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Original Research Article

Assessing Physical Space Quality in Academic Settings: An Exploratory Mixed-Methods Study to Identify and Prioritize Evaluation Indicators for the Faculty of Psychology and Educational Sciences, University of Tehran

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Abstract

Problem statement: The quality of the physical space in universities plays an undeniable role in mental health and learning; however, existing evaluation systems often focus on educational dimensions and neglect students' perceptions.

Research objective: The purpose of this research is to identify and prioritize the factors, criteria, and indicators of physical space quality based on the perspectives of students at the Faculty of Psychology and Education, University of Tehran.

Research method: This study was conducted using an exploratory mixed-methods design in two qualitative and quantitative phases in 2023-2024. In the qualitative phase, a framework consisting of factors, criteria, and indicators was extracted through semi-structured interviews with 20 students using the inductive qualitative content analysis method. In the quantitative phase, a researcher-made questionnaire based on the qualitative findings was completed by 340 students, and the data were prioritized using the Friedman test.

Conclusion: In the qualitative phase, 92 indicators were identified within 10 criteria and 2 main factors (internal and external). In the quantitative phase, the internal space factor (mean: 1.97) was ranked higher in priority than the external space factor. Among the criteria, interior design (mean: 9.87) and the learning environment (mean: 8.78) emerged as the most critical, with the indicators of visual comfort (mean: 89.61) and the suitability of wall colors for relaxation and concentration (mean: 89.33) receiving the highest ratings. The results demonstrated that from the students' perspective, the perception of physical space quality in academic environments of behavioral sciences is intrinsically linked to individuals' subjective experiences and psychological feelings toward the space. This finding highlights the importance of incorporating human-centered and aesthetic dimensions into the physical design of humanities faculties, without necessarily implying that spatial quality is merely a theoretical perceptual-psychological construct.

Keywords: *Quality of Physical Space, Criteria and Indicators, Evaluation, Faculty of Psychology and Education, University of Tehran.*

Introduction

The higher education system in the contemporary era, facing the phenomenon of globalization and the compression of time and space, assumes a role beyond traditional education. Today, universities are no longer merely centers for the production of theoretical knowledge; rather, as primary drivers of economic and social development, they face complex challenges such as competing to attract elites and shifting learning

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paradigms (Lis, 2021). To respond appropriately to rapid global transformations and ensure their survival, universities need to adopt qualitative development strategies parallel to quantitative expansion and move towards international standards (Malekinia et al., 2018). In this regard, achieving academic sustainability has become an inevitable necessity; a sustainable university is one that, with a proactive approach, implements the principles of sustainability in all its functions, including teaching-learning processes and structural-functional requirements (Darabi et al., 2019). Furthermore, following the developments of recent years and the experiences of the post-pandemic era, the concept of university space has undergone a fundamental transformation. Today, the design and evaluation of educational spaces have shifted from a sole focus on capacity and physical density towards creating flexible, resilient spaces that support psychological well-being. In this new context, the university's physical structure must be able to act as a preventive and health-promoting factor, responding to the changing psychological and health needs of learners in various conditions (Amistadi et al., 2023).

The move towards sustainability and quality requires a re-evaluation of the concept of "service" in higher education (Priyadarshini & Abhilash, 2022). In modern management models, the student is recognized not merely as a recipient of knowledge but as a primary customer and stakeholder whose satisfaction guarantees the university's credibility and brand (Paricio Royo, 2017). One of the main pillars for achieving this position and enhancing competitiveness is the establishment of efficient service quality assessment systems capable of identifying drivers and challenges, thereby paving the way for the continuous improvement of student outcomes (Kataria & Rajput, 2025). Researchers believe that service quality in higher education is a multidimensional concept that simultaneously encompasses intangible dimensions (such as teaching quality) and tangible dimensions (such as facilities and space), and neglecting either will lead to learner dissatisfaction (Latif et al., 2019; Stankovska et al., 2024). Among the multiple components affecting the quality of higher education, the "physical space" and the physical environment of the university hold a special yet often neglected position. The physical environment is the material context for all academic interactions and transmits symbolic messages regarding the university's valuation to the students (Hosseini et al., 2025). The educational space is not merely a neutral container for scientific events; rather, acting as a "hidden curriculum," it indirectly influences students' attitudes, interactions, and learning (Sazegar et al., 2021). Studies show that universities are social environments in addition to their physical settings, and their physical characteristics are a determining factor in enhancing engagement in the learning process (Shakeri et al., 2021).

Beyond social dimensions, the physical characteristics of the environment have a profound impact on students' psychological variables. Architecture and spatial design can act as a stressor or, conversely, as a psychologically restorative resource (Aslani et al., 2025). Factors such as motivation, mental health, and anxiety, which are considered main predictors of academic success, are heavily influenced by the environmental atmosphere (Rožman et al., 2025). Environmental psychology studies indicate that variables such as a sense of place attachment, place identity, and psychological security in educational spaces are highly correlated with academic resilience and a reduction in students' academic burnout (Mirza Alipour et al., 2024; Zhang et al., 2024).

The relationship between the physical structure and learning is also rooted in the objective and physiological components of the environment. Recent studies confirm that Indoor Environmental Quality (IEQ), encompassing thermal comfort, Indoor Air Quality (IAQ), spatial layout, lighting quality, and noise control, has a direct impact on the health, concentration, and academic performance of learners (Afifi et al., 2025). In other words, poor ergonomic and environmental standards lead to an undesirable increase in cognitive load and reduce the capacity of students' working memory to process educational information. Therefore, upgrading environmental standards is not an artificial endeavor, but an educational necessity for optimizing the cognitive process.

To achieve this level of quality and respond to physiological and psychological needs, the utilization of

modern approaches, such as evidence-based design in the architecture of educational spaces, has become imperative. This approach emphasizes that any physical assessment and intervention should not merely rely on the intuition of designers or abstract engineering standards; rather, it must be directly grounded in empirical data, psychological feedback, and the documented perceptions of end-users to maximize the environment's effectiveness on learning outcomes (Öztürk & Durukan, 2025; Azeez et al., 2023).

Despite these fundamental impacts, managing and enhancing the quality of physical space requires the establishment of an efficient evaluation system. Many current evaluation systems focus exclusively on the technical and engineering aspects of the building and neglect the content analysis of user perceptions; whereas, modern approaches such as Post-Occupancy Evaluation (POE) emphasize user perception and satisfaction (Al Mughairi et al., 2023). Utilizing user feedback to formulate and prioritize factors, criteria, and indicators is a necessary step to move beyond generalizations and achieve an accurate, evidence-based evaluation (Lin & Shih, 2021).

The main issue is that the focus of evaluations in Iran has predominantly been on educational dimensions, and the monitoring of physical space quality, particularly from the perspective of "students' perceptions", has been neglected. This neglect has led to a situation where many university spaces in the country, despite massive expenditures, lack the necessary efficiency to create an inspiring and relaxing environment (Majidi et al., 2023). This gap is particularly sensitive in humanities faculties, especially the Faculty of Psychology and Education at the University of Tehran, which bears the mission of training specialists in the fields of behavior and education. The existence of inconsistency between the teachings of psychology (which emphasizes mental health and a healthy environment) and the physical space of the faculty can create a form of cognitive dissonance among students. Students in psychology and education disciplines, who will assume professional roles related to mental health and education in the future, require an educational environment that provides a suitable model of tranquility, interactivity, and psychological support. The quality of the physical space in such faculties not only affects the students' learning experience but also acts as a kind of "hidden curriculum" and can convey important educational messages. Despite this importance, most existing evaluations regarding the quality of educational spaces are based on engineering indices or general standards, paying less attention to the perceptions, needs, and psychological priorities of the primary users (namely, the students).

In the Faculty of Psychology and Education at the University of Tehran, as one of the most important centers for education in this field in the country, there is no localized and specific framework for evaluating the quality of physical space, and this issue has created a noticeable gap in the path to enhancing educational quality. The selection of this faculty as a case study does not mean the results are generalizable to other faculties; rather, the objective is to produce a contextualized model based on the actual experiences of users in a specific setting, which can be utilized as a starting point for developing assessment frameworks in similar environments.

The present research, adopting a human-centered and bottom-up approach, has attempted to base the design of the model on the psychological perceptions and needs of the students. Methodologically, combining the inductive extraction of indicators with their quantitative prioritization within a mixed-methods design has led to the creation of a hierarchical, comprehensive, and flexible model. The ultimate goal of this research was to identify and prioritize the factors, criteria, and indicators for evaluating the quality of physical space in the Faculty of Psychology and Education at the University of Tehran; a localized model based on user experience that can provide targeted, evidence-based feedback for improving built environments in higher education.

Research Questions

What are the factors, criteria, and indicators for evaluating the quality of physical space in the Faculty of Psychology and Education at the University of Tehran based on the students' perspective?

What is the priority level of the factors, criteria, and indicators for evaluating the quality of physical space in the Faculty of Psychology and Education at the University of Tehran, according to the students' perspective?

Literature Review

A review of the research literature indicates that environmental and physical quality have been investigated from various perspectives. One group of studies has focused on the psychological impacts of the environment. Findings show that factors such as motivation, mental health, and anxiety, which are the main predictors of academic success, are heavily influenced by the environmental atmosphere (Rožman et al, 2025). Furthermore, studies in the field of environmental psychology confirm that physical indicators determine the quality of living in a space by affecting key concepts such as "stress", "territoriality", and "privacy" (Behboud et al., 2023).

Another category of research has emphasized physical and objective aspects. Studies have shown that access to natural lighting and adequate ventilation reduces fatigue and stress by improving cognitive functions such as memory and information processing, thereby providing a favorable setting for academic achievement (Ilesanmi et al., 2025). In this regard, recent studies in the field of indoor environmental quality place special emphasis on the importance of "Post-Occupancy Evaluation" (POE). These studies demonstrate that assessing spatial quality should not be limited to the design and construction phases; rather, the continuous monitoring of components such as thermal comfort, acoustics, and air quality through direct user feedback plays a key role in preventing a decline in academic performance and cognitive fatigue (Domjan & Medved, 2025; Zhao et al., 2024). In fact, the alignment of objective building standards with students' subjective perceptions of the environment is a fundamental condition for the sustainability of quality in educational spaces (Lolli et al., 2022).

A third group of studies has focused on aesthetic and formal dimensions. Research results indicate that elements such as color, spatial transparency, ergonomic furniture, and the presence of green spaces are key stimuli for fostering creativity (Sarraf et al., 2023). Additionally, attention to visual proportions, the avoidance of environmental clutter, and the quality of walls have a direct impact on the aesthetic perception and satisfaction of users (Ghaempanah et al., 2023). In specific educational spaces, it has also been found that the components of "form and function fit" have the greatest impact on students' judgments of spatial quality (Rahimi & Ghasemzadeh, 2016). Finally, some studies have emphasized the vital role of physical security, demonstrating that it has a direct relationship with characteristics such as spatial form, visual comfort, and the geometry of pathways (Lak & Bahmani, 2020; Karimi et al., 2024).

A fourth group of studies has addressed the role of physical space as a platform for social interactions and the formation of place attachment. In university environments, intermediate spaces, lobbies, and open areas are not merely transit routes; rather, they are considered hubs for informal learning and the exchange of ideas (Zhang et al., 2026). Recent research shows that sociopetal physical design and the allocation of high-quality shared spaces significantly increase the sense of belonging to the university, reinforce psychological security, and prevent the academic isolation of students, particularly in behavioral science disciplines (Homer et al., 2026; Yong et al., 2026).

In addition, with changing educational paradigms, a new category of studies has focused on the convergence of "physical space and technology". In this approach, the quality of an educational space can no longer be evaluated without considering smart infrastructure, multimedia equipment, and the ergonomics of technology use (Papaioannou et al., 2023). Study results indicate that the effective integration of technology with the interior architecture of classrooms not only facilitates equitable access to learning resources but also acts as an important driver for the satisfaction and academic engagement of the new generation of students (Ofem et al., 2026; Dhameria et al., 2025).

Despite the richness of previous research, the main difference of this study lies in its comprehensive and context-oriented approach. The majority of past studies have either focused solely on a specific dimension or have been conducted in public urban and residential spaces. By adopting an exploratory mixed-methods approach, this research attempts to extract a comprehensive model of spatial quality factors specifically for an educational environment (Faculty of Psychology) in which all visual,

functional, safety, and perceptual dimensions are viewed holistically, with an emphasis on the perceptual priorities of students in this particular discipline.

Theoretical Foundations

• The concept of evaluation and its role in quality assurance

In the contemporary world, the higher education system faces complex challenges such as resource constraints, increasing competition, and rapid technological changes. Under such circumstances, "evaluation" is recognized as a vital tool for the survival and development of educational systems. Educational evaluation extends beyond simple measurement; it is a systematic process for collecting, analyzing, and interpreting information to make value judgments based upon it. According to Bazargan (2022), evaluation is a process in which descriptive and judgmental information regarding the value or importance of goals, programs, and activities is collected and analyzed to facilitate informed decision-making and effective accountability. Ralph Tyler also defines evaluation as the systematic search to judge the value of an educational phenomenon in order to bridge the gap between "current outcomes" and "desired outcomes" (Fathi Vajargah & Diba Vajari, 2023). The ultimate goal of evaluation in universities is not merely fault-finding or ranking, but rather "continuous improvement" and enhancing the effectiveness of processes. Without rigorous evaluation, managerial decision-making in universities would be based on guesswork, and identifying strengths and weaknesses would not be feasible (Noroozi & Razavi, 2024).

• The nature of quality in higher education

The concept of "quality" in higher education is a multidimensional, relative, and dynamic construct with numerous proposed definitions. Yamani Douzi Sorkhabi (2019) argues that quality in this domain is complex because academic activities are inherently accompanied by issues such as a lack of transparency and structural challenges. The most widely used definition of quality in educational systems is based on a systems approach (input, process, output, and outcome). In this perspective, the quality of the physical space, as one of the most critical "inputs," is considered a prerequisite for achieving quality in the teaching-learning "process" and attaining the desired "output" (Bazargan, 2022).

• Assessment structure: elucidating factors, criteria, and indicators

To operationalize the abstract concept of quality and make evaluation possible, it is necessary to break this broad concept down into measurable components. In specialized evaluation literature, it is customary to divide the structure into "factors" (macro dimensions), "criteria" (judgment standards), and "indicators" (objective variables) (Zeinabadi & Hemmati, 2013). For instance, researchers developing evaluation indicators for university incubators have utilized expert opinions to formulate precise indicators, thereby moving the assessment away from generalizations (Rouhbakhsh & Zeinabadi, 2018). This structured approach enables precise prioritization of components and facilitates evidence-based decision-making for administrators.

• Quality of educational spaces and deep learning

After elucidating the theoretical foundations of evaluation, it is essential to focus on the core subject of the research: "physical space". Creating space has always been the ultimate purpose of architecture, and in educational environments, this space plays a role far beyond that of a mere shelter. Spatial quality in schools and faculties depends on the level of user satisfaction, which in turn stems from the alignment of the physical environment with human needs and expectations (Zarneshani Asl, 2022). In modern literature, physical space is recognized as the "third teacher,"; a concept that emphasizes the participatory and principled role of the physical environment in the educational process (Hall, 2017). Studies indicate that the interior design of educational environments has a direct impact on improving learners' cognitive, emotional, and social development, and if the educational setting is designed to make learning pleasant, educational efficiency increases (Akbarzadeh et al., 2020; Edutopia, 2023). Furthermore, the spatial components of the physical environment (in both functional and physical dimensions) influence students' "deep learning" and long-term retention by engaging the cognitive, emotional, and behavioral domains of the mind (Aslani et al., 2025).

• **Environmental psychology: light, color, and perception**

Environmental psychology emphasizes the reciprocal impact of physical structure and behavior. In healthcare and educational spaces, which are often associated with stress and anxiety, the proper use of aesthetic elements such as light and color can reduce fear and accelerate the process of healing or learning (Sadigh Akbari & Noori, 2014). Studies have shown that different colored lights have distinct emotional effects on individuals; for example, red light can induce arousal, whereas softer lights lead to psychological stability and relaxation (Xie et al., 2022). In addition to psychological aspects, environmental variables also affect cognitive abilities; adequate natural lighting and proper ventilation in classrooms strengthen learners' memory and concentration by reducing fatigue and stress, thereby contributing to academic achievement (Ilesanmi et al., 2025). Moreover, in designing spaces specifically for children and adolescents, elements such as ergonomic furniture, large windows, and spatial transparency have been identified as primary stimuli for fostering creativity (Sarraf et al., 2023).

• **Place attachment and social interactions**

One of the key concepts in spatial quality is "place attachment," which describes the emotional and semantic bond between an individual and their environment. Based on Seamon's theory, processes such as interaction with the place, identity formation, and place realization are the main factors in forming this attachment, with the physical space acting as a mediator in this process (Mirza Alipour et al., 2024). In university environments, public open spaces and meeting areas play a decisive role in strengthening students' attachment to the faculty by providing a platform for face-to-face interactions (Talischi & Rezaei, 2019). Research confirms a significant relationship between place attachment and "educational efficiency," and factors such as social activities and integration with natural elements in design reinforce this feeling (Soheili et al., 2020). Additionally, connection with nature and landscape design on the university campus not only enhances the quality of the educational space but also forms a crucial part of users' identity formation and sense of belonging (Hami et al., 2024). Conversely, negative experiences of a place and environmental concerns can lead to place detachment and a desire to leave the environment (Berlin Rubin et al., 2024).

• **Theories and models of physical space quality**

To elucidate environmental quality more precisely, it is essential to utilize specialized theories in architecture and the environment. One of the most fundamental models is David Canter (1977)'s Theory of Place. According to this theory, the quality of a place (such as a faculty) is not merely the result of "physical" characteristics; rather, it emerges from the overlap of three components: physical form, activity, and conceptions/meanings. This model explains why students' evaluation of a space is a blend of physical features and subjective meanings (such as identity and tranquility) (ibid.). Another effective model is the "Building Performance Evaluation (BPE) framework proposed by Wolfgang Preiser. In this hierarchical model, spatial quality is assessed across three levels: 1) the technical level (safety, health, and lighting), 2) the functional level (suitability of the space for activities and workflow), and 3) the behavioral level (psychological satisfaction, aesthetics, and user well-being). According to this theory, technical levels serve as basic needs, while behavioral levels (which were highly prioritized in this study) indicate an excellent environmental quality (Preiser & Nasar, 2008).

Furthermore, the Biophilic Design Theory, which emphasizes the innate human connection to nature, provides a robust theoretical framework regarding the importance of green spaces and natural light in educational environments. Based on this theory, integrating natural elements into the physical space leads to a reduction in cognitive stress and the restoration of attention in students (Kellert et al., 2011).

A review of the theoretical foundations demonstrates that physical space quality is a complex, multifaceted construct that cannot be measured solely by technical and engineering criteria. Integrating evaluation with theories of "environmental quality" (Canter's and Preiser's models) and concepts from "environmental psychology" reveals the necessity of developing a localized framework comprising specific factors, criteria, and indicators, through which the desirability of the educational environment can be assessed from the perspective of end-users (students).

Research Method

This applied research was conducted using a sequential exploratory mixed-methods design, meaning that data collection and analysis were carried out in two consecutive qualitative and quantitative phases. This design was selected due to the lack of localized and prioritized frameworks for evaluating the physical space quality in the Faculty of Psychology and Education at the University of Tehran; an issue that required an in-depth exploration of concepts in the qualitative phase and a subsequent examination of their importance and priority in a broader population during the quantitative phase.

In the qualitative phase, the research was executed using an inductive qualitative content analysis approach to extract a system of physical space quality indicators from the students' perspective. This method was chosen due to the nature of the research objective; as qualitative content analysis, by extracting conceptual categories and indicators from textual and verbal data, is more suitable for developing contextualized evaluation frameworks than methods such as interpretative phenomenology, which primarily focus on understanding the lived experience.

The research setting was the Faculty of Psychology and Education at the University of Tehran. The participants included 20 students from various academic levels who were selected during the period of 2023 to 2024 using a purposeful criterion-based sampling method. The inclusion criteria for the study were "being currently enrolled" and "having at least two years of study experience in the faculty". Furthermore, only students who, after being informed of the research objective, expressed their willingness to participate in discussions about the physical space quality were included in the study. Data collection was conducted through semi-structured interviews and continued until theoretical saturation was reached.

Data analysis was carried out in three steps: open coding, categorization, and abstraction of concepts. To validate the findings, two methods, namely Internal Audit and Prolonged Engagement, were employed to ensure that the extracted categories and indicators corresponded with the actual conditions of the faculty. The result of the analysis was a framework comprising 2 factors, 10 criteria, and 92 indicators, which served as the foundation for the quantitative phase of the research.

To enhance construct validity and ensure the adequacy of conceptualization, the initial framework of 92 indicators was independently reviewed by three faculty members of the Faculty of Psychology and Education at the University of Tehran. These experts evaluated the framework in terms of conceptual clarity, non-overlap of domains, and suitability to the nature of educational spaces. Their corrective suggestions were implemented, and the final version of the indicators was utilized as the basis for designing the quantitative instrument.

In the quantitative phase, the statistical population comprised 1,538 students from bachelor's, master's, and doctoral programs across eight educational departments in the Faculty of Psychology and Education. The sample size was calculated as 310 individuals using Cochran's formula for a finite population (with a 95% confidence level and a $0.^{05}$ margin of error); however, to ensure greater accuracy and cover the heterogeneity among the groups, the final sample was increased to 340 individuals. To maintain representation from all subgroups, a proportionate stratified random sampling method was employed.

The data collection instrument was a researcher-made questionnaire developed based on the framework derived from the qualitative phase. To evaluate the content validity of the questionnaire, the Content Validity Index (CVI) was used (Lawshe, 1975; DeVellis & Thorpe, 2021). The instrument was provided to 10 experts in the field of environmental psychology, who assessed the necessity of each indicator on a three-point scale (essential, useful but not essential, and not essential). According to Lawshe's table, the minimum acceptable value for 10 experts is 0.62; all items scored above this threshold, and the overall content validity index was calculated as 0.98.

To measure the reliability of the instrument, Cronbach's alpha coefficient was calculated, yielding a value of 0.902, which indicates the desirable internal consistency of the questionnaire. The questionnaire required the participants to specify the level of importance for each indicator on a ten-point scale (from 1: least importance to 10: highest importance).

The collected data were analyzed using SPSS software. The non-parametric Friedman test was utilized to rank and extract the relative priority of the factors, criteria, and indicators. The purpose of this analysis was to determine the order of relative importance of the indicators among the student population; therefore, applying the Friedman test without post hoc tests was deemed sufficient. The interpretation of the results was based on the mean ranks and the distances between them to reveal the overall structure of priorities and the relative differences among the indicators.

Ethical principles were observed throughout all stages of the research: informed consent was obtained from the participants, the confidentiality and anonymity of the data were maintained, and numerical codes were used for data recording.

Findings

In response to the research questions, such as "What are the factors, criteria, and indicators for evaluating the quality of physical space in the Faculty of Psychology and Education at the University of Tehran based on the students' perspective?" and "What is the priority level of the factors, criteria, and indicators for evaluating the quality of physical space in the Faculty of Psychology and Education at the University of Tehran according to the students' perspective?", the findings are divided into qualitative and quantitative sections.

Qualitative Findings

• In-Depth Analysis

An in-depth analysis of the data obtained from semi-structured interviews with students and the inductive content analysis of their perceptions and opinions led to the extraction of a comprehensive conceptual framework for evaluating the quality of physical space. This framework consists of 2 main factors (internal and external), 10 criteria, and 92 indicators. In the following, a detailed explanation of each factor and criterion, along with a selection of students' narratives (interview codes) that corroborate the findings, is presented.

• Internal space factor

This factor refers to the quality of roofed spaces and the primary environments for educational and research activities within the faculty. Data analysis revealed that from the students' perspective, the internal space is not merely a physical shelter; rather, as their "primary lifeworld," it has the most significant impact on their concentration, motivation, and mental health. This factor includes 6 main criteria and 56 indicators as follows:

- Learning environment (Classrooms)

This criterion, as the core of educational activities, focuses on the physical, ergonomic, and environmental conditions of classrooms. In their experiences, students emphasized that environmental variables such as "unequal distribution of light", "acoustic disturbances", and "temperature fluctuations" directly affect their cognitive load and ability to concentrate.

Lighting quality: The unevenness of light in classrooms is one of the main challenges.

Interviewee narrative (01): "Natural and artificial light should be uniform and balanced in all parts of the classroom; there is enough light at the front of the class, but the back of the class is dark and gloomy".

Acoustic control: The penetration of intrusive noises into the classroom and sound reflection during movement have been described as disruptive to deep learning.

Interviewee narrative (07): "Every student who enters the class and walks around produces noise. It is better to use floorings that block noises or even prevent the outside voices of students from entering the class".

- Educational equipment - technology

This criterion goes beyond the mere existence of hardware, referring to the "efficiency", "up-to-dateness", and "user-friendliness" of educational technologies. Findings show that the mere presence of equipment is not satisfactory; rather, the quality of interaction with it and its technical reliability are important.

Visual quality of media: Image clarity is vital in transmitting educational concepts.

Interviewee narrative (12): "Most classrooms are equipped with smart facilities, but the clarity and quality of the displays are very important [which is sometimes not optimal]".

Physical management of equipment: Visual clutter

caused by irregular wiring has a negative impact on students' mental order.

Interviewee narrative (16): "Technology equipment and facilities should be arranged in a user-friendly manner; [currently,] the wires connected to the equipment are left loose in the classroom".

- Internal shared spaces

This criterion addresses the quality of intermediate and public spaces (such as lobbies, the library, computer labs, and corridors), which are the platforms for informal social interactions. Two categories, "equity in access" (for individuals with disabilities) and "environmental communication", were the main concerns in this section.

Inclusive accessibility: The lack of attention to mobility standards for students with special needs is a serious challenge to educational equity.

Interviewee narrative (05): "For students with special needs, facilities such as tactile-visual signs, audio announcements at important intersections, restrooms, etc., have not been provided so that they can independently access all areas".

Environmental communication: The proper placement of notice boards plays an important role in raising awareness.

Interviewee narrative (19): "It is very good that they have placed the notice board in public view".

- Interior design

This criterion is dedicated to aesthetic dimensions, place identity, and the quality of interior architecture. The analysis of the interviews indicates a perceptual gap between "educational use" and the "atmosphere of the space," such that dry and lifeless spaces evoke healthcare environments (hospitals) rather than dynamic and scientific environments.

Psychological atmosphere of the space: Serious criticism of the coldness and lifelessness of the environment and its inconsistency with the psychology discipline.

Interviewee narrative (01): "There must be a fit between the use and the interior space; the faculty looks more like a hospital".

Circulation and dimensions: The proportionality of the dimensions of corridors and stairs with the volume of student traffic.

Interviewee narrative (10): "The width of the stairs and halls should be such that it easily facilitates movement".

- Internal space safety

This criterion focuses on protection standards and crisis management.

Facility safety: Visible hazards caused by deterioration or unprofessional installation of facilities.

Interviewee narrative (07): "Electrical wiring should be completely enclosed in cables to prevent the risk of electric shock".

Crisis management: The lack of directional signs and educational boards for emergency situations.

Interviewee narrative (13): "Educational boards instructing what to do during an earthquake, fire, or entrapment, tailored to the structure of the faculty? They do not exist at all".

- Internal space hygiene

This criterion refers to the physiological prerequisites of health, including indoor air quality and environmental hygiene. Especially in the post-pandemic era, students' sensitivity towards ventilation and health protocols has significantly increased.

Disease prevention: The necessity of having preventive health facilities.

Interviewee narrative (04): "It is better that in autumn and winter, when the spread of viruses is very high, provisions such as masks, hand and surface sanitizers... are available".

Air conditioning/ventilation: Controlling unpleasant odors and circulating fresh air in enclosed spaces.

Interviewee narrative (16): "Air ventilation devices should be present in enclosed spaces to prevent unpleasant odors".

- **External space factor**

This factor refers to the quality of the external environment, the campus yard, the facade, and the faculty's connection with the surrounding context. In the qualitative section, it was recognized as the indicator of the faculty's identity and a restorative space. This factor includes 4 criteria and 36 indicators:

- Exterior design

This criterion emphasizes the visual quality of the facade, landscaping, and the potential of open spaces for informal learning. Students demand the transformation of green spaces from a merely decorative element into a functional educational space.

Biodiversity and aesthetics: The role of vegetation in softening the mood and reducing pollution.

Interviewee narrative (08): "Diverse plant species in the faculty's green space are very good; it helps clean the air in the faculty's yard and doubles the beauty of the faculty's premises".

Outdoor learning space: The potential for holding classes in open spaces.

Interviewee narrative (17): "The faculty's green space can be designed in a way that allows for holding educational sessions, which is very impactful on learning".

- External shared spaces

This section addresses the efficiency of amenity spaces in the open area (such as the cafeteria and benches). The main concerns in this section are related to "population density" and "thermal comfort".

Arrangement and privacy: Overcrowding of furniture that disrupts comfort and movement.

Interviewee narrative (06): "In the faculty's dining hall, the chairs and tables are very close to each other; moving around is very difficult".

Thermal comfort: The need for cooling/heating systems in semi-open or gathering spaces.

Interviewee narrative (12): "Appropriate cooling and heating devices must be present in the dining hall".

- External space safety

This criterion focuses on access control and environmental security. The students' main concern is the "uncontrolled permeability" of non-students into the faculty premises and the safety of escape routes.

Traffic and identity control: Weakness in entrance monitoring systems.

Interviewee narrative (13): "There is absolutely no protocol or system for registering student or employee ID cards for entering the faculty... How do the guards realize if this person... is a student of this faculty or a stranger?"

Emergency routes: Shortage of safe exits during crises.

Interviewee narrative (14): "There is no emergency entry and exit route; there is [only] one entry and exit route".

- External space hygiene

This section is dedicated to the general cleanliness of the campus, waste management, the use of compatible detergents, and the use of misting systems while observing health standards in the faculty courtyard. Visual order and cleanliness of the campus are considered the first signs of the faculty's organizational order.

External space cleanliness: Maintaining cleanliness on surfaces and equipment.

Interviewee narrative (18): "From the walls and floorings to the food distribution facilities, they must be clean".

Waste management: The need for waste sorting equipment.

Interviewee narrative (05): "Sorted waste bins must be available in the faculty courtyard".

Quantitative Findings

In this section, the results of the prioritization of factors, criteria, and indicators based on the analysis of quantitative data are presented. The results of the Friedman test for the 2 main factors showed a statistically significant difference ($p < 0.001$, $df = 1$, $\chi^2 = 297.424$). As observed in Table 1, the "internal" factor holds the highest priority. The high priority of the internal factor stems from the perceptual superiority of the internal factor (1.97) over the external factor (1.03), and this relative superiority (almost double in rank) indicates the importance of internal spaces such as classrooms, the library, and visual design compared to external spaces such as the campus yard, entrances, and green spaces.

The Friedman test for the 10 criteria also showed a statistically significant difference ($p < 0.001$, $df = 9$, $\chi^2 = 2536.181$). The criteria of "Interior design" (mean rank: 9.87), "Learning environment" (mean rank: 8.78), and "Internal shared spaces" (mean rank: 7.26) respectively

Table 1. Prioritization of main factors. Source: Authors.

Factors	Mean rank	Ranking
Internal	1.97	1
External	1.03	2

secured the top three priorities. Table 2 shows the prioritization of the criteria.

Finally, the results of the Friedman test for the 92 indicators also confirmed a statistically significant difference ($p < 0.001$, $df = 90$, $\chi^2 = 26932.190$). The ranking of the indicators is presented in Table 3.

According to the sorting of indicators from highest to lowest rank, the overall pattern indicates that visual aspects and interior design, especially in learning environments, hold the highest priority, while supportive infrastructure, modern technologies, and special accessibilities for individuals with special needs have the least importance.

Based on the results of the Friedman test conducted to rank the effective indicators in the quality of the learning environment, the obtained mean ranks demonstrate the priorities, strengths, and weaknesses of the environment from the users' perspective. In this ranking, indicators related to visual comfort and attractiveness (with a mean rank of 89.61) and the suitability of wall colors for concentration and psychological relaxation (with a mean rank of 89.33) secured the highest positions, indicating the importance of aesthetic and psychological components in educational environments from the respondents' point of view. Furthermore, indicators related to smart equipment, adequate lighting, study spaces, and accessibility are placed in the subsequent ranks, which indicates users' attention to the functional aspects and foundational facilities of the learning environment.

In contrast, the lowest ranks are assigned to supportive and specialized indicators. The presence of booklets/ manuals for teaching the optimal use of equipment (mean rank 6.39), regular safety training in the form of boards (6.86), ease of access for individuals with special needs to all parts of the faculty courtyard (7.07), and the presence of specialized equipment for these individuals (7.77) are placed at the bottom of the list. This indicates structural weaknesses regarding support, training, accessibility, and environmental inclusivity. Additionally, indicators such as the presence of special information signs (7.91), the classroom air ventilation system (9.16), and notice boards (9.27) also hold low ranks, demonstrating a lack of attention to informational aspects, air quality, and internal communications.

The overall pattern derived from this ranking suggests that aesthetic, psychological, and foundational learning facilities in the studied environment are perceived as main strengths, whereas supportive infrastructure, user training, inclusive accessibility, and specialized equipment are considered areas requiring immediate improvement. These results can serve as a solid foundation for planning and organizing educational environments with the aim of enhancing comprehensive quality and responding to the diverse needs of users.

Table 2. Prioritization of criteria. Source: Authors.

Factors	Criteria	Mean rank	Ranking
Internal	Learning environment (Classrooms)	8.78	2
	Educational equipment - Technology	4.34	6
	Internal shared spaces	7.26	3
	Interior design	9.87	1
	Internal space safety	3.68	8
	Internal space hygiene	2.58	9
External	Exterior design	5.96	5
	External shared spaces	4.25	7
	External space safety (Faculty courtyard)	1.25	10
	External space hygiene	7.02	4

Discussion

Achieving high-quality and sustainable learning environments requires a transition from a merely functional and engineering-driven perspective to a "human-centered" and "perceptual" approach in the evaluation of educational spaces. This study was conducted with the aim of identifying and prioritizing the factors, criteria, and indicators of physical space quality in the Faculty of Psychology and Education at the University of Tehran. The integrated analysis of qualitative and quantitative findings revealed that, from the perspective of students in this faculty, physical space quality is not a unidimensional construct; rather, it is a multifaceted phenomenon that can be explained through 2 main factors, 10 criteria, and 92 indicators. It is evident that this structure reflects the students' perceptions within a specific institutional context and should be interpreted as a contextualized case study. Therefore, while it can serve

Table 3. Ranking of indicators. Source: Authors.

Factors	Criteria	Indicators	Mean rank	Ranking
Internal	1. Learning environment (Classrooms)	1. Balance of natural and artificial light in all parts of the learning environment	75.96	15
		2. Desirable, stable, and adjustable temperature	26.16	71
		3. Presence of an indoor air ventilation device in the classroom	9.16	86
		4. Suitability of wall colors for concentration and psychological relaxation	89.33	2
		5. Presence of equipment to control disruptive vibrations	29.74	62
		6. Presence of equipment to reduce sound reflection (curtains, suitable flooring)	82.18	8
		7. Appropriate layout and condition (comfort) of furniture for all classrooms	76.56	13
		8. Ability to change the furniture layout for various individual and team activities	25.83	74
		9. Adequate and adapted lighting for working with smart boards	86.28	5
		10. Sufficient space for movement and interaction in the classroom	45.35	50
		11. Presence of appropriate blinds to prevent natural light glare in classrooms	76.20	14
	2. Educational equipment - Technology	12. Equipping all classrooms with smart and multimedia facilities	86.73	3
		13. Size and clarity of displays and smart boards	81.94	10
		14. Processing power of devices and the capability to install and run specialized educational software	27.41	67
		15. Presence of warning devices to announce equipment malfunction	44.46	55
		16. Preventive maintenance and repair of equipment	27.21	68
		17. High speed of the equipped support team for setting up equipment	64.75	27
		18. Stability and durability of equipment	46.25	41
		19. Software and hardware updating of equipment	47.76	37
		20. Presence of equipped and specialized rooms for teaching specialized courses (specialized laboratories)	15.63	79
		21. Flexibility of equipment for different teaching-learning methods	15.57	80
		22. Presence of equipment complying with optimal energy consumption criteria	44.38	57
		23. Presence of equipment for students with special needs	7.77	88
		24. Presence of booklets/manuals for teaching the optimal use of equipment	6.39	91
		25. User-friendly design of equipment	16.56	78
		26. Sufficient number and high quality of systems for student use (laptops and computers)	26.04	73
		27. Compatibility of equipment with modern technologies and rapid upgradability of equipment	26.56	70
	3. Internal shared spaces	28. Presence of equipped spaces for individual and team study	86.04	6
		29. Ease of independent access for individuals with special needs	46.13	43
		30. Ability to hold workshops and group activities proportionate to the capacity and number of participants	66.42	20
		31. Reduction of noise sources (traffic noise or electronic equipment)	82.02	9
		32. Presence of equipped cooling and heating devices	45.39	48
		33. Order, accessibility, and spatial legibility of the library	61.60	53
		34. Presence of notice boards in the public view of users	9.27	85
	4. Interior design	35. Fit between use and space	26.77	69
		36. Appropriate acoustics of the internal space (sound frequency, sound clarity, sound reflection, etc.)	75.50	17
		37. Space design with a sustainability approach (temperature, light, and energy)	45.68	46
		38. High-quality materials compliant with building criteria	45.49	47
		39. Proportionality of window sizes relative to the environment	81.86	11
		40. Balance and proportion in the contrast and unity of design elements (color, shape, material, or texture of elements)	86.70	4
		41. Visual comfort and attractiveness (plant design, color combination, appropriate lighting, etc.)	89.61	1
		42. Appropriate width of stairs and halls for comfortable and uncrowded movement	75.83	16

Rest aof Table 3.

Factors	Criteria	Indicators	Mean rank	Ranking
Internal	4. Interior design	43. Presence of low-height and proportionate stairs for all users	65.81	21
		44. Use of color contrast to mark routes for proper accessibility and wayfinding for all individuals	85.51	7
	5. Internal space safety	45. Allocation of space to maintain the security of students' personal belongings	27.90	65
		46. Presence of active CCTV cameras	47.55	38
		47. Presence of multiple warning equipment	45.39	49
		48. Proper management of lighting and safety in emergency exit routes	61.02	30
		49. Compliance with safety criteria in facilities and building layers	45.00	54
		50. Safety training for all users (educational boards)	6.86	90
	6. Internal space hygiene	51. Presence of equipped restrooms	46.24	42
		52. Use of safe cleaning materials compatible with the internal environment	43.13	59
		53. Placement, integration, and accessibility of health provisions in shared spaces to prevent viruses	15.06	81
		54. Presence of materials capable of being washed and disinfected	28.78	64
		55. Regular management and separation of waste	45.12	53
		56. Presence of air ventilation devices and management of unpleasant odors in enclosed spaces	46.00	44
External	7. Exterior design	57. Identity and physical expression of the facade	74.26	18
		58. Alignment of the faculty's architecture with the neighborhood and urban context	64.84	26
		59. Proportionality of dimensions to the scale of the facade	47.87	36
		60. Recognizable view of the building from the street	64.89	23
		61. Stability and durability of facade materials	64.89	24
		62. Recognizable and clear main entrance	81.54	12
		63. Direct access to entrance spaces	67.20	19
		64. Flooring compatible with traffic and slip-resistant	45.28	52
		65. Presence of special information signs (translated and for individuals with special needs) for location finding	7.91	87
		66. Seating areas and canopies for user comfort	64.90	25
		67. Diversity of plant species appropriate to the space and climate	17.75	76
		68. Water features or relaxing pools	63.66	29
		69. Optimal and low-consumption irrigation system	45.77	45
		70. Continuous green pedestrian pathways suitable for all users	45.31	51
		71. Integration of green space with educational seating	17.13	77
		72. Sustainable design of the external space to reduce noise and air pollution	63.99	28
		73. Ease of access for individuals with special needs to all parts of the faculty courtyard	7.07	89
		74. A designated space for managing faculty vehicle traffic	42.80	61
		75. User-friendly nighttime lighting of the faculty's exterior facade	44.47	56
	8. External shared spaces	76. Adequate lighting (natural and artificial light)	51.81	34
		77. Comfortable furniture suitable for the space	29.62	63
		78. Appropriate width of movement pathways	26.13	72
		79. Good visibility to main seats and displays	48.48	35
		80. Presence of cooling and heating devices	46.59	40
		81. Ease of connecting student ID cards to the reserved food distribution network	65.69	22
		82. Presence of equipped drinking water sources	46.90	39
		83. Proper location and easy access to green spaces and sports grounds	42.94	60
	9. External space safety	84. Adequate lighting in the faculty courtyard	18.13	75
		85. Presence of entry and exit control gates	10.58	83
		86. Presence of comprehensive danger and warning announcement equipment	27.85	66

Rest aof Table 3.

Factors	Criteria	Indicators	Mean rank	Ranking
External	9. External space safety	86. Presence of comprehensive danger and warning announcement equipment	27.85	66
		87. Presence of active CCTV cameras	9.68	84
		88. Presence of safe emergency entry and exit routes	10.64	82
	10. External space hygiene	89. Regular cleaning	58.61	33
		90. Proper waste management and separation	58.96	32
		91. Use of safe and compatible cleaning materials	43.91	58
		92. Use of misting systems while observing health standards in the faculty courtyard	59.35	31

as an inspiring and guiding framework for designing or revising assessment structures in similar faculties, generalizing it to other higher education spaces requires conducting supplementary studies in diverse contexts.

The first and most critical finding of the research was the significant superiority of the "internal factor" (with a mean of 1.97) over the "external factor" (1.03). This finding can be explained based on Canter's "Theory of Place"; according to this theory, the quality of a place is derived from physical form, activity, and meaning. Since the "primary educational activities" and meaning-making interactions of students occur in the internal space, this space is perceived as the "primary lifeworld". Another explanation for this finding can be justified by referring to the concept of the "hidden curriculum" (Sazegar et al., 2021). This result is consistent with the findings of Ramezanpour et al. (2020), who demonstrated that resident users have higher perceptual sensitivity to internal qualities. Furthermore, research by Zhao et al. (2021) also confirms that psychological dependence on internal space for daily interactions is significantly greater than on external spaces.

In the analysis of criteria, placing "interior design" and "learning environment" at the top of the priorities, with a special emphasis on indicators such as visual comfort, lighting, and color, signifies a paradigm shift. This finding aligns perfectly with the "Building Performance Evaluation" model proposed by Preiser. The results show that students have moved past the basic (technical) levels and seek quality at the "behavioral level" (aesthetics). This finding is entirely consistent with the study by Behboud et al. (2023), which showed that physical indicators are perceived through key psychological concepts. Additionally, its alignment with the results of Rahimi & Ghasemzadeh (2016) indicates that "form and function fit" has the greatest impact on satisfaction. Moreover, findings by Ghaempanah et al. (2023) and Afifi et al. (2025) also confirm that visual quality is a primary prerequisite for cognitive brain function. A deeper explanation of this finding can be understood in light of modern "psychological well-being" approaches in post-pandemic spaces. The high priority of components such as visual comfort indicates that students demand the physical space to act as a "restorative environment" capable of replenishing cognitive resources and reducing their mental fatigue after focused academic activities (Guo et al., 2026). This issue is of double importance, especially for psychology students, who, due to the nature of their field of study, have higher sensitivity and awareness regarding environmental stressors and mental health.

The placement of the "educational equipment - technology" criterion in the middle ranks (rank 6) indicates that smart equipment plays a "facilitator" role. This argument is aligned with the study by Lin & Shih (2021), which emphasizes the importance of continuous maintenance and updating of facilities and their direct impact on user satisfaction. Furthermore, given the transition of universities toward blended learning environments, the seamless integration of technology into the physical space is no longer an ancillary feature but an essential infrastructure for achieving educational equity and enhancing academic engagement (Addam, 2025). The findings in this section confirm that the synergy between physical structure and technology requires an ergonomic and user-friendly design to prevent creating additional cognitive load for learners.

The high importance of "internal shared spaces" (rank 3) in this research supports the "place attachment" theory. Intermediate spaces (lobbies) serve as platforms for informal interactions. This finding is completely consistent with the research by Koohi Fayegh Dehkordi et al., (2021), who demonstrated the impact of micro-spaces on social interactions, as well as with Qouchani & Arabi (2020), who explained the role of "space syntax" and area arrangement in regulating interactions.

Although the external factor was placed as the second priority, indicators related to "plant diversity" still hold special importance. This issue can be explained by the "Biophilic Design Theory", which emphasizes humanity's innate connection with nature for stress reduction. This finding is in line with the research by Latifi & Sajjadzadeh (2014) as well as the study by Ilesanmi et al. (2025), which confirms the positive effects of nature on stress reduction.

One of the challenging findings was the lower priority of the "safety" and "hygiene" criteria, which seems to contradict urban studies by Karimi et al. (2024) and Lak & Bahmani (2020), which consider safety as the most important factor. Explaining this difference based on the hierarchy of needs suggests that in the controlled environment of the faculty, basic needs are assumed to be met.

Regarding functional factors, although they ranked lower, they remain important; this is consistent with the findings of Mohammadi et al. (2025) and Gharehbaglou et al. (2017) concerning the importance of access and usability. As for the low rank of "hygiene", one can refer to the argument by Asghari Lafmajani & Farahmand (2016), who consider hygiene a maintenance factor whose presence is normal, but its absence causes a crisis.

Despite providing a contextualized model for assessing physical space quality, this research is accompanied by several limitations. First, the data were collected exclusively in the Faculty of Psychology and Education at the University of Tehran, and the nature of the case study limits the scope of the results to this specific institutional and cultural context; hence, the direct generalizability of the findings to other faculties and universities is limited, and conducting similar research in diverse contexts is recommended to increase external validity. Additionally, in the statistical analysis, the Friedman test was used to rank the indicators, but supplementary pairwise comparison tests (such as Wilcoxon) were not performed; therefore, it is suggested that future research utilize these tests to provide a more detailed explanation of the differences among spatial quality indicators.

Conclusion

Adopting a mixed-methods approach, this research provided a localized model for evaluating the quality of educational space in the Faculty of Psychology and Education at the University of Tehran. The results demonstrated that within this specific institutional context, the quality of the physical space from the students' perspective is a perceptual-psychological phenomenon and is experienced as an impactful part of the learning process. The findings of the study, in alignment with the results of Zhalehdoost & Taleai (2025), indicated that environmental quality priorities can be influenced by the type of space and field of study. Furthermore, observing the transition of priorities from survival needs to flourishing needs (aesthetics) among the students of this faculty signifies a transformation in their level of environmental expectations and sensitivities.

However, the current results are interpreted within the framework of a case study, and generalizing them to other faculties or universities requires conducting similar research in different contexts. On a practical level, the message of this research for the administrators and planners of this faculty (and cautiously for similar educational spaces) is that enhancing quality requires a revision in viewing the educational space as the third teacher and targeted attention to interior architecture qualities, ergonomics, and visually relaxing elements.

Practical Suggestions

Presidency and management: Considering that the "internal factor" and the "interior design" criterion achieved the highest priority from the students' perspective, it is suggested that in allocating development

funds and renovation plans, the faculty management's approach should shift from a focus on the exterior facade or purely structural actions toward "softening and enhancing the quality of internal spaces" (classrooms, corridors, and pause spaces). Moreover, given the nature of the academic disciplines in this faculty and the high importance of "visual comfort" and "lighting" indicators in the findings, it is recommended that environmental psychology principles (such as using concentration-enhancing colors, standard lighting, and eliminating visual clutter) be utilized in redesigning spaces as a strategy to reduce stress and improve learning quality.

Support and facilities department: Given the high ranking of the "learning environment" criterion and the importance of physical equipment in student satisfaction, it is suggested that a systematic plan be implemented for the continuous monitoring and maintenance of lighting systems, air conditioning, and the physical equipment of classrooms to ensure their optimal performance. Furthermore, considering the impact of furniture and spatial layout on users' physical fatigue, it is recommended that ergonomic principles and physical comfort be prioritized in the repair and maintenance of equipment, and environmental cleaning be carried out in a way that the "visual attractiveness" of the space is consistently maintained.

Students and faculty members: Considering that "internal shared spaces" were identified as one of the main priorities, it is suggested that space users contribute to the sustainability of the physical space quality by actively participating in maintaining the order and acoustic tranquility of the environment. Furthermore, it is recommended that students and professors act as "quality observers," reporting any defects in the physical conditions (light, temperature, equipment) in a timely manner to prevent the deterioration of the space and provide a dynamic environment for scientific interactions.

Suggestions for Future Research

Based on the findings and limitations of this research, the following are suggested for future studies:

Conducting interdisciplinary comparative studies: Since this research was conducted exclusively in the Faculty of Psychology and Education, it is suggested that similar studies be carried out in other faculties (such as engineering, art, or basic sciences) to determine whether the nature of the academic discipline influences students' spatial priorities (for example, the importance of aesthetics versus functionality).

Assessing the perspectives of other stakeholders: This study focused on students' perceptions. It is recommended that, in future research, the quality of the physical space also be examined from the perspective of faculty members and administrative staff, because their spatial needs (such as workspaces, privacy in offices, etc.) differ from those of students, and aggregating perspectives is essential for achieving a comprehensive university model.

Utilizing combined objective-subjective methods: It is suggested that in future studies, in addition to questionnaires (perceptual assessment), objective and physiological measurement tools (such as light and sound meters or eye-tracking devices for examining visual attention) be used to more precisely explain the correlation between the actual quality of the environment and the perceived quality.

Investigating the impact of physical components on psychological variables: Given the high importance of visual comfort components in this research, it is suggested that the mediating role of physical space in variables such as academic burnout, academic engagement, and sense of place attachment be evaluated and examined using structural equation modeling.

Focusing on the "biophilic design" approach: Considering the findings of the qualitative section regarding the importance of light and green space, it is recommended that an independent study be conducted focusing on the impact of biophilic design elements (connection with nature) on reducing student stress in higher education environments.

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Conflict of Interest

The authors declare that there is no conflict of interest regarding the publication of this article.

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