. But in terms of its location in the city block, it is considered a secondary entrance. Two other side entrances are planned on the west side of the complex for further connection with the main street. The main lobby or the central square of this complex is considered its strength because upon entering this space, the entire complex is displayed remarkably. The events and actions of the users can be seen almost at the first glance, and this is one of the factors that increase the attractiveness of the complex by the users' manner (Figs. 6-9).

The significant number of escalators that are formed around the atriums give more mobility and vibrancy to the space, which itself is one of the factors that induce

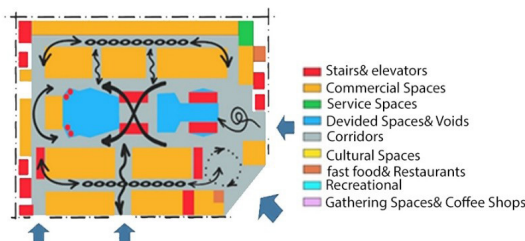


Fig. 6. Schematic plan of the ground floor of kourosh. Source: Authors.

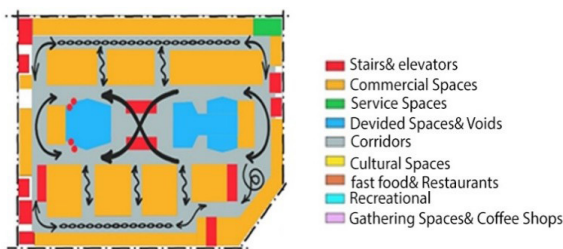


Fig. 7. Schematic plan of the first floor of kourosh. Source: Authors.



Fig. 8. Schematic plan of the fifth floor of kourosh. Source: Authors.

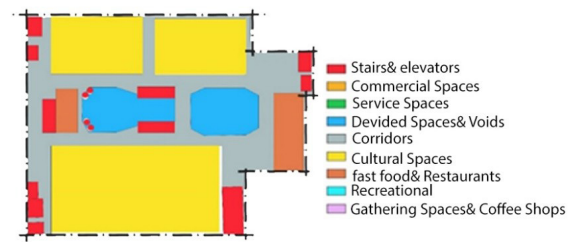


Fig. 9. Schematic plan of the sixth floor of kourosh. Source: Authors.

a sense of security and visual appeal. The commercial space starts from two floors below the ground, and this has made the voids start working from one floor below the ground. The attractive forms of the voids are remarkable aspects and attract users at first glance. The glass elevators at the end of the road invite users to see the views of this complex from other angles. The events that happen on different floors have been briefly exposed. Movement routes without special complexity are placed in longitudinal and transverse directions, and at the beginning and end of each corridor, elevators and staircases are placed as vertical connecting elements. Perhaps, the access to the service space can be considered as the weak point of this complex for the ground floor, because it is considered one of the elements that users pay attention to in the space, and its lack leads to the deprivation of the user's comfort. The physical planning of the floors is such that it strengthens the interest of the users to be on the higher floors of this complex, and almost at a glance, you can see a significant number of vertical communication elements. The first floor of the complex continues the policies of the lower floor, with the difference that changing the central lobby and changing the form of the atrium wall, have created visual diversity in this part. The partition space that was placed in front of the main entrance has become a commercial space. Movement in relatively wide paths with a suitable height is also facilitated due to the continuity of the space. Taking into account the quality of the space and its fit with the activity is one of the significant factors in this complex. Another negative point can be considered not considering spaces for the possibility of user interaction on different floors of this complex. Although there is a coffee shop on the ground floor, rather than that, it is not possible to have such a collective activity on the floors. Although there are different leisure spaces on the upper floors, there is no consideration of proper zoning regarding the possibility of short-term family gatherings or friendly gatherings. The third and fourth floors have been built on the same basis. The turning point of this complex, which can solve the aforementioned shortcomings in the eyes of users, is on the upper floors. The fifth floor of the complex is dedicated to entertainment and service spaces. The

voids of the complex extend up to this floor and above, and as mentioned earlier, it shows the general image of the complex to the audience and encourages them to attend the leisure and cultural spaces of the fifth floor and above. Fast foods and restaurants along with play space for different ages on this floor intensify the desire to live and enjoy recreational activities in this multi-purpose complex. The pleasantness caused by the beauty of the space due to the consideration of many physical-spatial factors such as light, access, security, cleanliness thermal comfort, and the interaction of physical components in different seasons of the year has attracted more and more audiences. Considering 7 cinema halls on the 6th and 7th floors, in addition to attracting as many audiences as possible, especially in the cultural and artistic fields, it has emphasized the multi-purpose nature of this complex.

• Palladium commercial complex

This shopping center is located in district 1 of Tehran and on Moghaddas Ardebili Street. The facade of this complex, which is a combination of volumes and fluid forms along with special materials and executive details, creates the first impression on the user of this complex. The form of this collection induces the first pleasant feeling caused by the beauty of the form, which can be effective in the subsequent perceptions caused by the interior space and the motivation of his presence. The main entrance to the complex is located on the ground floor and on its north side. The north-south extension of the plan of this complex shows the depth of the space at the beginning of the entrance. At the beginning of the entrance is the front space or the main arena, which at first glance shows the quality of materials and executive details to the user. The user's movement path is very wide and far from monotony, it is accompanied by various protrusions and recesses. It creates attractive images of the variety of movement paths and creates a suitable quality according to the possibility of user interaction. At the end of the entrance path, there is a cafe that can be used as a place to gather or relax or as a collective space, Below the main void of the complex with executive details and special materials. At the very beginning, the attractiveness of the environment and the remarkable visual scene arouses the desire of users to continue their presence. One of the strong points of this complex is the attention to the service spaces that are planned in six points of the complex and with proper distribution in the entire plan level. What was mentioned as a weakness in Kourosh commercial complex is considered a strength of this complex. Elements of vertical communication in the form of escalators in the main movement path, display different visual effects from the overall appearance of the complex and emphasize the optimal access at different levels along with staircases and elevators at 6 points of the

complex to emphasize the importance of communication. It seems that the comfort of the users has been particularly important in the design of this complex. On the first floor, two windows at the beginning and end of the path add to the quality of the movement path. Large commercial spaces and traffic routes are still on the agenda with a focus on spatial quality and fitting the form with activity, as well as considering the efficiency of the environment to facilitate activities. As mentioned before, the voids add attractive features to the interior space, in this complex, the spatial openings created by the window itself as an element to display the attractions of the complex from different angles and at different levels, as well as creating Mental comfort and a sense of security. The physical components of this complex have also been considered in a significant way. Things like: thermal comfort, materials and colors, cleanliness of the environment, and light in the space attract the audience and increase the acceptability of the environment as a commercial-leisure destination. In this complex, in addition to the use of natural light in the spaces related to the food court on the third floor, appropriate lighting in other spaces has also been considered along with the use of attractive colors. On the third floor, which is separated from the first floor by a half-floor, a high ceiling has been created in the recreation area of the complex. The spatial layout in the fast food restaurants section that has been introduced to the food court area is one of the features of the environment. In addition to using direct light during the day, this space is always full of users due to the appropriate design of the furniture and the type of usage that follows it. Considering a part of this space as a bookstore is a question that remains unanswered. In general, the form and size of the space and the existence of this space are evaluated as a gathering space and its integration as a space for leisure and recreation in a commercial-leisure complex with the possibility of user interaction in order to facilitate suitable recreational activities. A similar space on the bottom floor of the complex has been considered for different types of rest and gathering spaces with the title of the cafe and related stores, which according to users, a kind of belonging and attachment has formed in this space (Figs. 10-12).

• Tiraje 2 commercial complex

Tiraje 2 commercial complex is located in a different urban location compared to other case studies. This complex was built in 2013 in the 7th district of Tehran, with access to the Imam Ali highway, as the largest shopping center in the east of Tehran with its remarkable appearance, it was built in an area that is surrounded by low-quality buildings and relatively poor economic conditions of the people. Considering a modern complex with the psychological approach discussed in this article such a neighborhood



Fig. 10. Schematic plan of the ground floor of Palladium. Source: Authors.

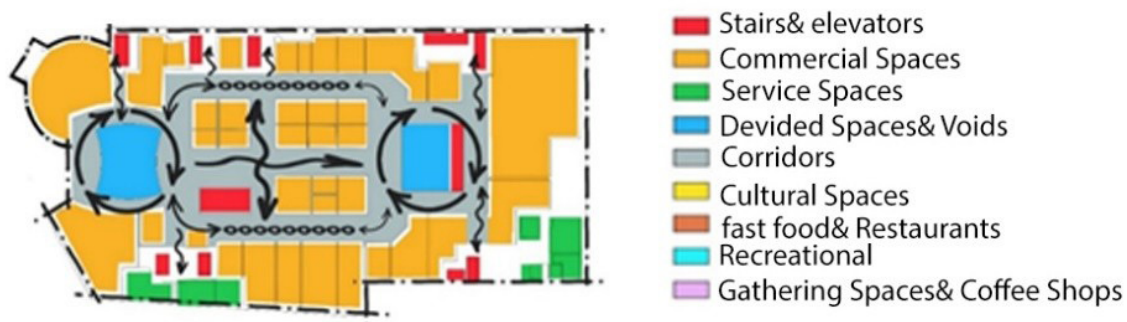


Fig. 11. Schematic plan of the first floor of Palladium. Source: Authors.



Fig. 12. Schematic plan of the third floor of Palladium. Source: Authors.

can have different socio-economic aspects that are not discussed in this research. Like the Tiraje complex, the main entrance is designed with a forecourt or square at the beginning of the main line of the complex, which is considered the most important and main point of view of this complex, along with the simplicity and readability of the movement paths, is considered the main concept of its design. At the end of the main row of the complex, there is a coffee shop, which is under the atrium of the complex and introduces the first public space to the users. The land area is small compared to the other complexes examined

in this paper, and after entering the main path of the complex, the overall appearance is displayed through the central void. A solution to create visual appeal has also been applied in previous commercial complexes. The escalators are located at the end of the foyer and the user must walk to the end of this path to reach the floors. Elements of vertical connections are placed at the ends of the two sides of the central corridor in an acceptable number. On the first floor of the complex, the original structure of the ground floor has been preserved and the entrance playground has been converted into a playground. As mentioned

before, the overall structure in the design of this complex is modeled after the original Tiraje complex, and positive points such as trying to take advantage of natural light and natural plant elements can be seen on the floors. There are cracks along the movement path on the first floor, which did not help the attractiveness of the path. Almost along the paths and corridors, proper zoning for semi-public and gathering spaces has not been considered, and there is no possibility of collective interaction in this complex, and the purpose of designing the commercial floors was only the movement of the user. On the second floor of the complex, the accesses on one level have been modified and, like the floors below, the entry of natural light is one of its design features. The cleanliness and quality of materials and the choice of colors in different parts of the complex along with considering things such as mental comfort, the attractiveness of the environment, the visual landscape, and the integration of recreational and commercial activities in this complex have turned it into a prominent building in the 7th district of Tehran. A different thing happens on the third and fourth floors of this commercial-leisure complex, which suddenly turns the commercial space into a gathering and recreational space. The presence of a food court around the atrium, taking into account the significant space for gathering in the Centre of this floor, as well as recreational and cultural uses, is one of its key points. A point that was clearly deduced from the questionnaires was the reason for the acceptability of the third and fourth floors of this complex compared to its other floors (Figs. 13-16).

Measuring and Screening Factors Affecting the Success of Leisure-Shopping Spaces in Commercial Complexes

At this stage, since the number of identified variables is large, and to identify the variables and reduce the inputs as well as determine the importance of the inputs relative to each other, a weight limit was applied in the model. To do this, a questionnaire with 34 questions (where each question represents a variable) was designed and 64 questionnaires, which were the number of respondents, were provided to them, and all questionnaires were comprehensive and complete. These questionnaires are written qualitatively and based on a five-point Likert scale ranging from extremely important to unimportant. After distributing and collecting the questionnaire, the ANP method was used to determine the most important components. The components whose non-phased average of profs comments was lower than eight were removed. Therefore, out of 34 components, 13 components were removed from the final conceptual model of the research and the final model had 21 components (Fig. 17).

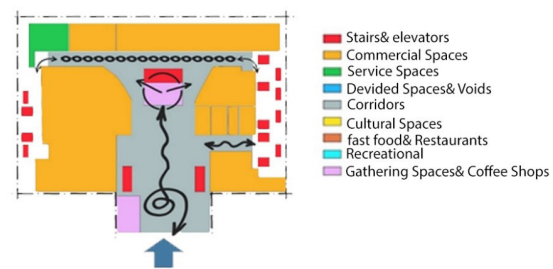


Fig. 13. Schematic plan of the ground floor of Tiraje2. Source: Authors.

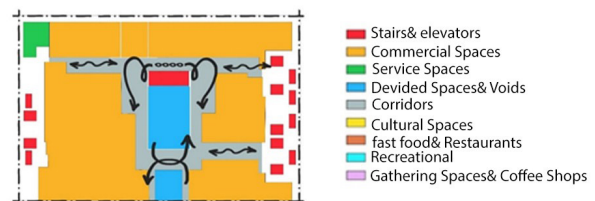


Fig. 14. Schematic plan of the first floor of Tiraje2. Source: Authors.

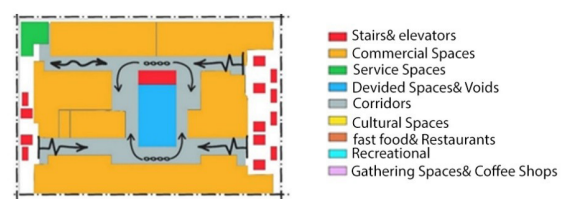


Fig. 15. Schematic plan of the second floor of Tiraje2. Source: Authors.

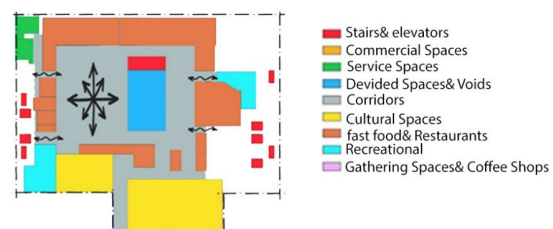


Fig. 16. Schematic plan of the third floor of Tiraje2. Source: Authors.

Identifying the Intensity of Influencing Factors on the Success of Leisure-Shopping Spaces in Commercial Complexes

Multi-criteria decision-making methods are among the most used decision-making methods due to their superiority over other methods in evaluating different options. These methods also can quantitatively and qualitatively evaluate criteria, which is not possible for traditional methods. ANP was provided by Saaty (Saaty, 1999). And its purpose was to solve the problems of interdependence and feedback between criteria and options. At this stage, to identify the importance and

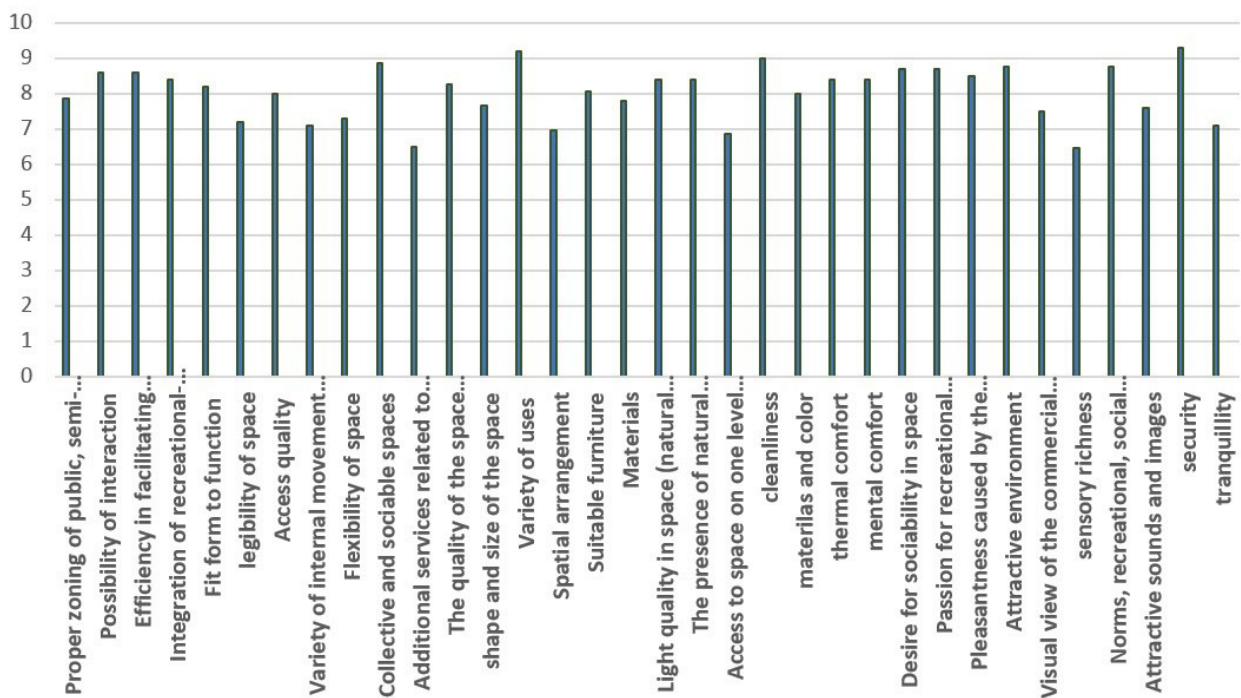


Fig. 17. non-phased average diagram of professors' opinions and their differences. Source: Authors.

severity of each criterion, the ANP method was used, based on the compatibility rate and binary comparison of each sub-component after survey and data analysis, the effectiveness of each factor on the success of leisure spaces. Purchases in commercial complexes were obtained according to Table 2. The final priority of the sub-factors effective in the success of leisure-shopping spaces in commercial complexes was summarized in Fig. 18.

Numerical Evaluation of Sub-Components and Measuring the Success of Complexes

To measure the success rate of leisure-shopping areas of the investigated commercial complexes in general, after obtaining the impact intensity of each sub-component based on the analysis, a number corresponding to each measure was determined based on the space analysis for each commercial complex. The severity or weakness of each sub-component in the commercial complexes of the case studies was considered to range from very high to very low because generally the sub-component under investigation is seen to some extent in the complexes, but according to the degree of influence of each on the success of the space, have different strengths and weaknesses, and in this research, by assigning numbers 1 to 5, their effectiveness on the success of the space was considered. In the end, by obtaining the total points attributed to each

complex, the most points can be considered the most successful complex among the 4 investigated complexes. Based on the space analysis, as well as photography and presence in the spaces of commercial complexes on different days and hours, as well as the spatial analysis, numbers from 1 to 5 were considered for each sub-component for each complex, as shown in Table 3. By multiplying the influence of the sub-components by the assigned number, the score of each component and finally the overall score of the commercial complex were obtained in terms of their relative success (Fig. 19). According to the results of Table 3, Kourosh commercial complex has obtained the most points from the effective "functional" components of "Efficiency of the environment for the occurrence and facilitation of recreational activities" and "Integration of recreational and commercial activities" in this component, and after that Tiraje, Palladium and lastly, Tiraje² are placed. In the "physical" component, the Tiraje commercial complex in high-effective components such as the "presence of natural elements in the space", "quality of natural and artificial light in the space" and "diversity of uses: food court - cinema and theater - spaces for games and the leisure-coffee shop, "cleanliness of the environment and thermal comfort in the space" got the most points, and after that, Kourosh, Palladium and Tiraje 2 complexes were ranked next. and according

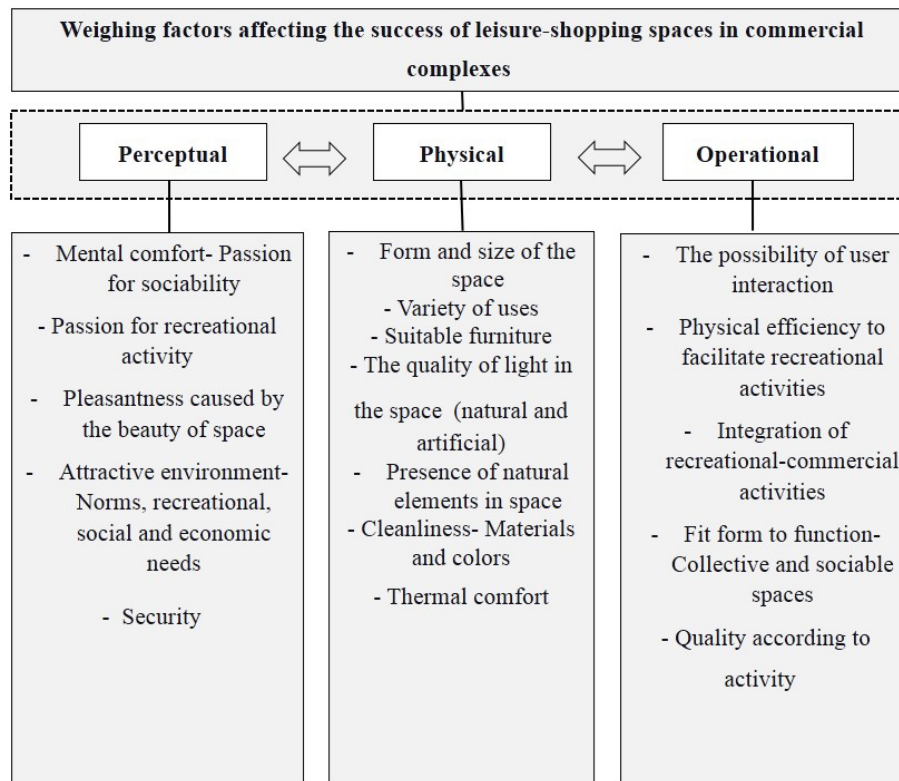


Fig. 18. Components and sub-components affecting the success of leisure-shopping spaces in commercial complexes. Source: Authors.

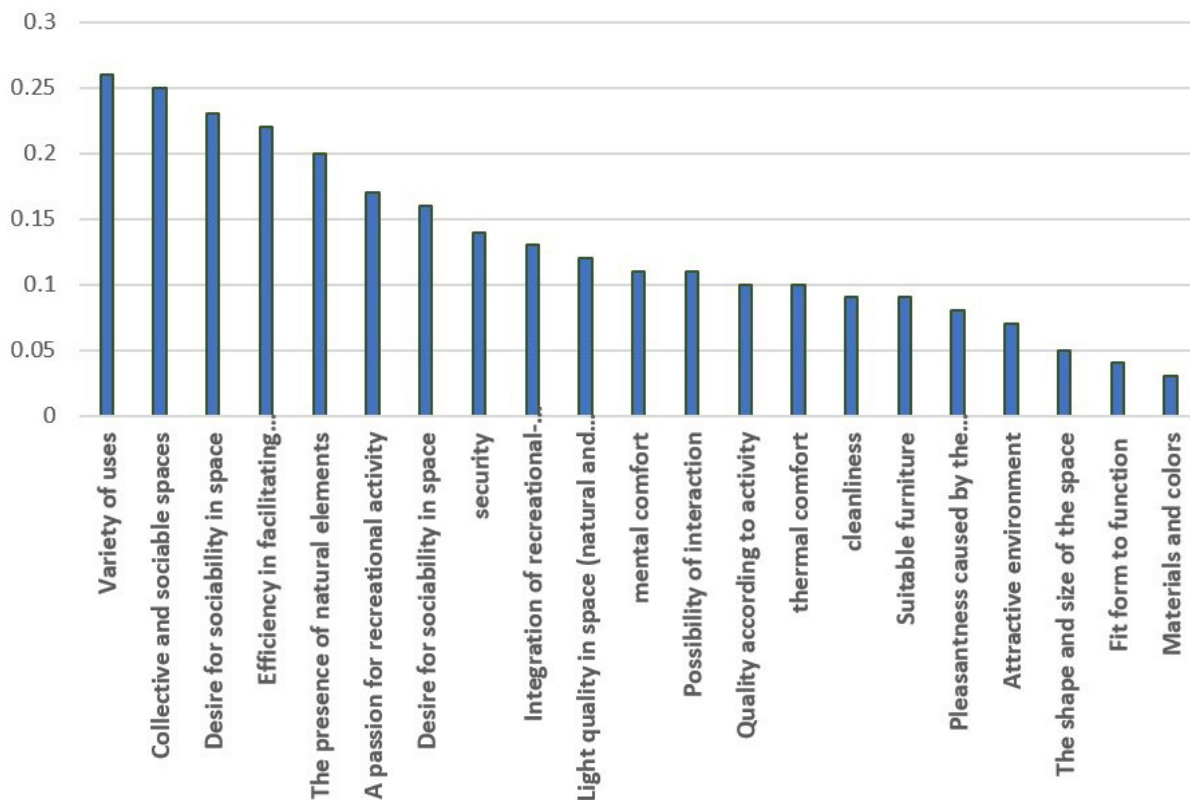


Fig. 19. Diagram of the final priority of the influencing components. Source: Authors.

Table 3 . Numerical comparison of the success rate of the investigated commercial complexes. Source: Authors.

Components	Refined subcomponents	Intensity	Kourosh	Tiraje	Palladium	Tiraje2
Operational	Possibility of interaction	0.12	4	5	4	3
	Efficiency in facilitating recreational activities	0.22	5	3	4	3
	Integration of recreational-commercial activities	0.15	5	4	4	3
	The proportion of space form to activity	0.11	4	5	4	3
	Collective and sociable spaces	0.25	4	4	4	3
	The quality of the space to the activity	0.12	4	4	4	4
	Sum	1	4.25	3.89	3.88	3.03
Physical	The form and size of the space	0.08	4	4	4	3
	Variety of uses	0.26	5	4	3	2
	Suitable furniture	0.09	3	4	3	2
	Light quality in space (natural and artificial)	0.12	3	5	4	3
	The presence of natural elements	0.2	2	5	3	3
	cleanliness	0.09	5	5	5	4
	Materials and colors	0.06	4	3	5	3
	Thermal comfort	0.1	5	5	5	5
	Sum	1	3.84	4.45	6.64	2.94
Perceptive	mental comfort	0.11	5	5	5	5
	Passion for sociability	0.23	4	5	5	3
	passion for recreational activity	0.17	4	4	4	3
	Pleasantness caused by the beauty of space	0.1	4	5	4	2
	Attractive environment	0.09	4	5	4	3
	Norms, recreational, social, and economic needs	0.16	5	5	5	3
	security	0.14	5	5	5	5
	Sum	1	4.41	4.83	4.64	3.40
total points		15	12.50	13.17	12.16	9.37

to the diversity of its interior space and the effective sub-components in the “perceptual” component such as “passion for sociability in the space (residence)” and “Passion for recreational activity in the commercial space” has the highest score and except Tiraje² complex Other reviewed items scored close. In general, by examining the total points of the components, Tiraje commercial complex with 13. 17 out of 15 points is the most successful complex in terms of designing leisure-shopping spaces, followed by Kourosh commercial complex with 12.50, Palladium with 12.16, and complex Commercial Tiraje 2 ranks next with 9. 37 points.

Conclusion

Factors affecting the success of commercial complexes based on the design of leisure-shopping spaces were divided into three main components and 21 sub-components, and the intensity of each effect was extracted by Supervision software and using the ANP method. Considering that the components and sub-components presented in this research are the results of summarizing and analyzing the opinions of expert scholars in the field of architecture and urban planning and the results of the research have been approved by the professors of architecture for commercial spaces.

The result of summarizing this research was considered to be a facilitator in providing design solutions for commercial complex spaces with an emphasis on the category of the need to entertain users. In general, the obtained results show the formation of commercial spaces by emphasizing the effective factors for satisfying the need for entertainment, or in other words, considering leisure-shopping spaces in the three main areas of the place, which include “functional”, “physical” and “perceptual” components. It can lead to the success of these spaces and their acceptance as much as possible. According to the results of the research, to prepare a commercial environment that has suitable capabilities in terms of satisfying the needs of users for entertainment and considering leisure-shopping spaces to fulfill part of the semantic needs of humans, which is one of the duties of architecture, the following items can be taken into consideration in the design, in order of importance and intensity of effect:

- The “physical” component has the most effect, followed by the “perceptual” and “functional” components, respectively, in inducing the acceptability of the space.
- Providing commercial-leisure-service spaces with sociability and encouraging collective activities to create an interactive space and the possibility of shopping-related activities will create a kind of alignment in the activities and lead to the success of the commercial space.
- Considering the variety of uses related to leisure-shopping spaces that encourage users to stay longer in the space and create acceptance of the space. Among these uses, we can mention food courts, cinemas, play and leisure spaces, etc. The quality and appropriateness of the form and size of spaces related to recreational-commercial uses are also effective factors in the success of commercial complex spaces.
- Using natural elements in the interior design of different spaces of commercial complexes, including

sunlight during the day, flowers and plants, and water to make the interior environment attractive.

- Considering the various qualitative aspects of the space to induce mental comfort in the various uses of commercial complexes and the quality of internal lighting to increase the security of collective and commercial spaces that are sometimes considered far from the main and high-traffic routes.
- Considering the appropriate range of temperature and humidity in indoor spaces, which is interpreted as thermal comfort in this article. Also, the components of cleanliness and suitable furniture, have been identified as influential factors in the success of the space.
- The beauty of the interior and exterior space by using materials and materials appropriate to the activity and space, as well as the shape and volume of full and empty spaces to facilitate commercial and leisure activities, as well as the use of color harmony and appropriate colors, are effective in the acceptance and success of commercial spaces. have been diagnosed.

Therefore, it can be concluded that by providing suitable functional conditions along with the design of spatial relationships, appropriate dimensions, size, and form by considering natural factors and also considering the perceptual component and sub-components, sociable spaces in commercial complexes can be achieved, along with their commercial and economic aspects, it can provide the necessary environmental capabilities for the acceptance and success of leisure-shopping spaces. The modern spaces of society and the city today, the semi-public urban spaces, which come from the heart of the city at very high costs, due to the lack of sociable spaces related to recreation and leisure in the city body, have been favored by the public, and this time They bear the shortage of the city. Considering the results of this research, which is in line with the needs of society, can target the planning and design of these spaces and lead to the success and acceptability of the place.

Endnote

*This article has been taken from the Ph.D. thesis of Ahmad Khalifavi entitled “Explanation of the effect of the need for recreation (choice theory) on people’s environmental perception of the architecture of commercial complexes in Tehran” that under supervision of Dr. Ghazal Karamati, and advisory of Dr. Hossein Soltanzadeh, and Dr. Mehrdad Matin, at Faculty of Architecture and Urbanism, Islamic Azad University, Central Tehran Branch has been defended in 2022.

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