

Assessing the Impact of Active Ground Floor Components on the Perceived Presence of the Surrounding Environment in Academic Buildings at the Faculty of Fine Arts, University of Tehran

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ABSTRACT

Users' tendency to be present in and make greater use of a space is one of the indicators of spatial success. The physical characteristics of a space play a determining role in this regard, and this study focuses on assessing the components of an active ground floor. The concept of an active ground floor emphasizes the importance of design approaches at human eye level. It is considered significant in terms of its ability to influence passersby and pedestrians. In this concept, the design of the ground floor façade and its surrounding environment are considered jointly. Given that previous studies on active ground floors have primarily focused on urban contexts, the current study aims to examine academic environments and assess the impact of active ground floor components on the perceived presence of the surroundings of academic buildings. Accordingly, the components of an active ground floor—including: enclosure, functional diversity, pause, and architectural detailing—were examined in the Faculty of Fine Arts, which is considered one of the most presence-oriented university spaces. Initially, through observation, the areas with the highest degree of presence were identified for assessing the components of the active ground floor. Then, the validity and reliability of the developed model—based on theoretical foundations and an investigation of the Faculty of Fine Arts—were tested through first-order factor analysis and a questionnaire distributed among the faculty's students. The data collected from the questionnaire confirmed the model's validity and reliability. Subsequently, second-order factor analysis was conducted to determine the influence of each of the aforementioned components on presence. Architectural detailing, with a factor loading of 0.848, was identified as the most influential active ground floor component on presence at the Faculty of Fine Arts. The components of pause and enclosure followed, with factor loadings of 0.526 and 0.357, respectively.

Keywords: Active ground floor, Presence, Faculty of Fine Arts Campus.

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1. INTRODUCTION

A university environment is a place with a distinctive resonance; beyond its functional necessity, its buildings and landscapes represent the heart and soul of the institution (Coulson, Roberts, and Taylor 2011). It should be noted that university campuses are social environments (Kamelnia et al. 2018, 57). Since a wide range of young people is the primary audience of these spaces, the necessary conditions must be provided to support this energetic and lively population (Madani Pour 2017, 126). Accordingly, the existence of spaces for collective life, recreation, and other activities that are inviting for young people is of great importance (Kamelnia et al. 2018, 57). Even students' retention and graduation rates are dependent on the form and design of university campuses (Hajrasouliha and Ewing 2016). This further highlights the importance of paying attention to university spaces. As a result, the spatial features and buildings within university campuses become important for increasing students' presence in the environment, since it is these spaces and their enclosing elements that bring students together or disperse them. What is enclosed within architecture and occupies the space has the potential—through the language of space—to facilitate or hinder activities (Madani Pour 2003, 193). At human eye level, the ground floor enables users to interact with the building, socialize, grow, and share their experiences (Kickert and Karssenber 2023). One of the key concepts for creating spatial presence is the notion of positive space—a space that establishes a strong relationship between buildings and the space between them (Madani Pour 2017, 252). The ground floor determines 90% of a building's environmental experience; even if a building's façade is unattractive, a vibrant ground floor can still create a positive experience at the scale of human sight (Karssenber et al. 2016, 17). In recent years, studies have aimed to increase user interaction with buildings and their surroundings through improvements in ground floor design (Mengistu 2020); these include exploring the relationship between ground floor design and face-to-face interaction among users (Zordan, Talamini, and Villani 2019), and the lasting patterns of activity arising from ground floor design along pedestrian pathways (Hassan, Moustafa, and El-Fiki 2019) in urban contexts and street-facing façades and public spaces. The fluctuating influence of the ground floor in creating interactive edges and active cores in Western urban centers has also been examined over the past century (Kickert 2016). Active frontages are considered best practice in planning policies; however, it is noted that their widespread, uncritical adoption across all urban areas faces challenges and must be evaluated following local context and urban characteristics (McAllister 2019).

Active ground floors have always been studied in

the context of urban settings and relation to streets and public spaces. The concept has been discussed in detail in the books “The City at Eye Level” and “Street-Level Architecture”. The elements of active ground floors have consistently been emphasized in urban environments. Given the importance of presence in university spaces, the present researcher aims to evaluate how each component of the active ground floor affects the spatial presence within academic environments. Fundamentally, design recommendations for university open spaces are such that they should lead to spaces where presence is meaningful, not merely transitional passageways. Moreover, the main campus building, which houses classrooms and administrative activities, serves as the central base for students' daily interclass activities. This underlines the significance of academic buildings and their surrounding environments in student presence (Cooper Marcus and Francis 2021, 141). Therefore, the present study is limited to examining the potential presence of the space surrounding academic buildings as the main base for students during their leisure time.

2. THEORETICAL FOUNDATIONS

The study of ground floors in the field of urban design has been conducted under various titles such as transitional edges (Thwaites, Simpson and Simkins 2020; Simpson et al. 2022), street edge, the city at eye level (Karssenber et al. 2016), street-level architecture (Kickert and Karssenber, 2023), active façades and public space (Heffernan, Troy Heffernan, and Pan 2014), and active ground floor façades. What is common across all of these concepts is the attention to the ground floor, including its design, façade, and surrounding spaces. In this research, the term active ground floor refers to all three of these interconnected domains: the ground floor itself, its façade, and the spaces surrounding it.

Since the components of active ground floors have traditionally been analyzed in urban environments—specifically concerning street-facing urban blocks—the novelty of the present study lies in applying the concept of the active ground floor to a university campus (an educational-use environment). This research aims to assess these elements within the campus context and examine their impact on the spatial presence around academic buildings.

On the other hand, as shown in Table 1, most studies focus solely on the façade of the ground floor and the function located behind it. Since they are conducted in urban contexts, they are predominantly centered on retail and its interactive nature due to the type of usage. However, the active ground floor concept goes beyond a mere focus on building façades—it has a composite nature, encompassing both the building façade and the design of the surrounding space.

Table 1. A critique of Previous Studies

Research Title	Research Focus Area	Critique of the Research
Transitional Edges: A Conceptual Framework for Understanding the Socio-Spatial Nature of Urban Street Edges (Thwaites, Simpson, and Simkins 2020)	Introducing the concept of transitional edges, with a focus on ground floor façades, mostly with retail functions	
The City at Eye Level, Visual Perception of the Plinth, Case Study: Al-Modirah Street, Tanta, Egypt (Saeed and Omar 2019)	Emphasizes the need to consider ground floor design not only from a functional standpoint but also from a visual perspective	
Urban Public/Private Interface: Typology, Adaptation, Assembly (Dovey and Wood 2015)	Emphasizes the importance of the public/private boundary in the design of building façades, focusing on façades facing sidewalks and streets	What is common among all these studies is the attention to the design of the ground floor façade without considering the design approach for the surrounding space. Functional diversity on the ground floor is generally mentioned.
Street Edge Typologies: Structuring Ground Floor Interfaces to Stimulate Visual Engagement for Pedestrians (Simpson et al. 2022)	Highlights the necessity of addressing both the visual and spatial structure of ground floors, in addition to functional aspects; emphasizes the role of smaller façade elements such as entrances, windows, signage, etc.	
Close Encounters with Buildings (Gehl, Kaefer, and Reigstad 2006)	Focuses on the ground floor façade	
City at Eye Level (Karssenberg et al. 2016)	Emphasizes the concept of the plinth (ground floor as the base of the building) and the design of façades facing streets; generally focuses on the diversity of retail functions.	
Street-Level Architecture (Kickert and Karssenberg 2023)	Emphasizes the importance of the ground floor façade and proposes design approaches	

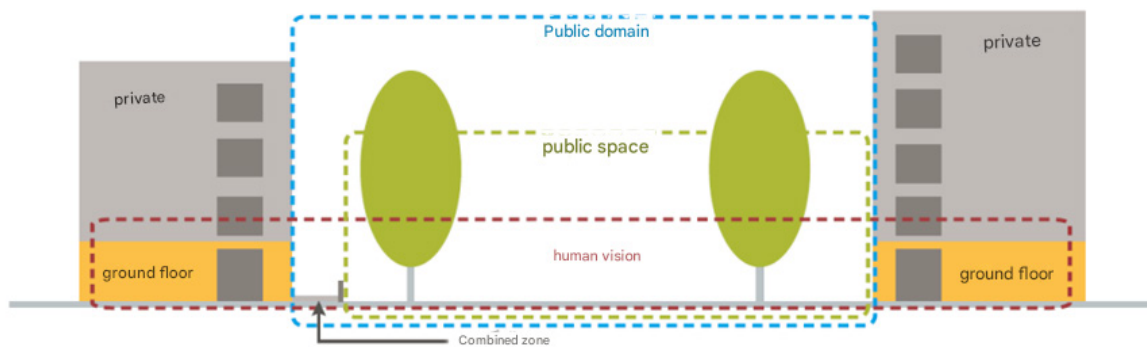


Fig. 1. Categorization of Inter-Building Spaces
(Karssenberg et al. 2016)

In general, the space between buildings includes the public domain, public space, and the human visual field. As illustrated in Figure 1, a transitional zone is formed in proximity to the ground floor and the public domain. The significance of this zone lies in the fact that it exists within the human field of vision and is thus more critical than other spatial domains (Karssenberg et al. 2016). It is these ground floors, sidewalks, and streets—located along the movement lines of the city—that are seen and experienced (Gehl 2018). Ground floors, situated between buildings and the town, hold the most logical locations for social encounters and serve as the foundation of the city’s “social infrastructure,” creating spaces that influence

how individuals interact with friends and strangers (Kickert and Karssenberg 2023, 157). Academic buildings and their surrounding spaces on university campuses are considered analogous to houses and their immediate environments. Consequently, the areas between academic buildings can be regarded as similar to the streets and parks of a city (Cooper Marcus and Francis 2021, 149). What we expect from a building’s ground floor differs from what we expect of its upper floors. As shown in Figure 2, our interaction with the closest part of a building—at the human scale—is fundamentally different. People engage with the ground floor in such a way that all its details are visible at close range.

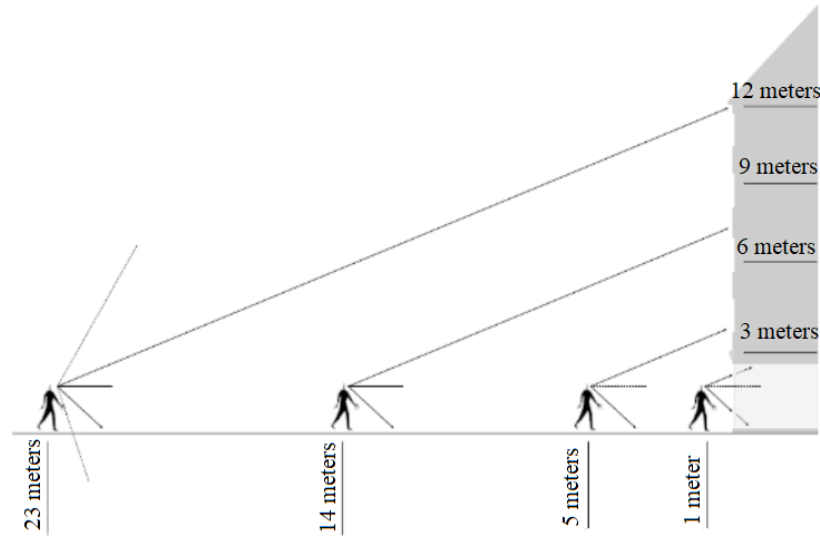


Fig. 2. Visual Distances Influencing the Observer Concerning the Building Façade
(Gehl, Kaefer, and Reigstad 2006)

Depending on the design, even the senses of smell, hearing, and touch may become engaged and activated within this close range. Ground floor façades, compared to our perceptions of the rest of the building or the street—both of which are experienced from a much greater distance and with less intensity—have a significantly stronger emotional impact on us. Generally, when we engage closely and personally with the ground floor façade, we have little or no perception of the upper floors. As we get closer to buildings, we perceive and remember more of what is within our field of view. Therefore, if ground floors are interesting and diverse, they create an inviting and enriched environment. In this regard, close encounters between buildings and their surroundings require reevaluation. We must develop a modern building culture that dedicates at least three meters of the building façade height to close-contact architecture (Gehl, Kaefer, and Reigstad 2006). Numerous components have been proposed for the effective design of an active ground floor, many of which are consistently referenced across sources. These components are presented in Table 2.

2.1. Enclosure

One of the most essential factors in the spaces formed by architectural elements is the creation of enclosure (Trancik 2020, 76). Enclosure in public space, while facilitating the achievement of a human scale, creates a sense of security and comfort for people. The enclosed space may be completely public, semi-private with public access limited to time or purpose, or completely private with the possibility of a glimpse of them from the public sphere (Tibbalds 2009, 70). Achieving an enclosed space through the grouping of buildings is also possible, in which case, a controllable open space is obtained without any additional cost.

The enclosed space resulting from the arrangement of buildings provides a private and safe space (Gehl and Sim 2022, 3).

2.2. Permeability

Humans need both indoor and outdoor spaces and the ability to move between them. Thus, these two types of space cannot be entirely separated, as there is always some degree of connection between them (Grutter 2005, 125). This connection is achieved through permeability, which is generally defined in two forms—physical (spatial) and visual (Man Kuen Ephes 2006; Bentley 2019, 17). The degree and nature of this relationship depend on the types of openings and the spatial relationships between surfaces (Grutter 2005, 125). Ian Bentley defines permeability as a key quality of responsive space (Bentley et al. 1985). To create permeability in buildings, it is essential to focus on the façade that faces the public realm and houses the main entrance, as it provides the best opportunity for permeability (Bentley et al. 1985). Moreover, through vertical layering of buildings¹, various functions can be stacked, and the active ground floor can range from minimal permeability (25–60 cm) to huge (entire ground floor). In such cases, it becomes possible to visually access the ground floor interior directly from the street or surrounding environment (such as a pedestrian zone or public space), which—depending on the function—can be either desirable or undesirable (Gehl and Sim 2022, 82).

2.3. Architectural Detailing (Human-Scale Features at Sidewalk Level)

A calming human environment responds to the scale of the walking human. Of course, buildings are also seen from a distance, but the way they are presented at close range and eye level—aligned with moving

pedestrians—is of particular importance (Tibbalds 2009, 63). Additionally, diversity in the street wall and the detailing of building façades can help create visual interest while maintaining a pedestrian-friendly scale. Features such as stepped setbacks, balconies, recessed entrances, etc., are often used to generate fine-grained environments at the pedestrian level along the street. It is advisable to avoid blank walls where possible and decorate them in ways that make them visually engaging (Uptown Community Plan of the City of San Diego 2019). In terms of external spatial scale, attention to materials, decorative elements, and the rhythm of openings (entrances and windows) is just as significant as wall height. The detailing of façades—including solid walls, cornices, curves, columns, and vegetation—should meet the needs of both the interior and exterior, as the façade is a transitional edge that separates public and private domains through varying degrees of transparency (Trancik 2020, 270).

2.4. Functional Diversity

Greater functional diversity at the ground floor is another characteristic of an active ground floor that leads to higher foot traffic and encourages users to spend more time there. These floors often include

large windows facing the street, enabling direct access and facilitating frequent entries and exits, thus promoting a sense of community, social life, and safety. Functional variety enhances the ground floor’s appeal to pedestrians, making walking more attractive and supporting active mobility (Gehl and Sim 2022, 79). Places that offer a variety of activities and experiences tend to be more appealing. Life, work, commerce, shopping, play, and leisure all come together seamlessly. Mixed-use environments create vibrant and safe spaces, whether across an entire street or within a single building. Public space is safe and enjoyable because it attracts different people at different times for various reasons. This is important both for the vitality of the environment and for providing informal surveillance of the space (Tibbalds 2018, 54). Indeed, building edges should house functions that benefit from engagement with the collective realm so they can contribute to the vibrancy and public life of the area. The first step in achieving this goal is to increase the number of building entrances as much as possible so that the majority of direct pedestrian movement along these frontages is visible and evident from the public realm (Bentley et al. 2019).

Table 2. Design Components of an Active Ground Floor

Component	Feature	Example
Enclosure	Number and type of walls (vertical elements that define space) (Ching 2007)	Front yard of the building (Cooper Marcus and Francis 2021)
	Ceiling and floor (horizontal elements that define space) (Ching 2007)	Portico and continuity of flooring (Pakzad, Babaie, and Tajbakhsh 2020)
	Trees and shrubs (Pakzad, Babaie, and Tajbakhsh 2020)	Covered walkway (Ching 2007) On the sides of the paths of movement (Pakzad, Babaie, and Tajbakhsh 2020)
		Shaded trees create an enclosure under their canopy (Ching 2007)
Permeability	Physical (Bentley et al. 1985); Façade features that allow people to pass through (Alonso De Andrade, Berghauser Pont, and Amorim 2018)	Increasing the number of entrances (Pakzad, Babaie, and Tajbakhsh 2020)
	Visual (Bentley et al. 1985); façade features that allow people to see inside (Alonso De Andrade, Berghauser Pont, and Amorim 2018)	Windows enabling visual connection with adjacent spaces (Ching 2007)
Functional diversity	Mixed-use combinations create lively and safe environments (Tibbalds 2018)	Retail shops, cafés, restaurants (Karssenbergs et al. 2016); study areas, dining halls (Cooper Marcus and Francis 2021)
Architectural detailing	Consideration of pedestrian-scale design approaches (Tibbalds 2018)	Material richness and attention to façade details, diversity in elements (Karssenbergs et al. 2016)
	Fine-grained detailing in ground-floor façades	Attention to the rhythm of openings (doors, windows), decorations, columns, wall masses, cornices, curvature, and plants (Trancik 2020)
Pause	Designing open spaces in university environments as meaningful places to dwell, not just pass through (Cooper Marcus and Francis 2021)	Sit-able edges (walls of appropriate height, sidewalk edges) Covered passage with benches and seating Steps, curbs, or ledges as informal seating (Cooper Marcus and Francis 2021)

2.5. Pause

Design recommendations for university spaces do not merely focus on creating areas for passage, but rather strive to design places for presence. This presence may pertain to student residential environments or daily-use spaces during breaks between classes, for studying and research (Cooper Marcus and Francis 2021). Accordingly, creating areas for sitting, waiting, and observing is appropriate. Among these, seating is emphasized more than other features, as spaces that provide seating opportunities are more inviting for users to spend time in (Madani Pour 2017).

3. RESEARCH METHOD

Based on the objective of the study—which is to evaluate the impact of physical components of active ground floor façades on the level of spatial presence of students around university buildings—the Faculty of Fine Arts at the University of Tehran was selected as a case study due to its success in fostering student presence. The Fine Arts Campus has always had a vibrant atmosphere, and the presence of students generates a sense of liveliness in its environment. Therefore, relying on the theoretical foundations established earlier, the hypothesis was formulated that the physical elements of the active ground floor façade significantly contribute to the spatial presence within the Fine Arts Faculty. Consequently, it was







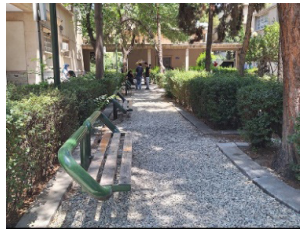
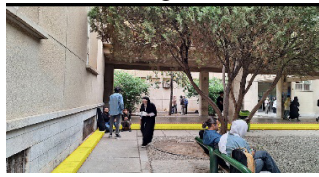
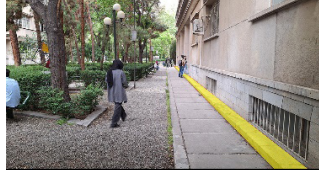





first decided to use observation, which is one of the key tools for data collection (Heidari 2020, 154), to identify the spaces with the highest level of presence. Based on this, the relevant components and indicators appropriate to the faculty space were reviewed. Field studies were then conducted using a quantitative method and a researcher-designed questionnaire. A model was constructed using first-order confirmatory factor analysis (CFA), allowing the theory to be validated in the real world (Pahlavan Sharif and Sharifnia 2021). After confirming the model, in the next stage, the impact of each component on student presence was measured through second-order factor analysis.

Based on the conceptual framework presented in the theoretical section and the analysis of high-presence spaces through field observation during specific hours (10:00–14:00) over five consecutive days (Saturday to Wednesday), as shown in Figure 3, the variables and indicators were determined and are listed in Table 3. These were subsequently assessed via the questionnaire. Upon reviewing the Fine Arts Campus environment, among the five variables—enclosure, permeability, functional diversity, pause, and architectural detailing—the variable permeability lacked the necessary conditions for assessment in the ground floor context of the campus. Therefore, the other four variables were evaluated in this study.



Fig. 3. Classification of High-Presence Spaces at the Faculty of Fine Arts, University of Tehran

Table 3. Latent Variables and Details of the Faculty of Fine Arts, University of Tehran

Latent Variable	Details			
Tehran Faculty of Fine Arts	Enclosure	<p>Number and Type of Walls</p> <p>Yard No. 1</p>  <p>Yard No. 2</p>  <p>Yard No. 3</p> 	<p>Geiling and Floor Space No.1</p>  <p>Portico</p> 	<p>Shaded Trees</p> 
	Functional Diversity	<p>Functional Diversity on the Ground Floor, Including Educational, Café, and Cafeteria Uses</p>		
	Pause	<p>Benches</p> 	<p>Edges</p>  	<p>Edges</p>  
Architectural Detailing	<p>Rhythm: Arrangement of Buildings and Open Spaces Regularly Alternating</p> <p>Decorations</p> 	<p>Green Spaces</p> 	<p>Columns</p> 	

The questionnaire, designed based on Table 2, was first referred to several expert professors in the field for validation. After incorporating their feedback, the final questionnaire consisted of 15 questions aligned with the components mentioned in the theoretical framework. To ensure greater clarity and accurate responses, each question in the questionnaire was accompanied by a photograph relevant to the specific space under inquiry. This precise spatial referencing prevented lengthy questions and avoided confusion among respondents, as using images provided an easier way to construct a questionnaire with minimal ambiguity. In the first phase, 30 questionnaires were

distributed among the statistical population (students of the Faculty of Fine Arts, University of Tehran) to assess the initial reliability of the questionnaire using Cronbach's alpha. After the necessary calculations, a Cronbach's alpha value of 0.84 was obtained, indicating suitable reliability for continuing the research.

The population sample was estimated at 1,500 individuals, and based on Morgan's table, 320 questionnaires were distributed to the target audience. After initial review, 280 questionnaires were fully completed; following final checks and removal of outlier data, 205 questionnaires were analyzed.

According to the minimum rule of having at least 10 samples per questionnaire item and a minimum of 200 samples in any case (Pahlavan Sharif and Sharifnia 2021), the sample size was sufficient. More than 200 samples are considered appropriate for confirmatory factor analysis. The questionnaires included six items for the dimension of enclosure, one item for the dimension of functional diversity, four items

for the dimension of pause, and four items for the dimension of architectural detailing — a total of 15 questions using a five-point Likert scale ranging from “strongly agree” to “strongly disagree,” as shown in Table 4. These were answered by the respondents (currently enrolled students at the Faculty of Fine Arts, University of Tehran).

Table 4. Questionnaire Items

Latent Variable	Question
Enclosure	S1: I prefer to spend my leisure time in Courtyard No. 1.
	S2: I prefer Courtyard No. 2 for spending my leisure time.
	S3: The connecting arcade between buildings makes me choose the faculty space for non-class hours.
	S4: Courtyard No. 3 is one of my preferred spaces for leisure time.
	S5: The shaded trees in the faculty space increase my willingness to be present and spend leisure time there.
	S6: Space No. 1 is one of my chosen spaces for resting and presence during non-class times.
Functional Diversity	S7: The functional diversity on the ground floor, including educational spaces, café, and cafeteria, increases my presence in the faculty.
Pause	S8: I choose the stairs in Space No. 1 to rest, sit, and be present in the faculty space.
	S9: The stairs along the arcade route increase my presence in the faculty space.
	S10: I use the benches available in the faculty during non-class times.
	S11: The ledges at the bottom of buildings invite me to spend more time in the space.
Architectural Detailing	S12: The rhythm of the arrangement of buildings and open space increases my willingness to be present in the faculty space.
	S13: Green space is a feature that increases my willingness to be present in the faculty.
	S14: The decorations along the arcade route encourage me to be present in the surrounding space.
	S15: The columns in Space No. 1 create a place for spending leisure time.

4. DISCUSSION AND RESEARCH FINDINGS

In this study, 320 students of the Faculty of Fine Arts were surveyed. After initial examination, 280 questionnaires were fully completed. Following the final review and removal of outliers using SPSS software, 205 questionnaires remained for analysis. Necessary calculations were conducted to assess the fit indices for model confirmation using confirmatory factor analysis. According to Table 3, the proposed model was formed and implemented in Smart PLS software. Despite all efforts to design questions with minimal overlap, because the spaces formed in the Fine Arts campus combine several characteristics, some overlapping was possible. For example, among the enclosure component questions, the question regarding Courtyard No. 2 could overlap with the

question related to shaded trees. To obtain more reliable results, covariance between the errors of these items was established and incorporated into calculations to prevent mistakes in the model (Cole, Ciesla, and Steiger 2007). After running the model and necessary checks, since the minimum acceptable standardized factor loading is 0.5 (Pahlavan Sharif and Sharifnia 2021), items with factor loadings below 0.5 were removed first. Subsequently, to achieve minimum reliability and validity indices for the model, items with factor loadings below 0.6 were removed. The final model was obtained as shown in Figure 4. All model fit indices reported in Table 5 fall within the standard range and confirm the model’s validity. In the next step, construct validity must be confirmed. Based on the results from the model presented in Table 6, construct validity was confirmed.

Table 5. Fit Indices of Confirmatory Factor Analysis

Fit Indices	Description	Model Value	Acceptable Range	Index Status
X ² /df	Chi-Square to Degrees of Freedom Ratio	1.338	< 3	Desirable
RMSEA	Root Mean Square Error of Approximation	0.041	< 0.05	Desirable
RMSR	Root Mean Square Residual	0.049	< 0.05	Desirable
P-Value	Significance Level	0.105	> 0.05	Desirable
GFI	Goodness of Fit Index	0.964	> 0.9	Desirable
NFI	Normed Fit Index	0.932	> 0.9	Desirable
CFI	Comparative Fit Index	0.981	> 0.9	Desirable
IFI	Incremental Fit Index	—	> 0.9	Desirable

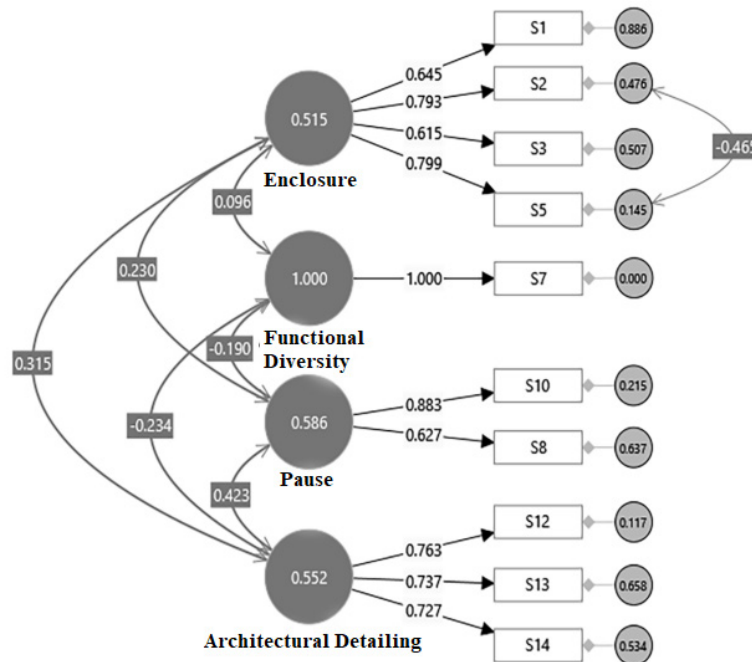


Fig. 4. Model Diagram in Standard Estimation Mode

After fitting the model and confirming its validity, to assess the impact of each component, a second-order covariance-based confirmatory factor analysis was conducted, as shown in Figure 5. The results of the second-order factor analysis are presented in Table 6. According to the factor loadings obtained in the second-order factor analysis, architectural detailing is the most effective component in creating presence in the Faculty of Fine Arts at the University of Tehran. The rhythm of building arrangement, green space, and

decorations is the dimensions forming the detailing component at the Fine Arts Faculty, with factor loadings of 0.766, 0.737, and 0.725, respectively. The second most influential factor is pause, with a factor loading of 0.526, followed by enclosure with a factor loading of 0.357. Interestingly, contrary to expectations, functional diversity was not a significant and positive factor affecting the presence in the Fine Arts Faculty.

Table 6. Results of First-Order Confirmatory Factor Analysis

Latent Variable	Indicator	Factor Loading	Significance	Composite Reliability	Average Variance Extracted (AVE)	Convergent Construct Validity
Enclosure	S1	0.645	All Factor Loadings are Significant.	0.811	0.515	Acceptable
	S2	0.793				
	S3	0.615				
	S5	0.799				
Functional Diversity	S7	1.000		1.000	1.000	Acceptable
Pause	S10	0.883		0.712	0.586	Acceptable
	S8	0.627				
Architectural Detailing	S12	0.763		0.765	0.552	Acceptable
	S13	0.737				
	S14	0.727				

Table 7. Assessment of the Impact of Active Ground Floor Components on Presence at the Faculty of Fine Arts

	Factor Loading	Description
Presence → Functional Diversity	-0.249	Has the least effect and an inverse relationship with presence.
Presence → Enclosure	0.357	The third most influential component in creating presence at the Faculty of Fine Arts.
Presence → Architectural Detailing	0.848	The most effective factor in the presence at the Faculty of Fine Arts.
Presence → Pause	0.526	The second most influential component in presence at the Faculty of Fine Arts.

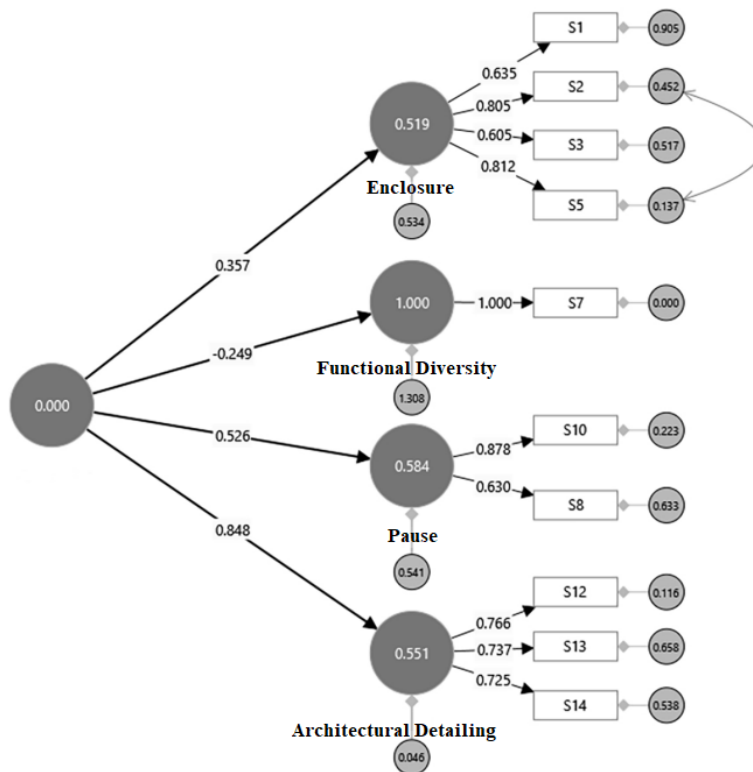


Fig. 5. Diagram of the Effect of Active Ground Floor Components on Presence at the Faculty of Fine Arts

5. CONCLUSION

The findings of the study showed that out of 15 factors and indicators examined, 10 factors possessed sufficient validity within the confirmatory model and had a significant and effective impact on presence. Architectural detailing was identified as the factor with the most critical influence on presence at the Faculty of Fine Arts, Tehran University, with a factor loading of 0.848. The rhythm in the arrangement of buildings, green spaces, and decorations was the key indicator of architectural detailing in this study, all of which were statistically significant and standard. The second most influential factor on presence was "Pause" with a factor loading of 0.526, whose components included benches and stairs in space number 1. Enclosure ranked third in terms of impact on presence and was related to the three central courtyards of the faculty and the connecting arcade of the buildings. The factor with the least influence was functional diversity, which had a negative relationship with presence.

The Faculty of Fine Arts campus, as a successful university environment, possesses active ground floor components, each exerting different levels of influence on the presence in the surrounding spaces of its buildings. Attention to architectural detailing had the most potent effect on the presence in the surroundings of campus buildings. Interestingly,

although functional diversity in ground floors is generally considered necessary for vibrancy and social interaction in urban settings, in university spaces, this may be questionable. Architectural detailing includes details such as material richness, the arrangement of entrances and openings, columns, and other facade elements, which compose the building's exterior and, according to the study "Street Edges: Ground Floor Interface Structures to Stimulate Pedestrian Visual Interaction," have a visual effect on passersby. While creating functional diversity is essential in urban contexts, at the Faculty of Fine Arts campus, it had a negative and inverse effect on enhancing presence around university buildings. It seems necessary to carefully consider active ground floors for different types of use, and that their design cannot be exactly based on concepts developed for urban street-facing ground floors. Urban settings always face continuous street fronts enclosed by building facades, whereas complexes like university campuses, although in some ways similar, have notable differences. This study attempted to evaluate active ground floor characteristics in one successful university case. It is recommended that future research examine active ground floors across a greater number of university environments to achieve a more comprehensive and complete understanding of active ground floors in academic settings.

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CONFLICT OF INTEREST

The authors have no conflicts of interest to declare.

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PARTICIPATION PERCENTAGE

The authors state that they have directly participated in the stages of conducting research and writing the article.

ENDNOTE

1. Layering places with different functions and types of residences one over another within a building creates the most significant distinction between each space.

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