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A comparison of interior aesthetic pleasure: Differences between interior architecture first-year and upper-year students

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Abstract

The professions of interior architecture necessitate the integration of both aesthetics and functionality. Therefore, these concepts are deeply embedded in the university education process. The first step on this educational path is taking the basic design studio course which aims students to start developing critical and abstract thinking skills in the design process. It would contribute to the literature to examine how far students are able to develop their aesthetic evaluations in the first year of university education. Therefore, we conducted the study to investigate if there is a difference in aesthetic evaluations of interiors between students who have just started their interior architecture education and students who have completed their first year. Examining how students' aesthetic evaluations for interior design evolve over the course of their interior architecture education provides valuable insights into design education. The results illustrated that there is a significant difference between evaluations of aesthetic pleasure and novelty. The students who finished the first year have less aesthetic pleasure and novelty scores than the students who just started their university education. The first year of education may reduce aesthetic appreciation because basic design education aims to teach students to think critically.

Highlights

- First year studio courses provide students with critical thinking skills on the evaluation of interior design.
- Students experience a decrease in evaluation of interior aesthetic pleasure with the completion of the first grade.
- Upon the completion of the first year, students perceive the design of interiors less novel.

Keywords

Aesthetic pleasure; Basic design course; Interior architecture education; The APID scale.

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İç mekan estetik memnuniyetin karşılaştırılması: İç mimarlık birinci sınıf ve üst sınıf öğrencileri arasındaki farklılıklar

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Öz

İç mimarlık mesleği, hem estetik hem de işlevselliğin bütünleştiği bir alandır. Bu nedenle, bu kavramlar üniversite eğitim süreci boyunca derinlemesine işlenmektedir. Bu eğitimin ilk yılında, öğrencilerin tasarıma eleştirel bakabilme ve soyut düşünme becerilerini geliştirmeye başlamalarını amaçlayan temel tasarım stüdyosu dersleri yer almaktır. Öğrencilerin estetik değerlendirmelerini ne kadar geliştirebildiklerini ölçmek ve analiz etmek temel tasarım eğitimi literatürüne katkı sağlayacaktır. Bu nedenle çalışmayı, iç mimarlık eğitimine yeni başlayan öğrenciler ile birinci yılını tamamlamış öğrenciler arasında iç mekanlara yönelik estetik değerlendirmelerde bir fark olup olmadığını araştırmak amacıyla gerçekleştirdik. Sonuçlar, öğrencilerin iç mekanların tasarımını değerlendirirken estetik memnuniyet ve yenilik kategorilerinde önemli bir fark olduğunu göstermiştir. Birinci sınıfı bitiren öğrenciler, üniversite eğitimine yeni başlayan öğrencilere göre tasarımını değerlendirdikleri iç mekanları estetik memnuniyet ve yenilik bakımından daha az beğenmişlerdir. Temel tasarım eğitiminin sonunda bu durum normaldir çünkü eğitiminin en önemli amacı öğrencilere eleştirel düşünmeyi öğretmektir.

Öne Çıkanlar

- Birinci yıl stüdyo dersleri, öğrencilere iç mekan tasarımının değerlendirilmesi konusunda eleştirel düşünme becerileri kazandırır.
- Öğrenciler birinci sınıfın tamamlanmasıyla birlikte iç mekan estetik memnuniyet değerlendirilmesinde bir düşüş yaşarlar.
- Birinci yılın tamamlanmasının ardından öğrenciler iç mekan tasarımını daha az yenilikçi olarak algılamaktadır.

Anahtar Sözcükler

Estetik memnuniyet; Temel tasarım dersi; İç mimarlık eğitimi; APID ölçeği.

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INTRODUCTION

The field of design and interior architecture is a harmonious integration of art and science in all areas of life. The discipline of interior architecture requires a seamless combination of aesthetic principles and functional considerations. Also, it is crucial to emphasize that prioritizing functionality in design does not necessarily entail disregarding aesthetic components. The significance of aesthetics is widely acknowledged within the disciplines of design and interior architecture.

Whether we are consciously aware of it or not, we constantly evaluate the beauty and aesthetics of our surroundings and things we encounter (Light and Smith, 2005). As a consequence of these assessments, we reach a conclusion about the subject. Therefore, designers consciously consider the potential impact of product, interior, and building designs on users and the results of their evaluation. As a result, they address these concerns and improve themselves throughout their design education.

Interior architecture education seeks to question, alter, and reevaluate aesthetic judgment influenced by social variables and context. Hence, throughout their educational life, students undergo a process of personal growth, development, and professionalization, which culminates in their transition into accomplished practitioners, owing to the comprehensive four-year curriculum and training they receive. Accordingly, this study aimed to investigate the potential variation in students' aesthetic pleasure in relation to the commencement of their university education.

Aesthetic perception and evaluation

The phenomenon of aesthetic perception often involves an observer experiencing a sensory stimulus that elicits either pleasure or non-pleasure. This experience is commonly instigated by external stimuli, encompassing the physical attributes of a given environment, which serve to activate the human senses and evoke vivid mental imagery within the minds of those who perceive them (Omale, 2022).

When evaluating our immediate environment, three pivotal factors come into play: functionality, aesthetic features, and meanings associated with specific environments (Rafaeli & Vilnai-Yavetz, 2007). Hekkert further categorized this experience as beautiful, meaningful, and emotional (2006). He posited that aesthetics have the power to satisfy all human senses (Hekkert, 2006). Moreover, Chatterjee and Vartanian (2014) suggest that aesthetic experiences are generated by the interplay of many brain systems, including those involved in sensory-motor processing, emotion evaluation, and meaning acquisition.

The dynamics of people-environment interaction creates aesthetics (Lang, 1992). Lang breaks down aesthetic experience into sensory, formal, and symbolic interactions. In sensory engagement, immediate environmental sensation is most important. The perception of aesthetics encompasses more than just visual stimuli; it contains all senses. Visual aesthetics, in particular, are symbolic in shaping the understanding and assessment of items (Bloch et al., 2003). Formal interactions also require appreciating the visual world's forms, rhythms, intricacies, etc. Finally, symbolic engagement involves a pleasant immediate context, distinguishing visual and sensory exchanges (Lang, 1992).

As we navigate the intricate world of aesthetic pleasure and its tremendous effect on our perception of the surroundings, it is critical to investigate the numerous approaches used to measure this multifaceted experience. Therefore, in light of this multidimensional nature of aesthetic perception that was covered earlier, which emphasized the connection to external stimuli and the interplay of sensory, formal, and symbolic interactions, there are various methods that academics and professionals use to evaluate and comprehend aesthetic pleasure.

Various approaches on evaluating aesthetic pleasure

Upon reviewing the existing literature, it becomes evident that multiple methodologies have been employed to incorporate psychological, neuroscientific, and perceptual aspects in assessing aesthetic pleasure. There are various neuropsychological tools that reflect the integration of cognitive and neural processes in measuring aesthetic pleasure (Skov, 2019; Pearce et al., 2016; Cheung et al., 2014). Moreover, there are scales that precisely measure aesthetic pleasure for design with variables which are representing the multidimensional nature of aesthetic experiences (Blijlevens et al., 2017).

Considering the challenges associated with collecting neurological data for the scope of this study, we decided to use reliable and validated scales to assess aesthetic pleasure. Consequently, the literature reviews primarily center on various scale approaches in evaluating aesthetic pleasure. Many scales have been developed and employed to measure the subjective experience of aesthetic pleasure.

Martindale et al. (1990) proposed using 7-point bipolar scales as a preferred method for assessing aesthetic pleasure within interior architecture. These scales encompassed various dimensions, including like-dislike, meaningless-meaningful, orderly-disorderly, and complex-simple, thereby offering a comprehensive framework for evaluating the subjective experience of aesthetic pleasure. Furthermore, Page and Herr (2002) employed a series of adjective pairs encompassing both aesthetically pleasing and unpleasing attributes. Lastly, Hung and Chen (2012) used the semantic differential method and the sole adjective pairs that the participants favored are "ugly" and "beautiful" (see Table 1).

However, it has been argued by Bilijlevens et al. (2017) that the scales mentioned above have not undergone rigorous testing to establish their reliability and validity. Furthermore, it can be argued that existing scales may not provide a comprehensive assessment of aesthetic pleasure within the field of interior architecture. Consequently, a comprehensive scale was devised and evaluated

through multiple iterations of factor analysis, reliability assessment, and validity testing by Bilijlevens et al. (2017). The assessment tool that has been developed is referred to as the Aesthetic Pleasure in Design (APID). The APID scale is a quantitative measurement instrument utilized in the field of design to assess and quantify the level of aesthetic pleasure experienced by individuals.

Table 1. Various scales for measuring aesthetic pleasure

Studies	Scales
Martindale, Moore & Borkum, 1990	Like – Dislike
Page &Herr, 2002	Attractive - Unattractive
Hung & Chen, 2012	Ugly - Beautiful
Blijlevens et al. 2017	**Pleasant** This design is pleasing to see
	Attractive - This is an attractive design
	Nice - This design is nice to see
	Beautiful - This is a beautiful design
	Like - I like to look at this design

Furthermore, the researchers Bilijlevens et al. (2017) also suggested suitable instruments to assess key factors influencing aesthetic pleasure, including typicality, novelty, unity, and variety. The scale encompasses a total of 20 statements and is subdivided into five distinct subcategories. The APID scale, which was introduced in 2017, has been widely employed and referenced in various research studies (Berghman & Hekkert, 2017; Garrido-Possauner & Maya, 2019; Paakki et al., 2019; Zenner, 2019).

Interior architecture and basic design education

When discussing the field of interior architecture education, it is essential to begin the discussion by addressing the topic of design education. It is crucial to underline that interior architecture education is founded on the ideas that constitute design education. According to Demirbaş and Demirkan (2007), the learning and teaching approaches in design education aim to balance creativity with objective standards, and they also claim that unique, non-repetitive design outcomes are inherent in conceptualization. The fundamentals of education are learning by doing and receiving critiques.

Providing students with constructive feedback to enhance the projects they design is seen as one of the crucial aspects of design education (Akbay, 2022; Turner, 2021). Instructors who are also professionals in the design field give critiques by effectively transmitting the experience and knowledge gained throughout their own educational and professional lives. Design education curriculum, which is a combination of theoretical, practical, and artistic courses, are parallel to interior architecture education since they integrate several learning styles (Demirbaş, 2001; Demirbas & Demirkan, 2007).

The interior architecture profession, which has specialized in line with the needs of the field of design and architecture, is a component that plays an important role in ensuring the integrity of buildings today. An interior architect is a professional who specializes in the fundamental organization of spaces, including room layouts, while also overseeing technical aspects such as lighting and acoustics and this role encompasses a comprehensive understanding of aesthetic principles, as well as the social and emotional requirements of the occupants (Leydecker, 2013). Moreover, they analyze the psychological and physical parameters to establish the correlation between individuals and their surrounding spaces, with the aim of enhancing the overall quality of life according to the International Federation of Interior Architecture/Design (IFI, 2011). Therefore, professors in university education prepare curricula to provide students with the necessary skills and knowledge to become professional interior architects with these qualifications.

The freshman year of university education holds significant importance because it is an environment where individuals that are unfamiliar with design terminology and have a limited exposure to design are introduced to the concept of design for the very first time. The Basic Design course invites students to explore a new world, encompassing both its constructive and destructive aspects. Moreover, the course is the building block of the first semester of all design-related professions. It emphasizes hands-on learning and the integration of art and design, following the Bauhaus methods and principles, which are related to independent education of formal analysis and abstract concepts (Türkmen, 2020). The École des Beaux-Arts, serving as the basis for the fundamental model, maintains its enduring impact on the realm of modern art and design education inside academic institutions (Uluçay, 2023).

The Objectives of the study

The study aims to discover whether there is a difference between the aesthetic evaluations of interiors between students who have just started their interior architecture education and students who have completed their first-year education. Examining how students' aesthetic evaluations for the design of interiors evolve during their interior architecture education provides valuable insights into design education.

Our research outcomes are anticipated to contribute to the literature in the fields of aesthetic pleasure and the approaches to interior architecture education. The objectives of the study:

1- To investigate the effect of first-year interior architecture education on evaluating students' aesthetic pleasure in interiors.

2- To investigate the impact of first-year interior architecture education on the APID scale subcategory's novelty, unity, variety, and typicality that contribute to the aesthetic evaluation of interior spaces.

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METHOD

The framework of basic design education

The level of education appears as a significant variable in the present study. Therefore, the method or educational approach of interior architecture to instruct first graders is crucial. Students who had recently begun freshman year were chosen for this study, and it was noted that these students had never previously received design education in their lives. The primary objective for paying attention to this is to be able to compare upper-year students who have finished their first year of education with students who have never gotten this education.

For a comprehensive analysis of this comparison, it is critical to discuss the freshman year curriculum of the Department of Interior Architecture within the Faculty of Architecture at Çankaya University. The educational approach of the interior architecture department is centered around a project-based approach, with studio courses comprising a significant component of the curriculum. In the studio courses, students are involved in the process of designing projects that align with their educational level while simultaneously acquiring design skills through experiential learning and receiving constructive feedback from teachers. The abovementioned process is carried out for four years, corresponding to the standard academic duration for students pursuing a degree in interior architecture. Throughout a four-year program, students are required to complete eight studio courses, with each class distributed evenly among eight semesters.

The scope of this study will be limited to the initial year of university education, excluding subsequent years. During the initial semester, students are required to enroll in the basic design course. In the context of this studio course, students are required to participate in courses on two separate days each week, with each class session lasting a duration of four hours, resulting in a cumulative total of eight hours in one week. Throughout a 14-week duration, students are provided with a total of 12 assignments. The initial step in these projects involves identifying design elements, examining the interplay between basic forms and shapes and their relationships, and gaining knowledge regarding the criteria to develop a design that is both referenced and orderly. In addition, these concepts are reinforced by theoretical understanding and critical analysis of design principles, gestalt principles of perception, spatial organizations, spatial relationships, spatial hierarchies, and the functional approach.

The Basic Design studio course is based on the fundamental concepts and principles of the Bauhaus approach and the Gestalt principles of perception. The objective is to provide students with guidance in cultivating the capacity for abstract thinking, which will serve as a foundational framework for their future creative endeavors. In addition to developing abstract thinking skills, it is aimed to develop a critical approach to their design projects. It aims to encourage a critical mindset in their assignments in addition to the development of abstract thinking skills. Students discover that design is a process that can be continually improved and should always follow critiques. This learning process aims to help students improve their projects by encouraging them to examine their work critically and by adopting the critical techniques they acquire from their lecturers.

After successfully completing the basic design course in first semester, students are eligible to enroll in the second studio course named "Introduction to Interior Architecture" in the following semester of the first year. In the context of this course, students further their education by building upon the knowledge acquired in the basic design course. Specifically, they engage in various assignments pertaining to ergonomics and the interplay between design, function, and spatial considerations. These tasks reinforce and deepen their understanding of these subjects, enhancing their overall learning experience. To develop a comprehensive knowledge of designing interiors, students undergo a rigorous curriculum that involves completing their first year before progressing to the second year. This progression ensures that students have the foundation and knowledge necessary to embark on the creative journey of designing functional interiors.

Consequently, the primary objective of the initial year of interior architecture education is to provide students with the capacity for abstract thinking and the ability to identify and comprehend design elements and their relationships. Studio courses taken in the first and second semesters are the most crucial determinant for gaining this ability. Moreover, to gain the competence to develop designs by learning various design principles, such as repetition, variety, contrast, emphasis, dominance, unity, harmony, rhythm, asymmetrical balance, hierarchy, etc. Gaining the aptitude for critical thinking in the design process and the utilization of terminology of the profession. Eventually, the objective is for students to acquire knowledge that will subsequently influence and enhance their aesthetic perceptions and preferences upon commencing their university education.

Questionnaire for measuring aesthetic pleasure

To assess students' aesthetic judgment of the presented interior spaces, we selected the APID scale as a tool and prepared a questionnaire accordingly. As indicated in the literature review, the APID scale has the highest reliability and validity scores when compared to other scales utilized for measuring aesthetic pleasure in design. The scale comprises five distinct subcategories: aesthetic pleasure, novelty, unity, variety, and typicality, and 20 statements. Therefore, the questionnaire was prepared according to those five subcategories.

At the beginning of the questionnaire, students first view the information and consent page. This page explains the study's purpose, duration, disclaimer, and confirmation questions for them to affirm that they are over 18 and freely engaging in the research. The following section included inquiries related to demographics, such as age, gender, and education. Since we only invited interior architecture students, the question related to education was, "What year are you studying?". After the demographic section, participants were asked to rate "I like this interior" and "I like the design of this interior" out of 7-point Likert. They rated these statements by choosing a number between 1 for "completely disagree" and 7 for "completely agree". We put these two lines before the APID scale to comprehend their subjective inner approach.

Following the demographics section of the questionnaire, participants were given two questions for subjective measurements and the 20-question APID scale statements prepared for interiors and asked to evaluate them out of 7. To avoid participants getting bored by facing all the information on one page, 20 sentences were divided into four pages. Participants read five aesthetic pleasure statements on the first page, followed by four novelty statements. On the last two pages, there were

six unity and variety sentences and five typicality sentences. Therefore, students had to evaluate 22 sentences for each interior photograph, totaling 44 sentences. They selected a number between one (indicating completely disagree) and seven (indicating completely agree) to rate each 44 sentences.

Visual stimuli of interiors

To use suitable visual stimuli for representing interior spaces, we conducted a comprehensive investigation of prominent interior design contests within the industry. Our choice of "Interior Design Magazine" stems from its reputation as a dependable publication, renowned for its longstanding tradition of hosting the esteemed "Best of Year Awards."

Two primary considerations guided our decision-making throughout the process of selecting the photographs of interior spaces from the catalog. To begin, there must be as few people as possible or none at all in the interiors of the building. Second, to prevent attention from being diverted to the outside, the inside should have as few things that are visible from the outside as possible. After conducting an exhaustive study, a total of five images were chosen for consideration.

In the first stage of our research, we conducted a preliminary study to make participants rate the most liked interior spaces among five photographs of interior spaces that we showed them. A questionnaire was built on Google Forms and spread via the Internet to assess these photographs on a 9-point Likert scale. Due to the ratings given by 132 individuals, the best two visual stimuli were selected as seen in Figure 1 (see Table 2 for further information).

Table 2. Mean scores and standard deviations of the visual stimuli

Interiors	Mean	SD
Interior 1	5.92	1.91
Interior 2	6.56	1.93
Interior 3	**7.17**	**1.58**
Interior 4	5.76	2.18
Interior 5	**6.67**	**1.83**

After selecting the two most liked photos, a new questionnaire was prepared. Since the APID scale consisted of 20 statements, and in addition to this, two questions were asked for the subjective likeness of interiors, two visual stimuli were selected so that the participants would not get bored during the experiment. Using two visual stimuli was also helpful to conduct the experiment to increase the sample size and diversity.

Figure 1. The Photographs of the Selected Interiors (Interior Design Magazine, 2024)

Participants

The participants were selected by the quota sampling technique. The research was conducted on a group of Turkish students enrolled in the Department of Interior Architecture at Çankaya University, Ankara, Türkiye. The selection method aimed to include first-year students lacking design experience and second-, third-, and fourth-year students who had experience in design because they had completed their first-year studios. We placed significant emphasis on ensuring a well-balanced mix of participants, taking into account individuals with two different levels of design knowledge and experience and an equal representation of both genders.

Consequently, a collective of 40 students actively engaged in this research. From the whole student population, one group of 20 students was selected from students who had just started their first year. In contrast, another group of 20 students was chosen from upper-year students who had completed their first year, as seen in Table 3. The age range of participants was from 19 to 27 years (M =21.43, SD = 1.75).

Table 3. Gender and Class Distribution

	First-Year Students		Upper-Year Students	
Gender	Frequency	Percent	Frequency	Percent
Woman	10	25	10	25
Man	10	25	10	25
Total	20	50	20	50

Data collection

The data for this study was collected during the initial period of the autumn term in 2023. The collection process was carried out in the Faculty of Architecture meeting room. Although the survey questions were prepared on Google Forms, to minimize the possibility of question avoidance, we had the students answer the questions in a physical environment with an observer instead of sending the questionnaire over the Internet.

The students were individually invited to the room for data collection. After entering the designated room, the participants were instructed to sit at the meeting table, where a comprehensive explanation of the study's objectives was provided. Also, participants are offered an electronic Pad to review the questionnaire and assess the interiors they will encounter. A laptop with a 14-inch display was utilized to facilitate the visual examination of the images of the interior space. As the students directed their attention toward the laptop screen displaying a snapshot of the selected interior space, they answered the questionnaire using the electronic pad. Due to the implementation of this approach, students were allowed to look at the interior space at their convenience.

After answering the pertinent questions by gazing at the first interior space displayed to the students, the participants came across a caution page in the questionnaire. They were directed to the following interior space photograph. Following the issuance of this caution, the observer displayed the second interior space photograph on the computer screen, enabling the participants to engage in an evaluation process again. After completion of the analysis of the second interior photograph and the subsequent response to the related questions, the experiment was concluded. The overall duration of this process averaged approximately 6 minutes.

Data analysis

The data from the study were analyzed utilizing the SPSS 26.00 statistical software. Reliability analysis and normality testing were conducted before commencing the data comparison. The Cronbach's Alpha internal consistency coefficient was calculated to assess reliability. Subsequently, an independent sample T-test for parametric data and the Mann-Whitney Test for nonparametric analysis were employed to evaluate the variables of the APID Scale and compare students who were in the initial stage of first year with students who had completed first year. The analysis of the correlation between the variables was also conducted. The abovementioned procedure was also performed separately for settings 1 and 2 in addition to combining settings. The study's sample size is 80 because each participant rated two different photographs of interiors (Participant Number=40, sample size= 80).

RESULTS

In the initial stage of the data analysis, the reliabilities of each variable were assessed, and the result illustrated that the reliabilities of the scale were found to be alpha=.809. Therefore, the reliability of the scale was deemed acceptable based on the findings of Büyüköztürk et al. (2004), who established that a Cronbach's alpha value of 0.70 or higher is considered satisfactory for assessing the reliability of a scale.

In addition, we performed normality tests, specifically the Kolmogorov-Smirnov and Shapiro-Wilk Normality tests, to assess the dataset's distribution, as seen in Table 4. The findings indicated that the values of aesthetic pleasure, novelty, unity, and variety exhibited a non-normal distribution among the students from first-year and upper-year ($P < .05$). However, values of typicality illustrated normal distribution as alpha=0.200 with skewness=-0.075 and kurtosis=-0.440. Consequently, nonparametric statistical tests were employed to analyze the data for aesthetic

pleasure, novelty, unity, and variety, while we conducted independent samples t-tests to compare the data of typicality.

Table 4. Tests of Normality

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig	Statistic	df	Sig
Aesthetic Pleasure	.165	80	.000	.907	80	.000
Novelty	.116	80	.009	.956	80	.007
Unity	.150	80	.000	.902	80	.000
Variety	.129	80	.002	.921	80	.000
Typicality	.069	80	.200*	.989	80	.724

Aesthetic pleasure

According to the data presented in Table 5, it is evident that the average scores for aesthetic pleasure variables indicate that first-year students consistently exhibit higher scores in aesthetic pleasure compared to upper-year students. Since, examining solely the mean scores would not be sufficient, Mann-Whitney U test which is non parametric independent test was conducted for evaluating whether there is a difference between the aesthetic pleasure evaluations of students at different educational levels.

Table 5. The means scores of Aesthetic Pleasure

Aesthetic Pleasure Variables		Interior 1		Interior 2		Total	
	Education	Mean	SD	Mean	SD	Mean	SD
AP1 Pleasing	First-Year Students	6.45	0.69	6.20	0.83	6.33	0.76
	Upper-Year Students	5.65	1.14	5.70	0.86	5.68	1.00
AP2 Attractive	First-Year Students	6.60	0.75	6.10	1.02	6.35	0.92
	Upper-Year Students	5.55	1.19	5.45	1.36	5.50	1.26
AP3 Nice	First-Year Students	6.35	0.67	6.15	0.81	6.25	0.74
	Upper-Year Students	5.60	1.23	5.65	0.88	5.63	1.05
AP4 Beautiful	First-Year Students	6.35	0.75	6.20	0.83	6.28	0.78
	Upper-Year Students	5.45	1.28	5.75	0.85	5.60	1.08

Table 5 continued.

AP5 Like	First-Year Students	6.00	0.92	5.90	1.07	5.95	0.99
	Upper-Year Students	5.15	1.42	5.25	1.12	5.20	1.26
Total Aesthetic Pleasure	First-Year Students	6.35	0.55	6.11	0.81	6.23	0.70
	Upper-Year Students	5.48	1.16	5.56	0.89	5.52	1.02

According to the Mann-Whitney U test results, a significant difference between total aesthetic pleasure scores of first-year students and upper-year students were detected (see Table 6). Moreover, we run the test for five aesthetic pleasure variables separately. Variables of Pleasing (U = 504.5; P = .003; P < .05; two-tailed), Attractive (U = 465.5; P = .001; P < .05; two-tailed), Nice (U = 522,5; P = .05; P < .05; two-tailed), Beautiful (U = 510.5; P = .003; P < .05; two-tailed), and Like (U = 535; P = .008; P < .05; two-tailed) also indicated significant differences.

For interior setting 1, a significant difference between total aesthetic pleasure scores of first-year students and upper-year students were detected (U =99.5; P = .003; P <.05; two-tailed). Variables of Pleasing (U = 115; P = .014; P < .05; two-tailed), Attractive (U = 84; P = .001; P < .05; two-tailed), Nice (U = 123,5; P = .029; P < .05; two-tailed), and Beautiful (U = 113; P = .013; P < .05; two-tailed) also indicated significant differences. However, variable of Like (U = 130; P = .051; P > .05; two-tailed) were indicated not significant difference.

For interior setting 2, a significant difference between total aesthetic pleasure scores of first-year students and upper-year students were not detected (U = 132; P = .063; P > .05; two-tailed). Variables of Pleasing (U = 139; P = .081; P > .05; two-tailed), Attractive (U =144.5; P = .117; P > .05; two-tailed), Nice (U =139.5; P = .084; P > .05; two-tailed), Beautiful (U = 144.5; P = .111; P > .05; two-tailed), and Like (U = 139; P = .087; P > .005; two-tailed) also indicated not significant differences.

Novelty, Unity, Variety, and Typicality

Since the variables of novelty, unity and variety are non-normally distributed and typicality is normally distributed between first-year and upper-year students (see table 4), we applied nonparametric and parametric tests. According to the Mann-Whitney U test results, a significant difference between total novelty scores of first-year and upper-year students were detected and there was no significant difference for variables of unity and variety (see Table 6). Lastly, independent samples T test illustrated that there was no significant difference between first-year and upper-year students (p=0.098; P > .05; two tailed).

Three novelty variables from four indicated significant differences between first-year and upper-year students (for New Example U=547.5, P=.013; Original U=568.5, P=.022; Novel U=518,

P=.006; all p values < .05; two-tailed) while variable of Innovative illustrated non-significant difference (U=436, P =.063). For three unity variables, coherent illustrated significant difference (U=562.5; P=.016; P< .05; two-tailed) while orderly (U=736.5; P=.517; P > .05; two-tailed) and unified (U=684.5; P=.251 P > .05; two-tailed) non-significant difference. Lastly, variables of conveys variety (U=678.5; P=.224; P > .05; two-tailed) and different parts (U=762.5; P=.706; P > .05; two-tailed) illustrated non-significant difference, while variable of rich in elements (U=515.5; P=.004; P< .05; two-tailed) indicated a significant difference for variety variables.

Table 6. Results of Mann-Whitney U test

	Education	N	Mean	SD	U	P
Total Aesthetic Pleasure	First-Year Students	40	6.23	0.70	441	0.001
	Upper-Year Students	40	5.52	1.02		
Total Novelty	First-Year Students	40	5.54	1.14	478.5	0.002
	Upper-Year Students	40	4.68	1.25		
Total Unity	First-Year Students	40	5.96	1.01	631	0.102
	Upper-Year Students	40	5.66	1.00		
Total Variety	First-Year Students	40	6.03	0.93	638.5	0.116
	Upper-Year Students	40	5.73	0.91		

Analyzing interior setting 1, variables illustrated non-significant difference were innovative (U=132.5; P=.068), new example (U=176.5; P=.529), original (U=175.5; P=.512) and novel (U=155; P=.231) from novelty, coherent (U=129.5; P=.056), orderly (U=192; P=.841) and unified (U=184; P=.678) from unity, conveys variety (U=178.5; P=.565) and different parts (U=190; P=.799) from variety (for all results P > .05; two-tailed). Also, variable of rich in elements from variety illustrated significant difference (U=122; P=.035; P< .05; two-tailed).

For interior setting 2, there are significant difference for all the variables of novelty; innovative (U=86.5; P=.002), new example (U=101.5; P=.007), original (U=109; P=.013) and novel (U=100; P=.006). The variables have no significant difference between first-year students and upper-year students are coherent (U=153.5; P=.211), orderly (U=176.5; P=.529) and unified (U=163; P=.327) from unity, conveys variety (U=164; P=.341), different parts (U=175; P=.512) and rich in elements from variety U=129; P=.056; P< .05; two-tailed; for all results P > .05; two-tailed).

Correlations

As previously stated, when we prepared the questionnaire, we asked two more questions to the participants before the APID scale. The purpose of these two questions was about how much the respondents liked the design of the interior settings and allowed them to express their opinions subjectively. When all variables were subjected to correlation analysis, the two questions were also incorporated. As it is seen in table 7, the correlation analysis illustrated a negative moderate relationship between liking the design of interior and education levels (r = - 0.438, P = .01, two-tailed). Also, level of liking has very strong positive correlation with total Aesthetic Pleasure scores (r = 0.817, P = .01, two-tailed). While it has weak positive relationship with total variety scores (r = - 0.262, P = .05, two-tailed) and novelty (r = 0.256, P = .05, two-tailed), it has no relationship with gender and typicality.

The level of education has negative weak relationship with variables of aesthetic pleasure (r = -0.390, P = .01, two-tailed) and novelty (r = -0.349, P = .01, two-tailed) and negative moderate relationship with liking the design of interior settings (r = -0.438, P = .01, two-tailed). It has no correlation with unity, variety and typicality. When examining the concept of gender, no significant correlation was observed between any of the variables.

When analyzing the variables of the APID scale itself, aesthetic Pleasure scores has strong and positive relationship with unity (r = 0.611, P = .01, two-tailed) and weak relationship with novelty (r = 0.374, P = .01, two-tailed) and variety (r = 0.347, P = .01, two-tailed). It has no relationship with typicality. Novelty has negative and weak relationship with typicality (r = -0.299, P = .01, two-tailed), while having positive and weak relationship with variety (r = 0.396, P = .01, two-tailed) and unity (r = 0.224, P = .05, two-tailed). Lastly, typicality has no relationship with and variety, while unity has positive weak relationship with variety.

Table 7. Correlations matrix of variables

		1	2	3	4	5	6	7	8
1.	Gender	1							
2.	Education	.000	1						
3.	Subjective Liking Design	.061	*-.438***	1					
4.	Aesthetic Pleasure	.130	*-.390***	*.817***	1				
5.	Novelty	-.027	*-.349***	*.256**	*.347***	1			
6.	Unity	.160	-.184	*.517***	*.611***	*.224**	1		
7.	Variety	.010	-.177	*.262**	*.347***	*.396***	*.366***	1	
8.	Typicality	.055	.164	.123	.002	*-.299***	.048	-.035	1

Correlation is significant at the 0.01 level (2-tailed)**
Correlation is significant at the 0.05 level (2-tailed)*

DISCUSSIONS AND CONCLUSION

According to the study's most significant finding, students who have just begun first grade and have not studied design find the interiors that they encounter for the first time to be more aesthetically pleasing than students who have completed first grade. Developing a critical thinking

style is a fundamental aspect of design education, as supported by various sources (Matthee & Turpin, 2019; Myers & Dyer, 2006; Šuligoj, et al., 2020; Walker & Finney, 1999). Hence, an inclination towards greater liking is evident among students who have recently initiated their first year of study, whereas a tendency toward diminished liking is visible among students who have already completed their first year. One possible explanation for this situation is that students who begin their interior architecture education tend to approach interior spaces using more criticism.

Furthermore, interiors are perceived as more novel by students who have not yet completed their first year of design education, as revealed by an analysis of novelty, one of the subcomponents of the APID scale. Probably one of the most important reasons for this is that they have expanded their visual repertoire of knowledge through critical thinking and exposure to a variety of interiors through the application of the courses they completed in their first year.

There was a lack of statistical significance observed among the remaining subcomponents of the APID scale, specifically unity, variety, and typicality. This may be due to the fact that the photographs interior settings illustrated to the students were selected among the design award-winning interior spaces. Coherent which a subcategory of unity and the variable of rich in elements from subcategory of variety illustrated significant differences. Therefore, while students have tendency to find the design of interior spaces to be more coherent and richer in elements in their initial weeks of university education, this tendency starts to become negative when they finish their first year. This could potentially be attributed to the increased criticality of students who have successfully completed their first year of design education, as previously contended in the aesthetic pleasure sections.

To conclude, the goal of university education is to provide students with specific knowledge and to prepare them to be competent professionals. When we focus on design education, particularly first-year education, the goal is to teach students to develop abstract thinking skills, to approach everything they see with a critical eye, and to design with the awareness that there is always something better throughout the design process. According to the findings of this study, there are significant differences in the level of aesthetic pleasure for the interiors encountered by students who have just begun their freshman year and those who have completed their freshman year. It is possible that the first year of education reducing the esthetic appreciation because it teaches students to approach the design of interiors more critically.

Limitations and further studies

One of the limitations associated with this study related to the utilization of only two interior spaces, resulting in a restricted sample size. The main reason behind the selection of only two interior spaces and photographs was to consider the potential periods of student boredom. In addition to the previous limitation, it is possible that the results would have been different if the interiors used in this study were chosen from different design levels rather than award winning interiors.

For further studies, this difference can be investigated between students who have completed their four-year university education and students who have just started their first year for more

comprehensive version of the comparison. Also, by increasing the sample size, interior architecture students from other universities could be beneficial. Furthermore, this study can be conducted by having students evaluate real interior spaces rather than their photographs.

Conflict of Interest Statement | Çıkar Çatışması Beyanı

Araştırmanın yürütülmesi ve/veya makalenin hazırlanması hususunda herhangi bir çıkar çatışması bulunmamaktadır.

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Ethical Statement | Etik Beyanı

Araştırma etik standartlara uygun olarak yapılmıştır.

All procedures followed were in accordance with the ethical standards.

Copyright Statement for Intellectual and Artistic Works | Fikir ve Sanat Eserleri Hakkında Telif Hakkı Beyanı

Makalede kullanılan fikir ve sanat eserleri (şekil, fotoğraf, grafik vb.) için telif hakları düzenlemelerine uyulmuştur.

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

Author Contribution Statement | Yazar Katkı Beyanı

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D. Danışmanlık / Supervision	E. Malzeme, Kaynak Sağlama / Material, Resource Supply	F. Veri Toplama, İşleme / Data Collection, Processing
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