MAUN Fen Bil. Dergi., 13, 2, 214-223 Araştırma Makalesi/ Research Article
MAUN J. of Sci., 13, 2, 214-223 DOI : 10.18586/msufbd.1676007

Determining The Effects Of The Exterior Design Of The Aparts On The Preferences Of The Users and The Interior Perceptions

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Geliş (Received): 15.04.2025 Düzeltme (Revision): 17.07.2025 Kabul (Accepted): 11.09.2025

ABSTRACT

This study investigates the influence of exterior apartment design on user preferences and perceptions of interior environments. The research was conducted in Afyonkarahisar, Turkey, focusing on ten apartment buildings whose façade characteristics were systematically analyzed. A structured questionnaire was administered to 270 residents living in these apartments. The findings reveal that 81% of participants believe that aesthetically appealing façades evoke curiosity about the interior, and 69% perceive a direct relationship between exterior and interior design. These results emphasize the critical role of façade design not only in shaping aesthetic judgments but also in influencing expectations about interior spatial quality.

Keywords: Architectural Identity, Environmental Design, Façade Design, Residential Perception, User Preference

Apartlarin Dış Cephe Tasarımlarının Kullanıcıların Tercih ve İç Mekân Algılarına Etkilerinin Belirlenmesi

ÖZ

Bu araştırmada apartların dış cephe tasarımlarının kullanıcıların tercihlerinde ve iç mekân algılamalarında etkilerinin belirlenmesi amaçlanmıştır. Bu amaçla Afyonkarahisar'da bulunan 10 adet apartın dış cephe analizleri yapılmış ayrıca bu apartlarda yaşayan ve %34'ünü erkeklerin, %66'sını ise kadınların oluşturduğu 270 kullanıcıya çalışma amacı doğrultusunda hazırlanan anket uygulanmıştır. Sonuçta; araştırmaya katılan katılımcıların %81'inin dış cephesi ilgi çekici olan binaların iç mekânlarının daha fazla merak uyandırdığını ve %69'unun ise dış cephe ile iç mekân tasarımının birbiriyle ilişkili olduklarını düşündükleri belirlenmiştir. Buna göre dış cephe tasarımlarının iç mekân algısı hakkında belirleyici rolünün apart tercihlerinde etkili olacağı düşünülmektedir.

Anahtar Kelimeler: Dış cephe tasarımı, Çevre tasarımı, Mimari kimlik, İç mekân algısı, Kullanıcı Tercihi

INTRODUCTION

Today, single users, employees working in a different province or students studying at university or high school live in different places where they study. One of them is the flats defined as aparts. According to different sources, the definitions of apart are as follows: Apart is the allocation of all flats in a site or apartment to university students or employees on a paid basis. Generally, the flats are 50-100 m² in size and the price varies according to the width of the flat [1]. Flats with a maximum of 3 rooms including the living room are called aparts. Especially in the summer season, all rooms seen as apart hotels in holiday villages and towns consist of at least 1 room and 1 living room. The aparts are in the form of a maximum of 2 rooms and 1 living room in the style of an apart hotel. Although the bathroom and toilet are together, the living room and kitchen are in the same place. As in apart hotels, in many new houses, the living room and the kitchen are together in the aparts [2]. In the Turkish Language Association, there is the definition of Apart Hotel and the definition is as follows: Apart Hotel, is the hotel, hotel garni [3] where all kinds of equipment are available in their rooms or floors so that the guests can meet their own food and beverage needs. Apartment selection preferences may vary according to the economic status of the users, proximity to workplace-schools, number of rooms and apartment usage conditions. Today, the increase in material alternatives and diversity has brought importance to building exteriors and the use of different materials and colors. [4] determined that 4 types of facade cladding materials were used in 215 buildings they examined in their studies. These materials are; ceramic, composite,

precast and plaster+paint. [5] also emphasized the importance of facades as follows: The use of the elements that make up the urban identity and emerge as a result of the socio-cultural accumulation of the society in which it is located, that is, the 'scale-ratio' and 'harmony-unity' principle being primarily in line with the data shaped by the socio-cultural accumulations existing in the memories of the urban users, arousing satisfaction from the city users, enables the user to communicate with the façade [5]. Because; facades are a sign of the personality of the society [6].

[7] puts F.L.Wright's thought for Space, based on Bozkurt (1962): "Architecture is a space whose function and purpose are determined, covered and arranged". Parallel to this expression, the functional limitation of masses and spaces by designing them in certain ways can be defined as architecture. What people provide with these limitations is to create the three-dimensional space in which they live. The interior, architectural mass and its relations have been transformed over the past centuries. Today, the façade is a cross-section that defines the urban space that they create alone or together with other structures, with walls that limit the space in the interior and determine its form.

At the same time, this cross-section helps the individual to perceive the mass in the urban space and describes the interior space [8,7]. According to Wright, architectural space is a piece of space prepared and covered for a certain function, a certain action: “The interior is the space itself, the soul of the building. The room or hall we live in is a part of this structure, it belongs to it, it is born with it. When considered as a whole, space is architecture itself” [8].

It has been researched whether the external façade designs have any impact on the apart choise of the users and whether the external façade designs give information about the interior space. Because; Because facades are a sign of the personality of the society, and social differences are reflected in the city with facades [6]. This study investigates whether exterior façade designs affect users’ preferences for apartment-style housing and whether façades provide clues about the interior space. Given that façades are reflective of societal identity and social differences [6]. the research utilizes architectural examples with significant value to demonstrate the importance of façade design. A survey was conducted on examples of architectural value to demonstrate the importance of façade design.

METHOD

Research Design and Objective

The relationship between exterior and interior space perception has been the subject of growing academic interest in environmental psychology and spatial design studies. According to Ching [9], the façade is not merely an outer shell, but a communicative surface that offers spatial cues about the building's interior configuration. Similarly, research by [10] has shown that visually striking façades directly influence user assumptions regarding interior quality and functionality. These theoretical perspectives align with the concept of perceptual unity in architecture, which underscores the cognitive mapping processes of users [11,12]. In this study, survey results indicating intuitive perceptions (e.g., 81% curiosity toward interiors with attractive façades) are discussed not only as standalone findings but also in relation to these established theoretical frameworks[12].

Study Area and Sampling

The research was conducted in the Erenler neighborhood of Afyonkarahisar, a region with a high concentration of student residences. A total of 10 apartment buildings (aparts) were selected as the sample for physical analysis based on their visibility, architectural diversity, and occupancy rates. Exterior façades of these buildings were documented through photographs and analyzed in terms of color usage and material distribution.

Data Collection Method

The primary data collection method was a structured questionnaire developed in accordance with the objectives of the study. The survey instrument consisted of items designed to capture users’ perceptions of façade characteristics, as well as their impact on interior expectations. The questionnaire also included demographic questions such as gender, age, educational level, income, and apartment type. A total of 270 participants, all residing in the selected apartment buildings, completed the survey in December 2019. Data were collected through face-to-face administration to ensure clarity and completeness of responses. The study was conducted in compliance with ethical research standards and approved by the Afyon Kocatepe University Social Sciences Institute Ethics Committee (Approval No: 08, Date: 11.12.2019). The survey employed a 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree) to evaluate user attitudes. To ensure robustness of the measurement tool, validity and reliability analyses (including KMO, Bartlett’s test, and Cronbach’s Alpha) were applied. The final version of the scale included 46 items after item reduction procedures based on exploratory factor analysis.

Questionnaires were conducted face to face. The questionnaire applied to the students living in the aparts in Afyon Erenler District and used as a data collection tool was prepared in line with the 5-point Likert scale (Strongly Disagree, Disagree, No Opinion, Agree, Strongly Agree). Questions were prepared to determine the effects of the exterior designs of the aparts on the preferences and interior space perceptions of the students. An inventory study was created by applying a questionnaire to the individuals in the selected sample, and the research was supported by evaluating the opinions of the users. The survey used in the study was designed based on a 5-point Likert scale and supported by validity and reliability analyses (KMO, Bartlett’s

test, Cronbach's Alpha). Data collected from 270 participants were considered statistically sufficient. However, giving more emphasis to a limited number of questions was preferred due to the scope of the study and page limitations. Data from other questions are available to be supported with additional tables if needed. The inclusion of similar questions in some items of the survey was intentional to measure internal consistency.

Façade Analysis

The façade analyses focused on two main components:

- Color Scheme: Use of warm, cold, neutral, contrast, opposite, and analogous colors across each building façade was documented and categorized.
- Material Composition: Commonly used exterior materials such as plaster and paint, wood veneer, stone veneer, composite panels, weatherboarding, and curtain walls were identified and their frequency of application recorded. Descriptive statistics were used to determine the prevalence of each color and material type across the sampled buildings. Results were presented as frequencies and percentages to provide a clear comparison of design elements.

Figure 1. Exterior Views of Aparts

The use of color on the exterior of the apartments and the distribution of materials used are given in Table 1 and Table 2.

Use of Color on the Facade	Hot	Cold	Neuter	Contrast	Opposite	Approximate
Building 1	X		X	X	X	
Building 2	X		X	X		
Building 3		X	X			X
Building 4			X	X	X	
Building 5	X		X			
Building 6	X		X	X		
Building 7	X	X		X	X	
Building 8	X					X
Building 9	X		X	X		X

Table 2. Distribution of Materials Used on the Facades of Inventory Aparts

Material Used in the Facade	Exterior Plaster and Paint	Wood Veneer	Stone Veneer	Composite Coating	Weather boarding	Curtainwall
Building 1	X	X			X	
Building 2	X					
Building 3	X					
Building 4				X	X	X
Building 5	X				X	
Building 6	X	X			X	X
Building 7	X			X		X
Building 8	X		X	X		X
Building 9	X		X		X	
Building 10	X			X		X

The use of color on the exteriors of the apartments and the percentage of the distribution of the materials used are given in Table 3.

Table 1. Color Usage Distribution on the Facades of Inventory Aparts

Table 3. The Use of Color and the Materials Used on the Exteriors of the Aparts (Percentages are calculated over 10

buildings)

		Pieces (n)	Percentage (%)
Material Used in the Facade	Exterior Plaster and Paint	9	90
	Wood Veneer	2	20
	Stone Veneer	2	20
	Composite Coating	4	40
	Weather boarding	5	50
	Curtainwall	5	50
Use of Color on the Facade	Hot	7	70
	Cold	2	20
	Neuter	8	80
	Contrast	7	70
	Opposite	4	40

When we look at the distribution of color usage on the exteriors of the aparts, it is seen that the most neutral colors are used in the colors applied in the facade designs, with a rate of 80%. On the other hand, the use of cold colors with a rate of 20% constitutes the least segment. Looking at the table, the use of warm and contrast colors was found to be equal with a rate of 70%. In the materials used in facade designs, it is seen that the most exterior plaster and paint materials are applied with a rate of 70%. On the other hand, the use of wood and stone coating materials with a rate of 20% constitutes the least segment. When we look at the table, the weather boarding and curtain wall applications were made at the same rate of 50%. When we look at the table, the weather boarding and curtain wall applications were made at the same rate of 50%.

Data Analysis Method

Data were analyzed using the SPSS statistical software package. Descriptive statistics (frequency, percentage, mean, and standard deviation) were computed to summarize participants' demographic characteristics and their responses. To assess the structural validity of the survey instrument, exploratory factor analysis (EFA) was performed. The Kaiser-Meyer-Olkin (KMO) measure and Bartlett's test of sphericity confirmed the suitability of the data for factor analysis. Items with factor loadings below 0.30 were removed to improve construct validity. Reliability was assessed using Cronbach's Alpha, with a final coefficient of 0.947, indicating excellent internal consistency. Non-parametric tests (Mann-Whitney U and Kruskal-Wallis) were employed to compare participant responses across demographic groups due to the non-normal distribution of scale scores.

FINDINGS

Validity and Reliability Analysis of the Scale

To examine students' preferences and perceptions of interior spaces based on the exterior design of apartment buildings, a 62-item, five-point Likert-type scale was administered to 270 participants. Exploratory factor analysis (EFA) was employed to identify the underlying factor structure and assess construct validity.

During the EFA process, items with factor loadings below 0.30 were progressively eliminated through five iterations. In total, 16 items were removed, resulting in a final scale consisting of 46 items. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was 0.918, and Bartlett's Test of Sphericity was statistically significant ($\chi^2 = 5600.27$, $df = 1035$, $p < 0.001$), confirming the appropriateness of the data for factor analysis. The final factor solution explained 64.05% of the total variance, distributed across 12 factors with eigenvalues greater than 1. However, the majority of items loaded significantly on the first factor, indicating a dominant underlying construct related to user perception of façade design. Cronbach's Alpha reliability coefficient was calculated as 0.947, indicating a high level of internal consistency and reliability across scale items.

Table 4. Explained Variance Values for the Scale Items

Factors	Eigenvalues	Explained Variance %	Cumulative Variance %
1	14,349	31,194	31,194
2	2,286	4,969	36,163
3	1,720	3,738	39,901
4	1,686	3,665	43,566
5	1,376	2,991	46,557
6	1,366	2,970	49,527
7	1,243	2,703	52,230
8	1,177	2,558	54,789
9	1,109	2,411	57,200
10	1,067	2,320	59,520
11	1,055	2,293	61,812
12	1,029	2,237	64,049
Kaiser-Meyer-Olkin sample adequacy:0.918			
Chi-square value of Bartlett's Sphericity test = 5600,27 Sd= 1035 p=0.000			

The Kaiser-Meyer-Olkin statistic was found to be 0.918, and the fact that this statistic is greater than 0.50 is an indication that the number of samples is sufficient for the data [13]. Bartlett sphericity test results also test the suitability of the data for factor analysis. Therefore, it was observed that the data were suitable for factor analysis for these data ($p<0.05$). When the explained total variance table was examined, it was observed that there were twelve factors in the 46-item scale with an eigenvalue greater than 1. However, when the eigenvalues or the scree plot results of the eigenvalues are examined, 46 items are predominantly gathered under a single factor. 31% of the feature measured by a single factor is measured, which is also appropriate. The graph of the eigenvalues is shown in Figure 2.

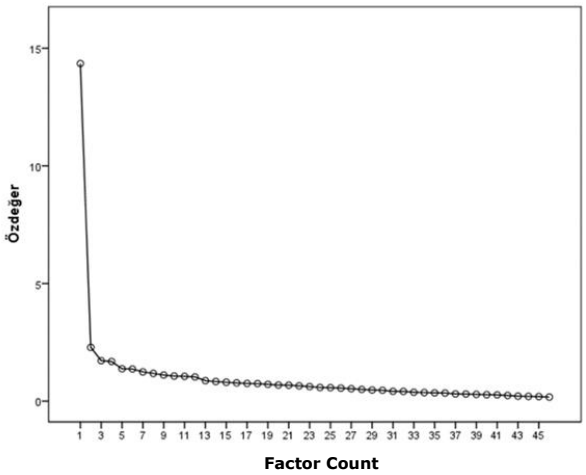

Figure 2. Factor Plot for Eigenvalues

When the ranked factor loads of the scale items and the item-total correlations, also known as the item validity coefficient, are examined, the results are shown in Table 5.

Table 5. The Item-Total Correlation of the Exterior Designs of the Aparts with the Preference and Interior Perceptions of the Users and the Results of the Exploratory Factor Analysis (Questions are not included in the table. The questions are in the table with their original numbers. There are 46 items in the table)

	Item Total Correlation	**Factor Load**
1- The exterior designs of the buildings provide information about the identity of the buildings.	,591	,630
2- The fact that the exterior of the building is different and remarkable increases the interest in the building.	,690	,723
3- The use of symmetrical geometry on the exterior of the building adds a characteristic feature to the building.	,611	,637
4- The symmetry used on the exterior of the building symbolizes authority.	,409	,435
5- Asymmetrical building facades are more interesting.	,456	,484
6- Natural materials should be used for exterior facades.	,356	,376
9- The use of natural stone on the exterior of the building adds an aesthetic appearance to the building.	,535	,563
10- Contrasting materials (such as stone-wood) used on building facades make the building stand out.	,517	,545
11- Glass facade cladding adds an aesthetic appearance to the building.	,510	,535
12- The use of different materials on the exterior of the building draws attention to the building.	,596	,627
13- The use of compact (wood) materials adds naturalness to the building.	,573	,609
14- Composite (aluminum) panels are more preferred in exterior design due to the abundance of variety.	,428	,451
15- The use of luxury materials on the exterior of the building makes the buildings ostentatious.	,452	,473
16- The cost of the material used in the coating on the exterior of the building is important.	,472	,499
20- The materials used on the exterior must be resistant to weather conditions.	,643	,682
22- The color used on the exterior of the buildings is very effective.	,692	,722
23- The use of color on the exterior of the buildings adds movement to the building.	,652	,683
25- The use of contrasting colors on the exterior of the buildings increases the visual perception.	,500	,525
26- The colors used on the exterior of the buildings should be in harmony with each other.	,417	,448
29-Contrast colors should be used on the exterior of buildings	,322	,336
31- The materials and colors used on the exterior of the buildings should appeal to the target audience.	,638	,673
32- While designing the facades of the buildings, a symmetrical balance should be provided in terms of design.	,476	,498
35- The curved lines on the exterior facades add mobility to the facade.	,462	,490
36- The lines and shapes used in the exterior design must have a specific direction.	,296	,311
37- The visual elements used in the exterior design should create integrity.	,544	,574
38- The visual elements (color, shape, texture) used in the exterior design must be in a certain order and size.	,555	,590
39- The exterior of the building must be suitable for the intended use of the building.	,575	,613
41- The size of the doors and windows on the exterior facades should be proportional.	,528	,558
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39- The exterior of the building must be suitable for the intended use of the building.	,575	,613
41- The size of the doors and windows on the exterior facades should be proportional.	,528	,558
42- The building entrance door must be large and effective.	,473	,492
45- The writing on the facade should be large and interesting.	,359	,367
46- The building should have overhangs (balconies).	,411	,439
47- Sheathing (exterior thermal insulation) is required on the exterior of the building.	,557	,600
48- It is noteworthy that arches, columns or columns are used on the exterior of the building.	,570	,605
49- The use of patterns and decorations on the exterior of the building makes the building interesting.	,491	,517
50- Buildings with different façades in terms of design are more preferred than	,659	,684

buildings with ordinary façades.		
51- In order for the buildings to be more attractive, their exterior facades should be differentiated in design. It is more preferred than the existing buildings.	,667	,700
52- The lighting factor is important on the exterior.	,657	,694
53- Landscape design should be in harmony with the exterior design.	,626	,663
54- Exterior and interior design are interrelated.	,473	,499
55- The exterior design should be compatible with the interior design.	,422	,446
56- The interiors of the buildings whose exteriors are interesting are more curious.	,629	,656
58- The use of quality materials on the exterior suggests that the materials and furniture used in the interior are also of high quality.	,318	,334
59- Facade design is important for renting or purchasing apartments in the building.	,587	,618
60- Exterior design and price are related.	,558	,580
61- Exterior design is important for you.	,557	,587
62- Facades that were designed in the past should be repaired and designed in accordance with the original.	,403	,422

Demographic Characteristics of Participants

The demographic profile of the 270 respondents is summarized as follows:

- Gender: 66% female, 34% male.
- Age: 93% of participants were aged between 18–24 years.
- Education: 96% held a bachelor's degree, 3% a high school diploma, and 1% completed primary education.
- Building Type: 42% of participants lived in buildings with five or more floors, followed by 24% in four-story buildings, and smaller proportions in one-, two-, and three-story structures.
- Apartment Layout: 3+1 apartments were the most common (46%), followed by 2+1 (24%) and 1+1 units (14%). The least common were 1+0 and 2+0 apartments (8% each).

Descriptive and Inferential Statistical Analysis

The survey results from 270 participants were analyzed as follows: Regarding gender distribution, 34% of respondents were male, while 66% were female. In terms of age distribution, the majority of participants (93%) were between 18 and 24 years old. Concerning educational background, 1% had completed primary education, 3% held a high school diploma, and 96% possessed an undergraduate degree. Additionally, the types of buildings inhabited by participants were examined. Buildings with five or more floors comprised the largest group at 42%, followed by four-story buildings at 24%, single-story apartments at 15%, two-story apartments at 10%, and three-story buildings representing the smallest proportion at 9%. Regarding the distribution of apartment types, 3+1 flats were the most prevalent, accounting for 46%, followed by 2+1 flats at 24%, and 1+1 flats at 14%. Conversely, apartments classified as 1+0 and 2+0 each represented the smallest segments, with equal proportions of 8%. Descriptive Statistics on Users' Preferences and Interior Perceptions of the Exterior Designs of Aparts are given in Table 6.

Table 6. Descriptive Statistics on Users' Preferences and Interior Perceptions of the Exterior Designs of Aparts"

Item	Fully Disagree		Disagree		No idea		Agree		Strongly Agree	
No	N	%	N	%	N	%	N	%	N	%
S1	14	5	13	5	9	3	109	40	125	46
S2	13	5	10	4	8	3	83	31	156	58
S3	11	4	21	8	38	14	122	45	78	29
S4	7	3	38	14	82	30	80	30	63	23
S5	13	5	41	15	56	21	94	35	66	24
S6	15	6	49	18	85	31	79	29	42	16
S9	12	4	14	5	42	16	140	52	62	23
S10	10	4	24	9	43	16	126	47	67	25
S11	7	3	23	9	37	14	128	47	75	28
S12	7	3	18	7	31	11	134	50	80	30
S13	8	3	18	7	44	16	136	50	64	24
S14	7	3	34	13	87	32	102	38	40	15
S15	24	9	42	16	28	10	106	39	70	26
S16	15	6	15	6	30	11	109	40	101	37
S20	12	4	9	3	12	4	54	20	183	68
S22	8	3	15	6	20	7	128	47	99	37
S23	9	3	16	6	29	11	137	51	79	29
S25	8	3	27	10	43	16	127	47	65	24
S26	6	2	30	11	40	15	105	39	89	33
S29	10	4	30	11	85	31	113	42	32	12
S31	14	5	17	6	31	11	113	42	95	35
S32	10	4	31	11	53	20	120	44	56	21
S35	10	4	29	11	52	19	123	46	56	21
S36	9	3	53	20	59	22	102	38	47	17
S37	6	2	13	5	24	9	140	52	87	32
S38	11	4	16	6	30	11	129	48	84	31
S39	7	3	13	5	35	13	102	38	113	42
S41	10	4	21	8	38	14	128	47	73	27
S42	17	6	45	17	49	18	98	36	61	23
S45	21	8	57	21	67	25	97	36	28	10
S46	10	4	26	10	57	21	107	40	70	26
S47	6	2	13	5	33	12	89	33	129	48
S48	9	3	23	9	62	23	111	41	65	24
S49	9	3	41	15	36	13	126	47	58	21
S50	6	2	24	9	50	19	115	43	75	28
S51	10	4	15	6	19	7	139	51	87	32
S52	7	3	13	5	41	15	110	41	99	37
S53	5	2	9	3	33	12	120	44	103	38
S54	9	3	27	10	46	17	106	39	82	30
S55	12	4	27	10	46	17	110	41	75	28
S56	8	3	11	4	32	12	116	43	103	38
S58	20	7	48	18	51	19	102	38	49	18
S59	7	3	17	6	34	13	131	49	81	30
S60	7	3	18	7	54	20	112	41	79	29
S61	6	2	8	3	26	10	110	41	120	44
S62	8	3	26	10	33	12	73	27	130	48

(S1) According to the research findings; 86% of respondents (agree and strongly agree) think that the exterior design of the buildings informs the identity of the buildings. (S2) According to the respondents who

participated in the research (agree and strongly agree); It is argued that the fact that the exterior of the building is different and remarkable at a rate of 89% increases the interest in the building. (S3) According to the participants, the use of symmetrical geometry on the exterior of the building, with a rate of 74%, adds a characteristic feature to the building. (S4) The participants supported the view that the symmetry used on the exterior of the building symbolizes authority at a rate of 53%. (S5) According to 59% of respondents (agree and strongly agree), asymmetrical façades are more attractive. (S6) Participants (agree and strongly agree) defended the view that natural materials should be used on exterior façades at a rate of 45%, and 75% of the participants (S9) said that the use of natural stone on exterior façades adds an aesthetic appearance to the building. (S10) According to the research findings; 72% of the participants (participants and those who strongly agree) agree that the contrasting materials (such as stone-wood) used on the facades make the building stand out. (S11) According to the participants, 75% glass facade cladding adds an aesthetic appearance to the building. (S12) The view that the use of different materials on the exterior of the building draws attention to the building was supported by 80%. (S13) 74% of the participants think that the use of compact (wood) materials adds naturalness to the building. (S14) According to the research findings; 53% of the participants support the opinion that composite (aluminum) panels are more preferred in exterior design due to the abundance of variety. (S15) While 65% of the participants argue that the use of luxury materials on the exteriors of the buildings makes the buildings spectacular, at the same time (S16) 77% of them argue that the cost of the material used in the cladding on the facades of the building is important. (S20) According to the participants in the research (agree and strongly agree); It was stated that the materials used in the exterior should be resistant to weather conditions by 88%. (S22) According to the respondents who participated in the research (agree and strongly agree); 84% argue that the color used on the exterior of the buildings is very effective. (S23) In addition, according to 80% of the participants, the use of color on the exterior of the buildings adds movement to the building. (S25) According to the participants, the use of contrasting colors on the facades of the buildings increases the visual perception with a rate of 71%, and (S26) 72% of the participants stated that the colors used on the facades of the buildings should be compatible with each other. (S29) According to 54% of the participants (agree and strongly agree), contrasting colors should be used on the facades of buildings. (S31) According to the research findings; 77% of the participants think that the materials and colors used on the exteriors of the buildings should appeal to the target audience. (S32) According to the participants, a symmetrical balance should be provided in terms of design while designing the facades of the buildings at a rate of 65%. (S35) 67% of the participants (agree and strongly agree) state that the curved lines on the facades add mobility to the facade. (S36) In addition, 55% of the participants emphasized that the lines and shapes used in the exterior design should have a certain direction. (S37) According to the respondents who participated in the research (agree and strongly agree); 84% of the visual elements used in the exterior design should form integrity and (S38) the visual elements (color, shape, texture) used in the exterior design should be in a certain order and size at a rate of 79%. (S39) According to the participants, 80% of the exterior of the building should be suitable for the intended use of the building. (S41) According to the participants; The size of the doors and windows on the exterior at a rate of 74% should be proportional, and (S42) the entrance door of the building should be large and effective at a rate of 59%. (S45) According to the research findings; 46% of the participants argue that the writings on the exterior should be large and interesting, (S46) 66% of them argue that the building should have overhangs (balconies). (S47) For example, the finding that 81% of participants believe visually attractive façades evoke curiosity about the interior is consistent with the cognitive-emotional framework suggested by Rapoporta [12], who emphasized the influence of exterior elements on user interpretation and behavioral anticipation. Similarly, the preference for natural materials supports earlier findings by Şenyiğit & Altan [5], who noted that material authenticity enhances the communicative value of façades in urban housing. (S48) According to the research findings; 65% of the participants argue that the use of arches, columns or columns on the exterior of the building is remarkable and (S49) 68% of them argue that the use of patterns and decorations on the exterior of the building makes the building interesting. (S50) According to the participants, 71% of the buildings with different facades in terms of design are preferred more than the buildings with ordinary facades, and (S51) 83% of the participants stated that the external facades of the buildings should be differentiated in design so that they can be more attractive. (S52) According to the participants, the lighting factor on the exterior is considered important with a rate of 78%. (S53) Participants in the research emphasized that exterior design and landscape design should be compatible with 82%. (S54) According to the respondents who participated in the research (agree and strongly agree); Exterior and interior design are correlated with a rate of 69%. (S55) According to the participants, 69% of the participants stated that the exterior design should be compatible with the interior design, and (S56) 81% of the participants stated that they were more curious about the interiors of buildings with interesting exteriors. (S58) According to 56% of the participants, the use of quality materials on the exterior suggests that the materials and furniture used in the interior are also of high quality. (S59) According to the research findings; 79% of respondents said that facade design is important for renting or purchasing their flats in the building. (S60) According to 70% of the participants, the price is

related to the exterior design. (S61) Participants in the study (agree and strongly agree); gave 85% answers to the question that exterior design is important for you. (S62) 75% of the participants argue that the facades that were designed in the past should be repaired and designed in accordance with the original.

Findings on Participants' Opinions Regarding the Exterior Design Preferences and Interior Space Perceptions of Apartments Based on Their Demographic Characteristics. The Mann-Whitney U test was conducted to determine whether there is a significant difference in students' opinions regarding the exterior design preferences and interior space perceptions of the apartments they use based on their gender. This test was chosen because the scale scores did not follow a normal distribution according to gender, so a non-parametric test was used for the comparisons (Table 7).

Table 7. Comparison of Participants' Opinions by Gender (Mann Whitney U Test Results)

Gender		N	Mean	Std. Dev.	U	p
Exterior and Interior Perception	Male	91	3,76	0,61	6962,000	0,051
	Female	179	3,89	0,53		

Female students were found to have relatively more positive opinions regarding the exterior design preferences and interior space perceptions of the apartments they use compared to male students. However, statistically, no significant difference was found between female and male students' opinions on the exterior design preferences and interior space perceptions of the apartments they use ($p > 0.05$).

The Mann-Whitney U test was conducted to examine whether there is a significant difference in students' opinions regarding the exterior design preferences and interior space perceptions of the apartments they use based on their age. This test was chosen because the scale scores did not follow a normal distribution according to age, and therefore, a non-parametric test was used for the comparisons.

The Mann-Whitney U test was conducted to examine whether there is a significant difference in students' opinions regarding the exterior design preferences and interior space perceptions of the apartments they use based on their age. This test was chosen because the scale scores did not follow a normal distribution according to age, and therefore, a non-parametric test was used for the comparisons (Table 8).

Table 8. Comparison of Participants' Opinions by Age (Mann Whitney U Test Results)

Age		N	Mean	Std. **Dev.**	U	p
Exterior and Interior Perception	18-24	250	3,86	0,54	1978,500	0,634
	25-31	17	3,69	0,90		

The opinions of the students between the ages of 18-24 regarding the preference of the exterior designs of the apartments they use and their perceptions of the interior space were found to be more positive than the students between the ages of 25-31. However, statistically, no significant difference was found between the opinions of the students regarding the preference of the exterior designs of the apartments they use according to their ages and their perceptions of the interior space ($p>0.05$).

The Kruskal-Wallis test was used to examine whether there is a significant difference between students' preferences for the exterior design of the apartments they use, based on their income levels, and their perceptions of the interior space. This test was chosen because the scale scores did not follow a normal distribution according to income levels, making a non-parametric test more appropriate for the comparisons (Table 9).

Table 9. Comparison of Participants' Opinions Based on Income Status (Results of the Kruskal-Wallis Test)

	N	Mean	Std. Dev.	Chi-Square Value	p
none	137	3,88	0,54	1,943	0,746
1600 and below	68	3,82	0,58		
1601-2500	25	3,75	0,59		
2501-5000	29	3,91	0,56		
5001 and above	11	3,76	0,77		

Students with an income between 2501 and 5000 TL were found to have more positive opinions regarding the exterior design preferences and interior space perceptions of the apartments they use. However, statistically, no significant difference was found between students' opinions on the exterior design preferences and interior space perceptions of the apartments they use based on their income levels ($p > 0.05$). The Kruskal-Wallis test was used to examine whether there is a significant difference in students' opinions regarding the exterior design preferences and interior space perceptions of the apartments they use, based on the type of building they reside in. This test was chosen because the scale scores did not show a normal distribution according to building type, making a non-parametric test appropriate for the comparisons (Table 10).

Table 10. Comparison of Participants' Opinions Based on Building Type (Results of the Kruskal-Wallis Test)

	N	Mean	Std. Dev.	Chi-Square Value	p
single storey	37	3,72	0,76	2,742	0,602
two-story	24	3,83	0,37		
three-story	23	3,74	0,75		
four-story	61	3,80	0,63		
five stories and above	107	3,94	0,44		

Students living in buildings with five or more storeys were found to have more positive opinions regarding the exterior design preferences and interior space perceptions of the apartments they use. However,

statistically, no significant difference was found between students' opinions on the exterior design preferences and interior space perceptions of the apartments they use based on the type of building they live in ($p > 0.05$). The Kruskal-Wallis test was conducted to determine whether there is a significant difference in opinions regarding the exterior design preferences and interior space perceptions of the apartments used, based on the apartment type. This test was chosen because the scale scores did not follow a normal distribution according to apartment type, so a non-parametric test was used for the comparisons (Table 11).

Table 11. Comparison of Participants' Opinions Based on Apartment Type (Results of the Kruskal-Wallis Test)

	N	Mean	Std. Dev.	Chi-Square Value	p
1+0	21	3,97	0,37	3,740	0,442
1+1	35	3,89	0,59		
2+0	19	3,67	0,92		
2+1	61	3,95	0,38		
3+1	117	3,78	0,61		

Students living in apartments classified as type 1-0 were found to have more positive opinions regarding the exterior design preferences and interior space perceptions of the apartments they use. However, statistically, no significant difference was found in students' opinions on the exterior design preferences and interior space perceptions of the apartments they use based on the type of apartment they live in ($p > 0.05$).

CONCLUSION AND RECOMMENDATIONS

Overall, this study highlights the psychological and aesthetic impact of exterior design on user perception in residential architecture. While statistical associations provide strong evidence, future investigations should deepen theoretical grounding by integrating models from environmental psychology, architectural semiotics, and user experience studies.

Based on the research findings, the following recommendations are proposed:

- Integrate Aesthetic and Functional Design: Architects and developers should not prioritize cost-efficiency at the expense of aesthetic and spatial quality. Facade designs should reflect both the functional character and identity of the building.
- Use of Natural and Durable Materials: The preference for natural and weather-resistant materials suggests a demand for façades that are not only visually appealing but also sustainable and long-lasting.
- Color Strategy in Design: Color schemes should be selected thoughtfully, considering user preferences for harmony, contrast, and visual interest. Architects should evaluate how color impacts psychological perception and spatial quality.
- Enhance Urban Identity through Façades: Building exteriors should contribute to a coherent urban fabric, reflecting the cultural and architectural values of their context. This can help address the identity crisis observed in rapidly urbanizing areas.
- Encourage Participatory Design: Designers and developers should consider incorporating user feedback into the design process, particularly for housing intended for specific user groups such as students or young professionals.
- Preserve and Renovate Historical Façades: Participants supported the idea that façades designed in earlier periods should be restored in accordance with their original character, reinforcing the value of architectural heritage.
- For Architects: Prioritize the coherence between façade and interior design to strengthen user perception and satisfaction. Employ durable yet expressive materials that convey architectural identity [9,4,5].
- For Municipalities: Implement design guidelines that encourage the use of locally relevant forms and materials, fostering visual harmony in student-dominated urban districts [5,6].
- For Developers: Conduct participatory design workshops with end users (e.g., students, tenants) to tailor façade aesthetics to their cultural and psychological expectations [12].
- For Future Research: Comparative studies across regions and longitudinal tracking of perception changes in relation to façade renovation can enrich the current understanding of spatial psychology in housing [10,12].

In conclusion, the study underscores the importance of viewing façade design as a critical element of user-centered architecture. Future research could expand this analysis by comparing user perceptions across different urban regions or exploring longitudinal changes in user expectations in relation to evolving design trends.

Color, one of the most powerful elements in architectural design, is used to emphasize a building's style and character, as well as to create a sense of harmony and unity. Additionally, contrasting colors are intentionally employed to draw attention to an object that might otherwise remain in the background, making it more vivid and prominent. In this way, users' responses to the environment can be influenced.In architecture, color choices are typically made in collaboration between the designer and the users, based on their preferences. Guided by these choices, the architect or designer should interpret the relationship between color and spatial perception and evaluate how well a particular architectural style aligns with them.

According to the results of the survey, the participants think that the exterior design has a great contribution to the perception of interior space and that the interiors of the apartments with a well-designed exterior also evoke the effect of better designed and quality materials. In addition, it is seen that the prices of apartments with well-designed façades are slightly higher and that those

with good incomes prefer these apartments more. In the interviews with the participants, some participants stated that they were forced to rent an apartment because they needed accommodation rather than its appearance and quality. In the study of Şenyiğit and Altan [5] "One of the most significant problems in architecture is the negative impact on the relationship between society and the environment caused by buildings that are poorly understood and/or fail to communicate effectively. Architectural forms that are arbitrarily borrowed tend to be artificial in nature. As a result, urban users compelled to live in an imitated environment they neither choose nor like develop a sense of detachment and indifference toward their surroundings. Structures that are disconnected from the context of their time and place,
alienated from society, and shaped by pluralism and uncontrolled freedom contribute to an identity crisis in architecture—a topic that has been the subject of increasing debate in recent years.

ACKNOWLEDGEMENT

This article was produced from a part of the study titled " Determining The Effects Of The Exterior Design Of The Aparts On The Preferences Of The Students And The Interior Perceptions (Afyonkarahisar Example)" by a master's student named Merve Meral, which was completed under the supervision of Mehmet SARIKAHYA, a Dr. Faculty Member at Afyon Kocatepe University Social Sciences Institute.

REFERENCES

[1] https://yurt.unibilgi.net/ogrenci-aparti-nedir/, Access date 04.07.2020.

[2] https://www.devlette.com/apart-daire-nedir-ne-demektir/#google_vignette, , Access date 04.07.2020.

[3] Türk Dil Kurumu (TDK), Apart Otel, 2021, https://sozluk.gov.tr/.

[4] Cidem S., Tekin Ç., (2020), Mimari cephe tasarımında malzeme ve renk kullanımı: alan çalışmasında seramik malzeme üzerinden ürün tasarımcı yaklaşımının değerlendirilmesi, Tasarım Kuram 16:31 57-79, https://acikerisim.msgsu.edu.tr/xmlui/handle/20.500.14124/132

[5] Şenyiğit, Ö., & Altan, İ. (2011). Anlamsal ifade aracı olan cephelerin değerlendirilmesine yönelik bir yaklaşım: İstanbul'da Meşrutiyet Caddesi'ndeki cephelerin incelenmesi. Megaron, 6(3), 139–150. MEGARON_6_3_139_150.pdf

[6] Konuk, G. (1989). Kamu mekânları tasarımında cephe düzeni. In M. Çubuk & B. Ulusay (Eds.), Kamu mekânları tasarımı ve kent mobilyaları sempozyumu (Vol. 1, pp. 54–55).

[7] Telyakar, Z. (2018). Mekan ve form ilişkisinde ikonik bir yaklaşım: Starchitecture tasarım anlayışı (Master's thesis, Hacettepe University, Institute of Fine Arts, Department of Interior Architecture and Environmental Design, Ankara). https://openaccess.hacettepe.edu.tr/items/ba5d5ff6-8081-462c-8060-2a68b5ee4a9b

[8] Bozkurt, G. (1962). Bir mekân anlayışı. İstanbul: İstanbul Teknik Üniversitesi Matbaası. https://scholar.google.com/citations?user=YAe7iegAAAAJ&hl=tr&oi=sra

[9] Ching, F. D. K. Architecture: Form, Space, and Order (4th ed.), (2014). https://archive.org/stream/francis-d.-k.-ching-architecture-form-space-and-order-4-e-2014/Francis%20D.%20K.%20Ching%20-%20Architecture_Form%2C%20Space%2C%20and%20Order%204E%20%282014%29_djvu.txt

[10] Gong, H., & Nam, S. (2022). Diachronic Changes and Factors Influencing the Exterior Design of High-Rise Apartment Buildings: Güney Kore Örneği. https://www.mdpi.com/2075-5309/12/7/892.

[11] Bonta, J. P. (1979). Architecture and Its Interpretation: A Study of Expressive Systems in Architecture. Lund Humphries. https://archive.org/details/architectureitsi0000bont/page/n5/mode/2up

[12] Rapoport, A. (1982). The Meaning of the Built Environment: A Nonverbal Communication Approach. Sage Publications. https://books.google.com.tr/books?id=bn_7_UFAbdUC&printsec=frontcover&hl=tr&source=gbs_ge_summary_r&cad=0#v=onepage&q&f=false

[13] Kalaycı, Ş. (2005). SPSS uygulamalı çok değişkenli istatistik teknikleri, p.322. Ankara: Asil Yayın Dağıtım. https://dergipark.org.tr/tr/pub/ilkonline/issue/8586/106689.