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Evaluation on Spatial Quality in Retail Stores through Importance-Performance Analysis (IPA)

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Abstract

In today's world, where consumption is increasing rapidly, the designs of retail stores have gained importance with the increasing competition between institutions. One of the most predominant factors in the contact of the store with the customer is the spatial quality, which reveals the ability of the spatial features to meet user expectations. The study aims to determine the spatial quality indicators in retail stores and to expose the relationship between the importance and performance perception of these criteria among user groups. For this purpose, Importance-Performance Analysis (IPA), which has been a user-participated method and has powerful advantages in measuring service quality, was used in the study. In the first stage of the study, we determined the spatial quality indicators (functional, technical, and aesthetic) and sub-indicators by a literature review. The second stage is fieldwork performed in the determined study area, Koçtaş. At this stage, visual data of the study area was obtained, and 119 people (97 customers and 22 personnel) participated in the survey. In the third stage, IPA was used in analyzing the data. In the fourth stage, results were evaluated by supporting the visuals of the space. As a result of the study, the store was weak, especially in terms of aesthetic indicators, and significant differences were perceived by users between the importance and performance of spatial performance indicators. The study will lead up for research on examining the relationship between importance and performance in spaces with different functions by including the user in the process of determining and improving spatial quality.

Keywords:
Importance performance analysis (IPA), retail store, spatial quality

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INTRODUCTION

At present, when consumption is increasing rapidly with globalization, designs and business models of retail stores have become more of an issue. Due to the rising competitive environment, every enterprise has been in quest of new ways to attract the attention of their customer mass and provide them with a much better service. Since not finding sales sufficient, nowadays retail stores, whose basis is sales, aim to build long-term relationships with customers. Therefore, all kinds of communication between enterprises and customers have importance. The common goal of retail stores is customer satisfaction. Stores can be successful as long as they meet user satisfaction. Customer satisfaction includes all means of channels in which the trademark communicates with the customer during the purchase process. At this point, spatial features, one of the most influential factors in the communication between the store and the customer, become crucial. All qualities revealing the ability of spatial features to meet user expectations determine the quality of that space.

The concept of spatial quality is a part of physical conditions that directly affect the quality of life when this concept allows us to grade and compare everything as a criterion in all fields of life dealing with space-related issues (Kahraman, 2014: 80). The first space-based approach to the concept "quality" was discussed through “Utilitas, Firmitas, Venustas”, defined as the conditions of a successful architecture by Vitruvius in “De Architectura”. A functionally efficient, technically steady, and visually appealing building means qualified (Beardsley, 1998: 121). This approach is still valid today.

Spatial quality, regarded as satisfying the expectation of an individual within a relationship between humans and space, is about the quality of both private and public spaces (Kahraman, 2014: 80). Spatial quality refers to the sum of properties based on the ability of space to fulfill determined or potential needs (Juran, 1974). The quality of space can be evaluated through various components such as being unique, effective, and economical in terms of form, function, and technique, being appropriate for desirable activities, the atmosphere they create, cultural or symbolic value they have, and convenient price-performance ratio (Inceoglu, 2007). Altan (1993) draws attention to the space-user relationship by emphasizing the importance of arranging the space following habits, reactions, needs, and conformity of the user with their physical dimensions, together with the components such as material, form, texture, color, light, and shadow, in ensuring spatial quality.

Measurable physical dimensions of space users’ feelings and thoughts about the physical properties of the space are directly associated with each other (Gulersoy et al., 2005: 25). That the concept of “spatial quality” related to personal feelings, experiences, and needs is relative, factors affecting the space quality can also be variable. Considering that the user is one of the most determining factors in evaluating the quality of space,

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investigating users' expectations of and satisfaction with space by including the user in the process is one of the most significant necessities required to determine spatial quality. User satisfaction presents the performance of the space. Therefore, the study investigates spatial quality with the concept of "performance". In the most general expression, "performance" is a concept that reveals the results of a predetermined activity to reach a specified goal, numerically and in terms of quality (Akal, 1998). As part of fields related to architecture, "user satisfaction" or "usage behavior" is the other definition (Ozsoy et al., 1995).

To reveal the spatial quality in meeting marketing and sales targets of the stores requires investigating the communication between spatial factors and users' satisfaction. Importance-Performance Analysis (IPA), having remarkable advantages in measuring service quality, was used in this study. Even though IPA is a frequently used evaluation method in international literature, there is no study evaluating the spatial quality of retail stores yet (Lee & Heo, 2004; Shin, 2017; Erdoğan, 2020; Pekyaman and Baydemir, 2020; Addas et al., 2021). The study aims to explain how to use importance-performance analysis in measuring spatial quality in retail stores by making a sample application. For this purpose, spatial quality indicators of the store, Koçtaş, located in the city of Trabzon/Turkey, were specified according to their importance hierarchies and basic information was presented to re-evaluate the services provided by the store through an importance-performance matrix. Previous studies in the literature helped to determine the principal indicators affecting spatial quality within the study. As for Vitruvius (1808), the criteria determining the spatial quality of the built environment are strength, utility, and beauty. As for Preiser (1988), the quality parameters are the level of functionality and performance; health, safety, and security; and psychological comfort and satisfaction. Another Preiser et al. (1988) study defined the quality criteria as technical, functional, and behavioral. Technologic, aesthetic, and economic factors are the parameters that Voordt and Wegen (2005) suggested for spatial quality. Beardsley (1907) evaluates spatial quality indicators based on functional, structural, and visual features. Aydın and Uysal (2009) classified the components that affect space quality under three titles: technical, functional, and aesthetic. From this point of view, in this study, the quality indicators most commonly used to describe spatial quality are discussed under three headings: functional, technical, and aesthetic.

Functional quality, in the most general terms, is related to the convenience of the functions of the space in terms of use. Functional quality, which expresses the practical usability of the building, is about the extent to which it is suitable for the activities that should take place in the space (Can Karaoglu, 2009). Altınoluk (1998) underlines the interior dimensions of the building, the space organization, and the circulation between spaces in determining the functional quality. As for Zimring and Reizenstein (1980), we can obtain objective and subjective

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outputs by comparing the performance measurements of the constructed building with the functional quality criteria determined by the goals and needs of the user. Functional quality, aiming for the spatial satisfaction of the user, is an indicator of the livability/usability capacity of the space (Yaldiz & Asatekin, 2016). Technical quality includes the physical properties of space regarding health and safety conditions. Features such as natural and artificial lighting, ventilation, heating, acoustics, structural integrity and durability, and the suitability of the techniques and materials used in the space reveal the technical quality (Yaldiz & Asatekin, 2016). Aesthetic quality is also related to the extent to which it is seen as a part of the culture, whether it is pleasant, warm, spacious, homey, or just commercial (Can Karaoglu, 2009). Measuring whether the space provides an aesthetic appearance suitable for user expectations reveals the aesthetic quality.

As part of the study, a survey form that consists of sub-criteria belonging to each of the indicators, i.e., functional, technical, and aesthetic, based on literature, was applied to two different user groups: customers and staff. In the light of the data obtained from the surveys, the titles "importance-performance analysis" and "perceived differences in spatial quality indicators from customers' and staff's aspect" in retail stores were determined and evaluated.

The study is significant in determining the spatial quality indicators in retail stores and revealing the relationship between the importance and performance perception of these criteria in different user groups. Thus, the study can help to understand the importance and performance of the spatial components of retail stores by permitting them to prioritize the determined areas, ensure spatial sustainability, and improve the design and organization of the factors affecting the space. Furthermore, the study suggests that retail stores should consider users' contributions in the design and planning phase. One of the most important benefits of the study is to open the way for other researches by raising the awareness of researchers and designers about examining the importance and performance relations in different functional spaces by involving the user in specifying and improving the spatial quality.

MATERIAL AND METHOD

Material

Surrounded by the coastal road, European Youth Olympic Memorial Park (EYOF), 100th Anniversary Park, and Karadeniz Technical University, the shopping mall of Forum is in the neighbourhood of Kalkınma, Trabzon. As it is near the airport and the coach station and located in the city center, the city-dwellers have intensely visited Forum Shopping Mall. Koçtaş store is on the basement floor of the three-story shopping mall. Near the store, with a 4,000-square meter area, are a chain store, other stores, and an entrance to the shopping mall parking garage (Figure 1).

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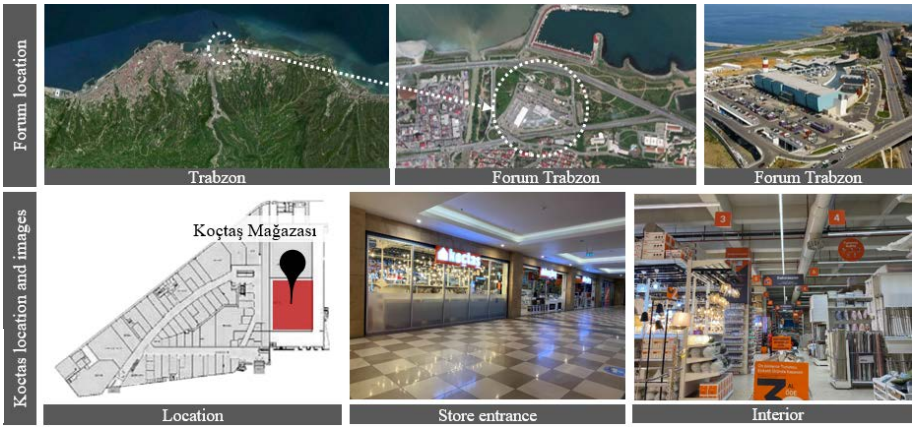

Figure 1. Location and images of Forum Shopping Mall and Koçtaş Store, Trabzon

The primary reason why Koçtaş was designated as the study field is that it is intensively and continuously serving since it is one of the best-known stores of home development retailing, corporate, and located in the shopping mall having the best visitor circulation in Trabzon. The store has a wide range of products, including various product groups such as kitchen and bath utensils, decorative articles, indoor and outdoor furniture, home textile products, carpets, paint, curtains, etc. Another reason why Koçtaş was preferred is its complex structure containing various functions within itself.

Method

The present research is a mixed-method study that qualitative and quantitative methods are applied together. Document analysis, photography, and survey are the data collection tools. Within this scope, the study consists of four steps. Determining spatial quality indicators by reviewing the literature is the first step. The second step is to reach user groups by conducting a field survey, the third is to analyze acquired data, and the last is to evaluate findings. Figure 2 shows the representative graph demonstrating the study steps.

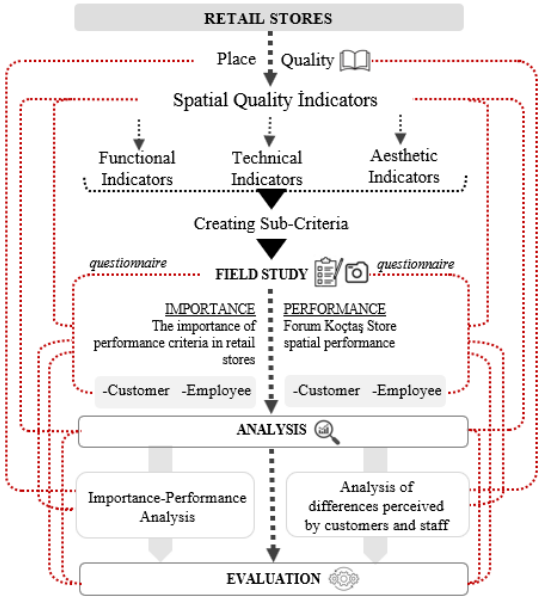

Figure 2. Representation demonstrating the study steps

As part of the first step, the indicators (functional, technical, and aesthetic) affecting spatial quality determined the sub-criteria by evaluating the literature sources. Within this scope, there are 46 sub-criteria in total: including 22 for functional indicators, 10 for technical indicators, and 14 for aesthetic indicators (Table 1).

Table 1. Spatial quality indicators and sub-criteria

Spatial Quality Indicators	Code	Sub-Criteria
Functional Indicators	F1	Transportation and parking facilities
	F2	Location of entrance-exit points
	F3	Comfort of entrance-exit points
	F4	Place of store sales points
	F5	Adequacy of store sales points
	F6	Ergonomics of store sales accessories
	F7	Space size
	F8	Space comfort
	F9	Suitability of space to the purpose
	F10	Suitability and flexibility of space to change of use
	F11	Space organization
	F12	Accessibility
	F13	Adequacy of storage area
	F14	Location of loading-unloading points
	F15	Adequacy of loading-unloading points
	F16	Ergonomics of circulation areas
	F17	Position and arrangement of product groups in the store
	F18	Adequacy of presentation accessories
	F19	Ergonomics of presentation accessories
	F20	Support of spatial orientation by accessories
	F21	Suitability of space to technology use
	F22	Signs and guidance signboards
Technical Indicators	T1	Natural lighting
	T2	Artificial lighting
	T3	Natural ventilation
	T4	Artificial ventilation
	T5	Acoustics
	T6	Sound insulation
	T7	Temperature
	T8	Moisture/humidity
	T9	Adequacy of technological infrastructure
	T10	Security and health
Aesthetic Indicators	A1	Visual quality
	A2	Visual effects of entrance-exit points
	A3	Space configuration
	A4	Fullness and emptiness of space
	A5	Appearance of accessories
	A6	Layout
	A7	Holistic perceptibility of space
	A8	Presentation quality and exhibition style of products
	A9	Hygiene
	A10	Color usage and harmony
	A11	Texture usage and harmony
	A12	Smell of space
	A13	Representation of corporate indicators/brand image
	A14	Store-window arrangement

The second step is the field study, and at this step, researchers took photographs of the study area and applied the questionnaire form to the

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users. Cite photos helped promote and evaluate the study area. While preparing the questionnaire form, we used the criteria presented in Table 1. 10 people attended the pilot application of the survey. After correcting the incomprehensible expressions and eliminating the deficiencies, the questionnaire took its final shape. The questionnaire form consists of two sections. Demographic information about the user and their frequency of visiting Koçtaş store are the questions of the first section. The second section, which consists of 46 statements about spatial quality, includes a scale on which the participants evaluate the importance and performance levels of the space. Response categories of the scale items are on a 5-point Likert-type ordinal scale. We applied the survey form to two different user groups: customers and staff. In this context, 119 participants, consisting of 97 customers and 22 staff, filled out questionnaires.

The third step is an analysis stage composed of two sections. As part of the first section, we performed IPA in light of the data acquired from the surveys. IPA, a job search technique developed by Martilla and James (1977), interprets the relationship between the importance that users place on specified criteria and their performance. According to the IPA, quality means the importance of a product or service from the users' perspective and a function of performance perceived by users (Martilla & James, 1977). As is also clear from this definition, spatial quality is measured by the user's evaluation of the importance of the previously determined quality indicators and the satisfaction of the place in terms of these indicators. An importance-performance matrix helped in the analysis of the data. The matrix consists of a vertical axis representing "importance" and a horizontal axis representing "performance". After users declare their scores of importance and performance, the coordinates of each criterion are detected, and then they are distributed to four cells of the matrix. Averages of the axis obtained from acquired data determine the points of importance-performance axis (Martilla & James, 1977; Guadagnolo, 1985). Figure 3 shows the grid belonging to an importance-performance matrix.

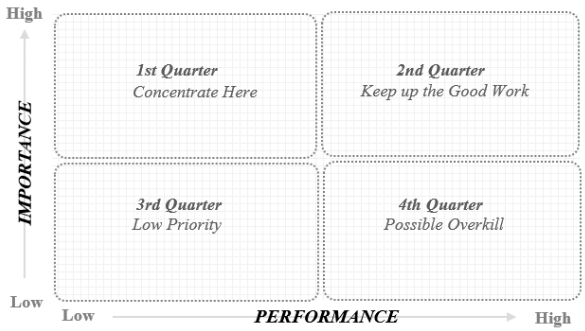

Figure 3. Importance-Performance grid

Cells displayed in the matrix are named as follows: "concentrate here", "keep up the good work", "low priority", and "possible overkill" (Martilla and James, 1977). The criteria in the first quadrant, "concentrate here", were considered essential by the users, but perceived the performance as

low, and it is thought that these criteria should be emphasized. The second quadrant, "keep up the good work", refers to high importance and high performance, and expresses the parameter that should protect the current situation. The third quadrant, "low priority", contains criteria considered low importance and low performance by users. In the second (high-high) and third (low-low) criteria, the performance is compatible with the importance given to the relevant statements by the participants. The parameter in the fourth quadrant, "possible overkill", is considered low importance but a high performance by the users (Martilla & James, 1977).

In the second section of the third step of the study, “differences perceived by the groups of customers and staff” are given in light of the data acquired from the surveys. A model of grids having information on staff and customer overlap assisted in presenting the data.

The fourth step of the study involves the evaluation of findings obtained from IPA and analyses related to differences in spatial quality perceived by groups of customers and staff. The images of space supported the review carried out in that phase.

FINDINGS

Findings on Demographic Data

The survey involved 119 participants, including 22 staff and 97 customers. Of the participants, 54.6% are female and 45.4% male; 40.3% range from 15 to 25 years old; 37% are between 26 and 45 years old; and 22.7% are over 45 years old. Of the participants, 18.5% have an educational background in high school, 66.4% have bachelor’s degrees, and 15.1% are postgraduates. 38.7% are married, while 61.3% are single. 37% work in the private sector, 20.2% in the public sector, 10.1% are retired, and 32.7% are students. 20.2% of the participants have a monthly income of 0 to 2000 TL, 13.4% of 2001 to 5000 TL, 30.3% of 5001 to 10000 TL, 26% of 10001 to 16000 TL, and 10.1% of over 16000 TL (Table 2).

Table 2. Information on participants demographic data

Participant Profile		N	%	Participant Profile		N	%
Gender	Woman	65	54.6	Profession	Private sector	44	37
	Male	54	45.4		Public sector	24	20.2
Age	15-25	48	40.3		Retired	12	10.1
	26-45	44	37		Student	39	32.7
	45+	27	22.7		Not working	-	-
Education status	Primary school	-	-	Monthly income	0-2000 TL	24	20.2
	Middle school	-	-		2001-5000 TL	16	13.4
	High school	22	18.5		5001-10000 TL	36	30.3
	Bachelor’s degree	79	66.4		10001-16000 TL	31	26
	Postgraduate	18	15.1		16000+ TL	12	10.1
Marital status	Married	46	38.7				
	Single	73	61.3				

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Findings on IPA

In the IPA process, the mean of the scores given for each spatial quality indicator by the participants was first computed (Table 3). Concerning the acquired data, the gap between importance and performance was the highest for aesthetic indicators and the lowest for functional indicators.

Table 3. Importance and performance averages of spatial quality indicators

Spatial Quality Indicators	Importance	Performance	Gap (I-P)
Functional Indicators	4.27	3.63	-0.63
Technical Indicators	4.26	3.52	-0.74
Aesthetic Indicators	4.34	3.52	-0.82

We created an importance-performance matrix to provide the functional, technical, and aesthetic spatial quality levels of the Forum Koçtaş store. According to the IPA matrix, the aesthetic indicators were in the quadrant of "concentrate here", the technical indicators were in the quadrant of "low priority", and the functional ones were in the quadrant of "possible overkill" (Figure 4). When considering functional, technical, and aesthetic indicators, it is clear that the aesthetic ones primarily need to be concentrated on for enhancements or regulations.

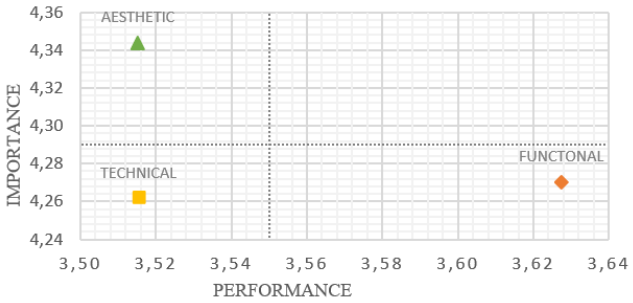

Figure 4. IPA Matrix for spatial quality indicators of the Forum Koçtaş Store

The averages of the importance and performance points given for each of the sub-criteria by the participants were separately computed (Table 4). We marked the criteria with the highest and lowest gap among the sub-criteria of each spatial quality indicator. For the functional indicators, the gap between importance and performance was the highest for the criterion "adequacy of store sales points" (-0.92) and "ergonomics of circulation areas" (-0.92) and the lowest for "space size" (-0.41). For the technical indicators, the gap between importance and performance was the highest for the criterion "natural ventilation" (-1.37) and the lowest for "sound insulation" (-0.40). Besides this, the "natural ventilation" criterion had the highest gap among the criteria, while "sound insulation" had the lowest. The gap between importance and performance concerning the aesthetic indicators was the highest for "the visual effect of entrance-exit points" (-1.35) and the lowest for "space configuration" (-0.56). When we examined the criteria in general, the criteria with the highest gap considered in the aesthetic quadrant.

Researchers created an importance-performance matrix to present "spatial quality levels of the Forum Koçtaş store". According to the IPA matrix, the second quadrant with both the highest importance level and

the highest performance level included 19 criteria (keep up the good work), the first quadrant with high importance and low performance consisted of 8 (concentrate here), the third quadrant with both low importance and low performance included 14, the fourth quadrant with low importance and high performance consisted of 5 criteria (Figure 5).

Table 4. Importance and performance averages for sub-criteria of spatial quality indicators

	Code	Spatial Quality Indicators	Imp.	Perf.	Gap (I-P)
FUNCTIONAL INDICATORS	F1	Transportation and parking facilities	4.34	3.88	-0.46
	F2	Location of entrance-exit points	4.36	3.59	-0.77
	F3	Comfort of entrance-exit points	4.20	3.40	-0.80
	F4	Place of store sales points	4.23	3.74	-0.49
	F5	Adequacy of store sales points	4.37	3.45	**-0.92**
	F6	Ergonomics of store sales accessories	4.11	3.56	-0.55
	F7	Space size	4.25	3.84	**-0.41**
	F8	Space comfort	4.37	3.70	-0.68
	F9	Suitability of space to the purpose	4.58	4.12	-0.46
	F10	Suitability and flexibility of space to change of use	4.12	3.59	-0.53
	F11	Space organization	4.44	3.67	-0.77
	F12	Accessibility	4.50	3.72	-0.78
	F13	Adequacy of storage area	3.94	3.45	-0.49
	F14	Location of loading-unloading points	3.92	3.39	-0.54
	F15	Adequacy of loading-unloading points	3.86	3.38	-0.49
	F16	Ergonomics of circulation areas	4.47	3.55	**-0.92**
	F17	Position and arrangement of product groups in store	4.42	3.69	-0.73
	F18	Adequacy of presentation accessories	4.34	3.84	-0.50
	F19	Ergonomics of presentation accessories	4.33	3.65	-0.68
	F20	Support of spatial orientation by accessories	4.33	3.50	-0.82
	F21	Suitability of space to technology use	4.04	3.45	-0.59
	F22	Signs and guidance signboards	4.42	3.64	-0.78
TECHNICAL INDICATORS	T1	Natural lighting	3.94	3.08	-0.86
	T2	Artificial lighting	4.40	3.87	-0.52
	T3	Natural ventilation	4.28	2.91	**-1.37**
	T4	Artificial ventilation	4.39	3.56	-0.83
	T5	Acoustics	3.97	3.50	-0.48
	T6	Sound insulation	3.92	3.52	**-0.40**
	T7	Temperature	4.45	3.66	-0.79
	T8	Moisture/humidity	4.44	3.70	-0.74
	T9	Adequacy of technological infrastructure	4.18	3.57	-0.61
	T10	Security and health	4.65	3.80	-0.86
AESTHETIC INDICATORS	A1	Visual quality	4.53	3.49	-1.04
	A2	Visual effects of entrance-exit points	4.42	3.07	**-1.35**
	A3	Space configuration	4.17	3.61	**-0.56**
	A4	Fullness and emptiness of space	4.17	3.52	-0.65
	A5	Appearance of accessories	4.31	3.57	-0.73
	A6	Layout	4.40	3.52	-0.88
	A7	Holistic perceptibility of space	4.26	3.28	-0.98
	A8	Presentation quality and exhibition style of products	4.45	3.62	-0.83
	A9	Hygiene	4.66	3.85	-0.80
	A10	Color usage and harmony	4.32	3.62	-0.71
	A11	Texture usage and harmony	4.09	3.52	-0.57
	A12	Smell of space	4.38	3.58	-0.80
	A13	Representation of corporate indicators/brand image	4.27	3.65	-0.62
	A14	Store-window arrangement	4.39	3.31	-1.08
			: lowest gap		:highest gap

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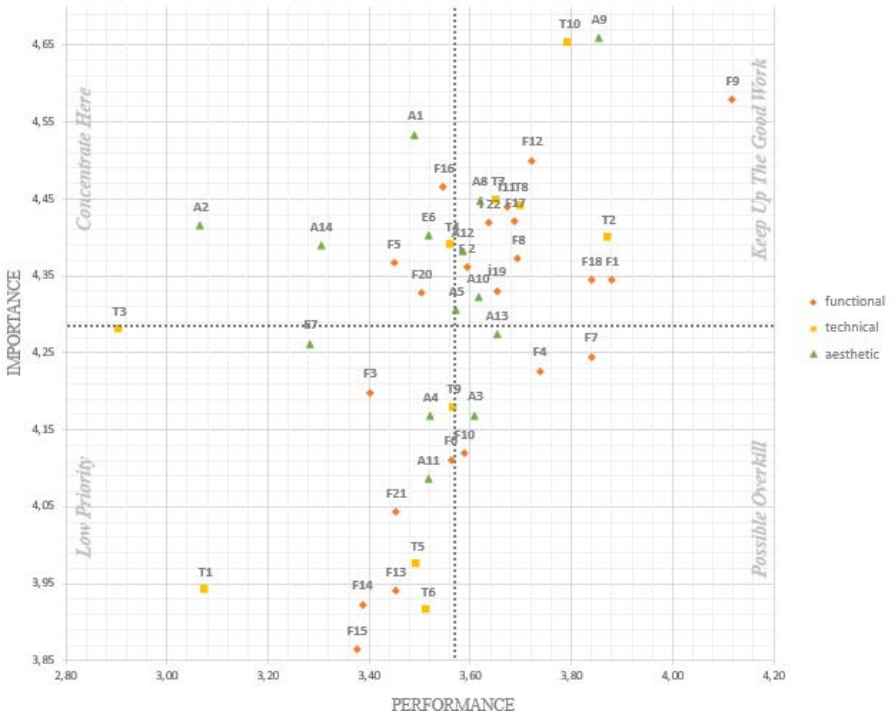

Figure 5. IPA on the spatial quality of the Forum Koçtaş store (Sub-Criteria)

Concerning the data acquired from the IPA, among the functional indicators in the first quadrant (concentrate here) were adequacy of store sales points (i5), ergonomics of circulation areas (i16), accessory support for spatial guidance (i20); among the technical indicators was artificial ventilation (T4); among the aesthetic indicators were visual quality (E1), the visual effect of entrance-exit points (E2), layout (E6), and store-window arrangement (E14) (Figure 5). The store managerial staff must make an effort to increase the performance of properties of the criteria found in the quadrant "concentrate here".

Regarding the data acquired from the IPA, among the functional indicators in the second quadrant "keep up the good work" were transportation and parking facilities (i1), location of entrance-exit points (i2), space comfort (i8), the suitability of space to the purpose (i9), space organization (i11), accessibility (i12), position and arrangement of product groups in store (i17), adequacy of presentation accessories (i18), ergonomics of presentation accessories (i19), signs and guidance signboards (i22); among the technical indicators were natural lighting (T2), temperature (T7), humidity/moisture condition (T8), security and health (T10); among the aesthetic indicators were the appearance of accessories (E5), presentation quality and exhibition style of products (E8), hygiene (E9), usage, and harmony of colors (E10), and the smell of space (E12) (Figure 5). Since the store meets the expectations in terms of the criteria mentioned above, no action is required.

About the data acquired from the importance-performance matrix, among the functional indicators in the third quadrant of "low priority" were the comfort of entrance-exit points (i3), ergonomics of store sales accessories (i6), adequacy of storage area (i13), the position of loading-

unloading points (i14), adequacy of loading-unloading points (i15), the suitability of space to technology use (i21); among the technical indicators were natural lighting (T1), natural ventilation (T3), acoustics (T5), sound insulation (T6), adequacy of technological infrastructure (T9); among the aesthetic indicators were duty the cycle of the store (E4), the holistic perceptibility of space (E7), texture usage and harmony (E11) (Figure 5). For the criteria found in the quadrant "low priority", the store managerial staff should upgrade the quality of the indicators to improve user satisfaction. However, those are not the criteria that need to be primarily enhanced because they were considered less important by the users. A precise cost-benefit analysis is required if any indicator or service in this quadrant is to be invested.

Concerning the data acquired from the importance-performance matrix, among the functional indicators in the fourth quadrant "possible overkill" were the location of the store sales points (i4), store size (i7), suitability and flexibility of space to change of use (i10); among the aesthetic indicators were store configuration (E3), and representation of corporate indicator/brand image (E13) (Figure 5). Since the criteria found in the quadrant "possible overkill" displayed performance higher than expected, the store managerial staff does not need to take any actions concerning these criteria.

Findings on Differences Related to Spatial Quality Perceived by User Groups

Functional, technical, and aesthetic components were examined for the differences in spatial quality indicators reported by user groups, and then pertinent data tables, or matrices, were created. There are two sections in each of the tables. We determined the average scores given to the spatial quality indicators in the first section and described their overall significance and performance levels with respect to customers and staff. Staff and customer scores for each sub-criteria were compared in the second section.

In evaluating the spatial quality concerning the difference between the importance and performance of the overall functional indicators, the customers (-0.76) were less satisfied with the space than the staff (-0.27). When comparing the sub-criteria in terms of importance, "fitness of space to purpose" i9 and "ergonomics of presentation accessories" i19 were considered more important by the customer group. The other criteria were all found more significant by the staff. When judging the sub-criteria in terms of performance, the staff's satisfaction level concerning Koçtaş store was higher than the customer group for each sub-criteria (Table 5).

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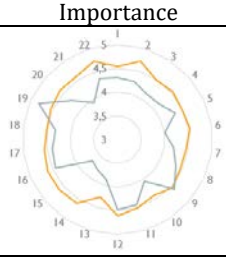
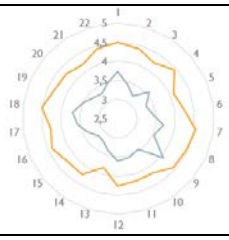
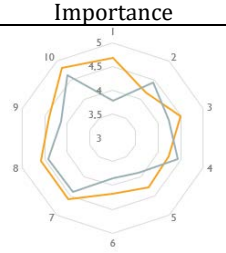
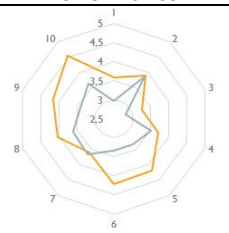
Table 5. Functional quality of the store from customers' and staff's aspect

1. Functional Indicators (General)			2. Sub-Criteria	
			Importance	Performance
	Staff	Customer		
Importance	4.54	4.23		
Performance	4.27	3.47		
Gap (I-P)	-0.27	-0.76		

In evaluating the spatial quality concerning the difference between the importance and performance of the overall technical indicators, the customers (-0.79) were less satisfied with the space than the staff (-0.52). When comparing the sub-criteria in terms of importance, "artificial lighting" T2 and "artificial ventilation" T4 were remarkably considered more important by the customer group. The other criteria were all found more significant by the staff. When evaluating the sub-criteria in terms of performance, the staff group was more satisfied than the customer group for all of the criteria except for "temperature" T7 (Table 6).

Table 6. Technical quality of the store from customers' and staff's aspect

1. Technical Indicators (General)			2. Sub-Criteria	
			Importance	Performance
	Staff	Customer		
Importance	4.45	4.22		
Performance	3.93	3.43		
Gap (I-P)	-0.52	-0.79		

When considering the gap between the importance and performance of the overall aesthetic indicators concerning the space, the customer group (-0.97) was considerably less satisfied than the staff (-0.24). When comparing the sub-criteria according to importance, "visual quality" E1 and "visual effect of entrance-exit points" E2 were remarkably considered more important by the customer group. The other criteria were all found more important by the staff. When evaluating the sub-criteria in terms of performance, the staff group was much more satisfied than the customer group for all of the criteria in the Koçtaş store (Table 7).

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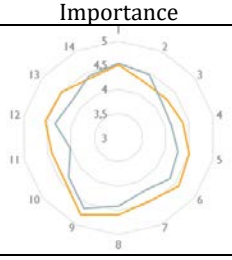
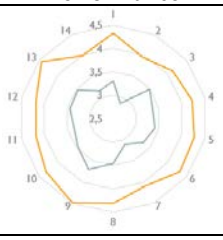
Table 7. Aesthetic quality of the store from customers' and staff's aspect

1. Aesthetic Indicators (General)			2. Sub-Criteria	
			Importance	Performance
	Staff	Customer		
Importance	4.47	4.32		
Performance	4.23	3.35		
Gap (I-P)	-0.24	-0.97		

EVALUATION

Evaluations related to IPA and differences perceived by user groups are separately handled below. The evaluation concerning IPA is as follows:

The criteria in the quadrant "concentrate here" (high importance-low performance) affect and trigger each other. In this sense, the criteria "layout" and "support of accessories on spatial orientation" found in the quadrant "concentrate here" seems to be supportive. That "the sales points at entrance-exit points of the store" were considered as inadequate and thus being arranged in a dense formation caused "the visual effect of entrance-exit points" to take place in the quadrant "concentrate here". Likewise, the aisleways directly face the entrance, the absence of a store-window order, and the cramped and complex entrance area were found negative by the users. This situation caused the relevant criterion to place in the quadrant "concentrate here". All the criteria found in the quadrant "concentrate here" are the ones that can be improved under the store's managerial staff's control **(Figure 6)**.

Figure 6. Interior and exterior appearance of entrance-exit points of the store and sales points at entrance-exit points

The criteria taking place in the quadrant "possible overkill" (low importance-high performance) also affect and trigger each other, which is so considerable that the criteria concerning "suitability and flexibility of space to change of use" can be explained through "space configuration" and "space size". Another criterion emerging in this quadrant was the "representation of corporate indicators/brand image". The most explicit reason for this situation is associated with Koçtaş's corporate color, orange. Because all of the components of sign, guidance, and information were designed in orange color, and users can perceive the color from all over the store (Figure 7).

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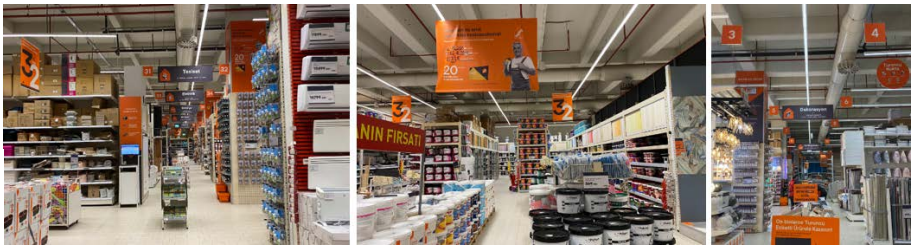

Figure 7. Orange color used for all components of sign, guidance and information

The criteria “natural ventilation” T3 and “holistic perceptibility of space” E7 in the quadrant “low priority” (low importance-low performance) verge on the quadrant “concentrate here” and these criteria need to be improved with higher priority than others. However, the “natural lighting” criterion is not directly under the control of the store management. The “holistic perceptibility of space” criterion is associated with the height of exhibition and presentation accessories. In other words, high accessories visually divide and make it difficult to perceive the space as a whole (Figure 8).

Figure 8. High exhibition accessories preventing the space from being perceived as a whole

The criteria in the quadrant “keep up the good work” (high importance-high performance) was services that the users found high importance and high performance. As a result of analyzing the data, 19 (41.3%) out of 46 criteria evaluated took place in the quadrant “keep up the good work”. So we can say that the criteria in this quadrant affect and trigger each other. At this point, the “fitness of space to purpose” i9, “space organization” i11, “accessibility” i12, and “position and arrangement of products in store” i17 consolidate each other. Likewise, the criteria “appearance of accessories” E5 and “presentation quality and exhibition style of products” E8 among the aesthetic indicators are also related to each other (Figure 9).

Figure 9. Images concerning exhibition accessories and exhibition style of products

Evaluation of differences perceived by user groups:

• In general, compared to the customer group, the staff group is more satisfied with the space from functional, technical, and aesthetic aspects.

However, this high level of satisfaction could also be affected by the relationship between staff and the corporation for which they work.

• To ignore a problem faced every day could result in not taking it as an issue and conceding to it in time, which explains another reason why the staff seems to be clearly more satisfied according to all the indicators compared to the customer group.

• Among the spatial quality indicators, there seems to be a significant gap between the customers and the staff, particularly in terms of the aesthetic indicators, which can be explained by the fact that the staff utilize the space rather for work and service and therefore do not have extremely high expectations concerning its aesthetic and visual properties. On the other hand, customers have high-level expectations in terms of both technical, functional, and aesthetic indicators.

• Because the staff uses store areas frequently, the criteria for spaces like storage points, loading, and unloading points are particularly important to them. At this point, we can conclude that the customers responded in line with their personal knowledge and experience, even as the staff evaluated their needs and satisfaction during occupancy in determining performance.

CONCLUSION

Modernization, one of the most significant effects of globalization, has changed forms of production and consumption and has influenced many areas such as planning, architecture, and interior architecture. In today's rapidly increasing consumption, the spatial quality concept, which focuses on customer satisfaction in retail stores, has also gained importance. This study has tried to explain how a space, defined as high quality, can increase the satisfaction of its users and the performance of the place positively, specific to retail stores. The criteria for determining the spatial quality are divided into title and sub-criteria to present an easy and more understandable program holistically. Technical, functional, and aesthetic categories are the groups of indicators considered in the design and evaluation process. Thus, the researchers have envisaged a more systematic approach to revealing and reading the space quality.

Researchers determined the deficiencies of the store in line with participants' evaluations, in the scope of the study. The spatial quality of the store will also increase by eliminating these deficiencies. In the examined space, those functional and aesthetic indicators are at the forefront for the customer group. The staff group emphasized the technical ones rather than functional and aesthetic indicators. When evaluated in terms of all user groups, the deficiencies in issues such as the adequacy of the store sales points, the ergonomics of circulation areas, ventilation, visual quality, the visual effect of the entrance-exit parts, and the layout of the store draw attention. For this reason, priority should be determined by considering the magnitude of the value between importance and performance. Then, designers and store managers must

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develop an intervention strategy by prioritizing the indicators with the highest performance difference.

Based on the data obtained from the study, the changes in the spatial consumption habits of the users are remarkable. Also, the aesthetic expectations of the users in retail sales spaces are high, apart from the shopping need, which is the first purpose of the store. In this case, a holistic approach considering not only functional and technical indicators but also all indicators are essential factors in the design of shopping spaces.

Through IPA, the present study emphasizes things to be considered by designers by considering the user factor, which is the chief part of space during the design process. Therefore, the results constitute a control mechanism for further changes. With the data obtained at the end of the analysis, it will be possible to draw the way for changes and improvements to be made. The study where spatial quality and relationship with user groups are evaluated through IPA by including users in the occupancy evaluation of determining and enhancing spatial quality presents critical information for retail stores. Therefore, with this analysis method, the resulting matrix for quality indicators in retail stores can be developed and transformed into a model proposal. Additionally, the study will be a guide for store managers who are responsible for improving the spatial quality of retail stores.

Retail stores are diversified to serve a wide range and different purposes. One of the limitations of the sample application carried out in this study is that it was made specifically for home improvement retail. Therefore, it is possible to increase or decrease the number of spatial quality criteria to be evaluated, depending on the purpose and function of the sale. Within the scope of the research, the number of evaluated indicators was kept at the optimum level to increase the participation rate of the users in the survey. In future research, applying IPA after classifying the space by sub-sections or functions will lead to give more detailed results regarding the services. Thus, it will be easier to make more effective strategic decisions based on criteria.

In the study, the evaluations were carried out within the scope of joint criteria for all user groups. However, each user's expectations from retail stores and performance perceptions will vary depending on such factors as intended use, frequency of occurrence, and demographic variables. Considering demographic variables is an essential matter, as the quality of the space may have different meanings for different user groups. For example, researchers can study how age groups evaluate the space or how occupational groups interpret it. This research will enable us to clearly articulate the needs, eliminate the deficiencies, and determine the design criteria that should be considered in new space design depending on the expectations of revisiting customer-centered places such as retail stores.

It is believed that the study, which has developed a customer-centered approach by applying IPA for evaluating spatial quality, will offer a

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different point of view to the literature. One of the most significant advantages which the researchers have intended is to pave the way for further studies by raising awareness of evaluating spaces that serve different functions among researchers and designers.

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Resume

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