NEAR EAST UNIVERSITY

INSTITUTE OF GRADUATE STUDIES

DEPARTMENT OF INTERIOR ARCHITECTURE

REIMAGINING THE SIGNIFICANCE OF IN-BETWEEN SPACES: PROMOTING WELL-BEING IN HIGHER EDUCATION INTERIOR SPACES

Ph.D. THESIS

AFAQ ALRAMAHI

Nicosia

June, 2023

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Approval

We certify that we have read the thesis submitted by Afaq Mahfouz Moh'd Al-RAMAHI titled **"Reimagining the Significance of In-between Spaces: Promoting Well-being in Higher Education Interior Spaces"** and that in our combined opinion it is fully adequate, in scope and in quality, as a thesis for the degree of Ph.D. of Interior Architecture.

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Declaration

I hereby declare that all information, documents, analysis, and results in this thesis have been collected and presented according to the academic rules and ethical guidelines of the Institute of Graduate Studies, Near East University. I also declare that as required by these rules and conduct, I have fully cited and referenced information and data that are not original to this study.

Afaq Al-Ramahi

19/06/2023

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Praise be to God, who made the end of this long journey a phenomenal success.

Praise be to God, with whose grace good deeds are done.

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Abstract

Reimagining the Significance of In-between Spaces: Promoting Well-being in Higher Education Interior Spaces

Alramahi, Afaq

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Because of its significant influence on the built environment, well-being has recently become an increasingly important factor, combined with functional considerations, in the design of educational environments. Despite the fact that several studies have been conducted to analyse the features of educational spaces, the potential advantages of in-between spaces have not been properly investigated. This study demonstrates the significance of in-between spaces in educational facilities beyond their functional use as the primary circulation within a building, demonstrating that they also play a dynamic role as flexible places where people meet that foster informal interaction and connect users psychologically and visually, influencing their well-being. Nevertheless, the potential of these areas is frequently neglected in comparison to the primary educational spaces. Moreover, during the process of design, there appears to be a propensity to minimize these spaces in favour of utilizing larger ones, indicating that they are seen as essentially connecting or transitional. The issue that is addressed in this study is the absence of a clear and sufficient awareness of the effect of designing in-between spaces on the productivity and well-being of individuals, as there are no criteria addressing the design of in-between spaces that promote well-being. The purpose of this study is to assess the actuality of the in-between space design within the art and architecture colleges of Jordanian universities by considering the perceptions of teachers and pupils with regard to well-being needs. Accordingly, and as a result of reviewing the various relevant literature, a set of dimensions was adopted, which formed the proposed criteria for this study: (1) physical features and visual looks; (2) size and design of in-between spaces; (3) circulation and movement space zoning; (4) ergonomics and furnishing; (5) lighting; (6) colors and finishing; (7) acoustics; (8) heating, ventilation, and air conditioning; (9) visual communication and instructional tools; (10) social and cultural spaces; and (11) accessories. To analyse the findings of six case studies from Jordan's art and architecture faculties, the STUDY employs a mixed methodology of observation for the qualitative method, and both survey and space syntax for the quantitative METHOD. It discloses the dimensions that must be considered and developed while designing such spaces to meet the requirements of the users. The study's findings indicate that particular aspects of circulation and movement, ergonomics and furnishings, colours and finishes, and accessories must be taken into consideration when designing a collaborative environment that improves the educational process and thereby increases productivity.

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Key Words: in-between space, well-being, well-being requirements, vital spaces.

Özet

Ara Mekanların Önemini Yeniden Düşünmek: Yüksek Öğrenim Mekanlarında Yaşamsallığın Sorgulanması

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Son zamanlarda, yapılı çevre üzerindeki önemli etkisinden dolayı, yaşamsal ve konforlu bir içmekan gereksinimi, eğitim ortamlarının tasarımında işlevsel gereksinimlerle birlikte giderek daha önemli bir faktör haline gelmiştir. Eğitim mekanlarının özelliklerini analiz etmek için birçok çalışma yapılmış olmasına rağmen, ara mekanların potansiyel avantajları yeterince araştırılmamıştır. Bu çalışma, eğitim tesislerinde ara alanların önemini, bir bina içindeki birincil olarak sirkülasyon mekanı olarak işlevsel kullanımlarının ötesinde, kullanıcıların iletişim kurmalarını, eğitim ortamına olumlu etkilerini, psikolojik ve görsel olarak birbirine bağlayan esnek yerler olarak dinamik bir rol oynadıklarını analiz etmektedir. Günümüz tasarım sürecinde, bu alanların giderek küçültülmesi ve sadece mekanları birbirine bağlayan sirkülasyon alanları olarak tasarımlanması yönünde bir eğilim var gibi görünmektedir. Bu çalışmada ele alınan konu, ara mekan tasarımının bireylerin üretkenliği ve yaşamsallığı üzerindeki etkisine dair net ve yeterli bir farkındalığın olmamasından kaynaklanmıştır. Bu çalışmanın amacı, Ürdün üniversitelerinin sanat ve mimarlık fakültelerindeki ara alan tasarımının yaşamsallığı, üretkenliği, öğretmenlerin ve öğrencilerin bu alanlara ilişkin gereksinimlerine ilişkin algılarını dikkate alarak değerlendirmektir. İlgili literatürün gözden geçirilmesi sonucunda, bu çalışma ara mekanlar için kriterler önermektedir: (1) fiziksel özellikler ve görsel görünüm; (2) ara boşlukların boyutu ve tasarımı; (3) sirkülasyon ve hareket alanı bölgeleri; (4) ergonomi ve döşeme; (5) aydınlatma; (6) renkler ve bitirme; (7) akustik; (8) ısıtma, havalandırma ve iklimlendirme; (9) görsel iletişim ve öğretim araçları; (10) sosyal ve kültürel alanlar; ve (11) aksesuarlar. Ürdün'ün sanat ve mimarlık fakültelerinden seçilen altı Üniversitede çalışmanın bulgularını analiz etmek için; nitel yöntem için karma bir gözlem metodolojisi ve nicel YÖNTEM için hem anket hem de space syntax (mekan sözdizimi) kullanmıştır. Sonuçlar, bu tür mekanlar tasarlanırken dikkate alınması ve geliştirilmesi gereken boyutları ortaya koymaktadır. Çalışmanın bulguları, eğitim sürecini iyileştiren ve dolayısıyla üretkenliği artıran işbirlikçi bir ortam tasarlarken sirkülasyon ve hareketin, ergonomi ve mobilyalar, renkler ve kaplamalar ve aksesuarların belirli yönlerinin dikkate alınması gerektiğini göstermektedir.

Anahtar Kelimeler: ara mekanlar, üretkenlik , yaşamsal gereksinimler, mekan sözdizimi.

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CHAPTER I

Introduction

Introduction

Due to the numerous aspects that must be considered throughout the design process, the design of architectural spaces is a complicated debate (Papadimitriou, 2020). These aspects could have an impact on the functionality of the space, environmental effects, aesthetic appeal, cultural context, and economic viability, among other things. Due to the intrinsic interconnectedness of these factors, the academic studies addressing them are complicated and multifaceted (Alexander, 2002). In order to enhance the design process, it is obvious that new methodologies must be investigated. For instance, the way people interact with and perceive space, as well as the ambiance and mood of the environment, may all be greatly influenced by spatial organization (Bitner, 1992).

The relationship between spaces is one of the requirements of architecture, particularly in-between spaces that are elucidated in different contexts, both idiomatically and linguistically. This phrase (in-between) has been used in a variety of disciplines, including literature, philosophy, psychology, etc. Similarly, it is a crucial concept in interior design, urban planning, and architecture.

In-between spaces are one of the necessities of interior architecture. According to its relevance as a transitory space based on the relationships between adjacent spaces, interest in researching this term has recently started to rise. In the context of this study, they represent a connection between transitional areas such as entrances, corridors, foyers, and staircases. Based on previous studies, less attention has been paid to the potential and possibilities regarding in-between spaces in contemporary discourse (Can & Heath, 2016). This seems to be more critical when exploring educational spaces, as in-between spaces have the potential to be more than mere circulation or leftover spaces (Frelin & Grannäs, 2010; Wang et al., 2022). In the context of education, in-between spaces (entrance halls, foyers, hallways, and stairs) are often overlooked as design opportunities (Frelin & Grannäs, 2010; Wang et al., 2022). They are frequently reduced in the design as far as standards will allow since they are seen just as service spaces for a functional need and as a way to connect the spaces. Consequently, these spaces are regarded as merely connecting points or transitional spaces (Mclennan, 2018).

Our lives are greatly impacted by interactions between us and the environment. It may set up our interactions with the environment and design interactive living areas that improve and enliven our lives. The interior environment, particularly the in-between spaces, has the potential to promote health and healing in people. A well-designed interior environment promotes health, comfort, and happiness— These three factors are necessary to influence our feeling of well-being within the spaces and shape our well-being experience within the spaces. A well-designed interior environment supports these three qualities (Steamers, 2017; The WELL Building Standard | PDF | Urinary System | Green Building, n.d.)

Humans spend 80 to 90 percent of their waking hours indoors, whether at home, at work, in school, or elsewhere. We invest a lot of time working, studying, and engaging in other flexible or innovative activities. This necessitates the creation of environments that can improve our well-being and boost our productivity (Scribner, 2018).

A crucial aspect of architecture and well-being is the design of places in light of their physical, psychological, social, and environmental features. Research shows that, individuals of all ages like to remain as long as possible in an environment that makes them feel good and connected to others around them. Our views and attitudes are influenced by the way we live and study, as well as by other interior environments like homes and classrooms, which promote intellectual growth. These areas must also be active, safe, calm, and air-conditioned places where people may engage in activities that will make them happy and give them a sense of place (Minucciani & Onay, 2020).

According to recent architects, the design of educational spaces may foster a learning atmosphere that is important to the educational process (Wiechel, 2002). Although research on the topic of well-being within in-between spaces is still in its infancy, designers should be aware that their role is expanding to include better consideration of the well-being standards in interior spaces, particularly these sorts of spaces.

The majority of studies related to the educational environment have focused on the psychological and social aspects while ignoring the design aspects of the physical environment. Despite its importance as a crucial part of the educational system and one of the most important elements of the educational environment, where indoor environments, especially those with elements like furniture, lighting, colour, accessibility to window views, connection to nature, and other elements that are not only functional but also comfortable, adaptable, and aesthetically pleasing with significant positive effects on the user's well-being, are capable of producing workspaces that can satisfy the needs of the users, thereby promoting efficiency as well as productivity and happiness. The more satisfied users are, the more productive they are, and this relationship between user happiness and performance efficiency is often evident. One of the major determining aspects is the physical setting of the educational process. By being designed and arranged in accordance with users' demands, it can have an impact on staff and student productivity. The interior environment has a direct effect on human performance as well, and by improving it, worker productivity may be raised (Dahlan, 2013; Fisk & Rosenfeld,1997).

According to the high potential of architecture and interior design to impact our physical, social, and psychological well-being, the in-between spaces in educational buildings are so important because university students spend much of their time on campus engaged in activities that necessitate constant, focused attention, either in the classrooms or in the surrounding workspaces. To ensure their comfort and pleasure, the environment around them is crucial.

Even though many studies have examined the term "in-between spaces" from various perspectives with regard to outdoor spaces and urban environments, the examination of the traits and impact of in-between spaces from the perspective of interior architecture exposes a significant gap in the literature and requires further research. Furthermore, according to the literature analysis, which served as the inspiration for this line of investigation, well-being has been underappreciated as a critical component in the perception of essential in-between spaces within art and architectural faculties and its impact on increasing users' productivity.

The absence of clear appropriate knowledge of how the design features of in-between spaces impact the well-being of users, as well as increase their productivity is one of the key issues with interior design as a result. Regarding the capacity of an in-between space design to improve well-being, there is no criteria. As a result, this study employed a mixed method to examine the results from six case studies of faculties of art and architecture in Jordanian universities, in order to acquire a deeper knowledge of the design of these spaces. Applying well-being requirements will assist in revealing the design elements that must be considered and created to fulfil the needs of students and faculty members in the faculties.

Hence, this study came to complement the studies conducted on the university educational environment, specifically in the faculties of art and architecture, by addressing the physical aspect of the educational environment in the faculties of architecture, represented by the design of the in-between spaces, where the entrances, staircases, halls, lobbies, and corridors are all considered a part of education where students all congregate between the rooms. Therefore, to make people more involved and productive, the spaces where they congregate are crucial for providing appropriate breaks for relaxation and allowing them to return to work after recharging their thoughts.

Accordingly, this research focuses on evaluating the educational environment of the faculties of art and architecture in its physical dimension by the design of its in-between spaces design and the extent to which it possesses the well-being requirements as supporting elements for the educational environment to make it effective, and its response to the educational requirements in the faculties of art and architecture in particular, according to the user's perceptions and attitudes, by examining the design of that spaces such as corridors, lobbies, entrances, courtyards, and staircases that connect interior spaces based on well-being criteria, and its ability to meet the needs of students and faculty members in those faculties, which affects the user's well-being in the physical, social and psychological dimensions, and thus supports their productivity.

In order to improve the well-being and general performance of students and faculty members, the study seeks to highlight and draw attention to the in-between spaces within the art and architecture faculties. which should present themselves not only as transitional areas but also as functional, vital, and aesthetic presence spaces that connect adjacent interior spaces to optimize the well-being and overall performance of students and faculty members.

These include the degree to which the design of these spaces satisfies the needs of the well-being of the users, which include space and form, proportions, openings, circulation, scale, natural and artificial light levels and qualities, texture, colour, materiality, ventilation, and the connection of interior and exterior, among other things. (Scott,2012).

This study intends to evaluate the reality of the in-between space design within the art and architecture faculties in Jordanian universities based on well-being requirements, seeks to compare the physical environments of these universities, and proposes a model of criteria based on design standards and well-being requirements to improve the design of these spaces for designing vital spaces to maximize users' experiences and increase their productivity.

The vision for interior in-between spaces brought forth in this study permits the assessment of their effectiveness using a scale based on well-being requirements. In order to create interior in-between spaces within the art and architecture faculties of Jordanian universities that meet users' demands, the recommended criteria might be the topic of additional research. The research findings can help designers and educational managers better utilize and construct interior in-between spaces, both during the planning stage and after a building has been occupied.

Statement of the Problem

1. The previous studies about well-being focused on the impact of interior design on a user′s well-being experience, most of them related to healthcare buildings and the office's environment, whereas there is still a need for research on the well-being of interior spaces within higher educational buildings.
2. The absence of clear, appropriate knowledge of how the design features of in-between spaces impact the well-being of users as well as increase their productivity.
3. There are no assessment frameworks (evaluation criteria) about the capability of in-between spaces to enhance well-being.
4. A user′s experience could be better interpreted by space design evaluation using evidence that is based on design decisions, criteria, and recommendations. (Silvis, 2014; Ulrich, 1991).

Purpose of the Study

1. Identify the significance of in-between spaces within the interior spaces of the higher education buildings as an environment where students and staff spend much of their time on campus during the day.

2. Spatial physical analysis of in-between spaces in terms of design features, with identification of the properties and design features of the in-between spaces to create vital interior spaces that optimize well-being.

3. Suggest a model evaluation criterion for the in-between spaces within the faculties of architecture as an aid for designers to optimize the well-being experience of students and faculty members and contribute to improving user productivity. It can also be used to improve either existing in-between space designs or develop new designs of in-between spaces within art and architecture faculties.

Research Questions/Hypotheses

hypothesizes:

1. The in-between spaces within the faculties of art and architecture lack a design criteria model that creates vital spaces that impact the perception of users and promote their well-being and productivity.

2. The criteria model of In-between spaces designed within the faculties of art and

architecture according to the well-being approach can create a vital space that affects the perceptions of the users and promotes their productivity and well-being.

Questions to be answered are:

1. What are the standards for designing a university's in-between spaces, especially art and architecture faculties?

2. Do the design features of in-between spaces influence the space's vitality, thus affecting users' well-being within the art and architecture faculties?

3. What is the reality of the in-between space design within the art and architecture faculties in Jordanian universities according to the perception of faculty members and students based on well-being requirements?

4. Can the current designs of in-between spaces within art and architecture faculties be considered vital spaces that achieve the user's well-being?

5. Do the in-between spaces within the faculties of art and architecture need a criteria model that can promote the well-being of users?

6. What criteria can be proposed as a model for the design of in-between spaces within the faculties of art and architecture that can promote the well-being of users?

Significance of the Study

The in-between spaces, as a part of interior design, influence well-being and behaviour. Appropriate designs of such spaces support both theoretical and practical activities regarding well-being in all living environments, affect the development of the person from psychological and social aspects, etc., and are crucial for their present and future well-being. This concept is the key driver towards having vital spaces.

The architectural studies of such spaces are insufficient based on what has been observed from the previous studies; they are usually not considered as important as the other spaces, and designers often marginalize them or consider them only as temporary transitional spaces without considering their importance. In addition, the research into well-being in the built environment, especially in educational buildings, is considered relatively recent. Therefore, the importance of this study lies in identifying the significance of in-between spaces within the faculties of art and architecture according to the design of these spaces and their effect on well-being.

The physical, mental, emotional, and social well-being of students and faculty members during their use of such a space should be considered to achieve a vital design that promotes well-being. It is important to develop a model of design criteria for the vital in-between spaces in the faculties of architecture as a design tool that will optimize the well-being experience of students and faculty members and contribute to improving users' productivity.

Within this perspective, the study contributes to enhancing environmental architectural studies by allowing interior designers and architects to rethink the importance of in-between space design as a vital space, using the criteria according to well-being requirements that seek to positively contribute to the user's well-being in higher education buildings, especially faculties of architecture.

This research will also provide valuable insights into how the design of in-between spaces can impact student engagement, productivity, and overall satisfaction with their learning environment. By incorporating these findings into future architectural projects, we can create more functional and comfortable spaces that support both academic success and student well-being.

Limitations

The study includes the in-between spaces within art and architecture faculties that are used for a variety of activities, such as public circulation areas (vertical and horizontal connection areas), transition areas, welcome areas, event areas, waiting areas, public gathering areas, galleries, multipurpose areas, etc.

Within architecture faculties, in-between spaces typically include the following: entrance halls, lobbies, foyers, courtyards, corridors (hallways), and staircases. The activities in such spaces include walking, conversation, studying, observing, etc. (Nassar & Samaty, 2014).

Firstly, the study environment consists of six art and architecture faculties from the biggest public and private universities in Jordan, three of them are from the oldest public Jordanian universities, and three of the oldest private Jordanian universities, to make a comprehensive perspective about the design of the in-between spaces within the faculties of art and architecture in those universities.

Different in-between spaces are studied to generalize the design evaluation criteria in such faculties. The aspects of well-being that are examined in the study include physical, mental, social, and emotional well-being.

Secondly, the research population is comprised of a percentage of participants that depends on the size of each university and the number of its users, which includes students and faculty members.

The study has been limited to in-between spaces within interior spaces because they are considered important spaces because they are multi-purpose spaces that have an impact on the users, so the design of such spaces affects the users' well-being by producing a vital space.

The study has been limited to higher education buildings because it’s the environment where students and staff spend much of their time on campus during the day, performing their formal and informal duties and engaging in activities that require more attention to the design of the interior spaces (Sutton, 2016).

In-between spaces in this type of building are very important as they are considered vital areas for social interaction and different and overlapping activities. Users can benefit from the design of such spaces that provide effective refreshment breaks and allow them to return to work refreshed. As a result, the impact of design can reduce or increase users' productivity, the efficiency of their efforts, and performance (Rapuano et al., 2022).

The study has been limited to the art and architecture faculties because the architecture, design, and art students spend most of their time studying, working on projects and reports, gathering to complete their projects, preparing presentations, discussing their concepts, and sharing art and design ideas; reading course material or other assignments; taking exams; and engaging in other social activities that require sustained, directed attention. The disciplines of architecture, design, and art are classified as applied sciences, where the practical aspect is the largest and most important part.

In-between spaces in these faculties, such as foyers, corridors, and entryways, are considered the most important places used by students. Where fellow students meet and where a student discusses a professor's work with fellow students, it would become a meeting connection and not just a corridor or foyer, which means a place of opportunities for self-learning (Merrill & Louis, 2010).

In-between spaces in art and architecture faculties play an important role as they are multipurpose areas for various activities that take place in these spaces all the time. In addition to the main function of these spaces as reception areas, vertical-horizontal connection areas for public circulations, and transitional spaces, they also perform other functions as temporary or permanent galleries for student and staff projects and works, areas for resting waiting areas, and public gathering areas. It is a multipurpose area. (Anbaki,2013; İnan,2019).

Definition of Terms

In-between space:

An elastic space between different interior functions, which performs several functions. Besides being a transitional space responsible for circulation in the building, it is a combination of buffer space and physical connection between different functions. As a dynamic interaction of passages, lobbies, foyers, staircases, and other functions, it forms an integral part of any public building and occupies an important part of the total space of the building. It is located between exterior and interior spaces or between interior spaces. (Nassar & Samaty,2014). In the context of the study, in-between spaces mean entrance halls and lobbies, foyers, courtyards, corridors, and staircases.

Well-being:

Is a state that implies more than just having positive health states, which is considered the highest value by making a life good; it is a sustained healthy physical and mental state in a supportive material and social environment that makes the person's life flourish and run well for them; it is positive emotions and moods (e.g., satisfaction, happiness), contentment with life, fulfilment, and positive functioning (Brey, 2014). In simple terms, well-being generally includes the global assessment of life satisfaction, a positive appraisal of life, and feeling good about oneself. Well-being is defined as the love of what we do every day, the goodness of our relationships, the state of being full of energy, and a healthy physical life. It is satisfaction with what we have contributed to our community (Rath & Harter, 2010).

Subjective Well-Being (SWB):

Diener (1984) was the first to use this term, which describes a general evaluation of one's quality of life. He assumes that subjective well-being consists of three components: life satisfaction, a cognitive appraisal that one's life is good, positive affect, i.e. experiencing a positive level of pleasant emotions, and negative affect, i.e. experiencing a relatively low level of negative moods (Deiner, 2009). Individuals with high life satisfaction, high positive affect, and low negative affect have high SWB (Frey, 2012).

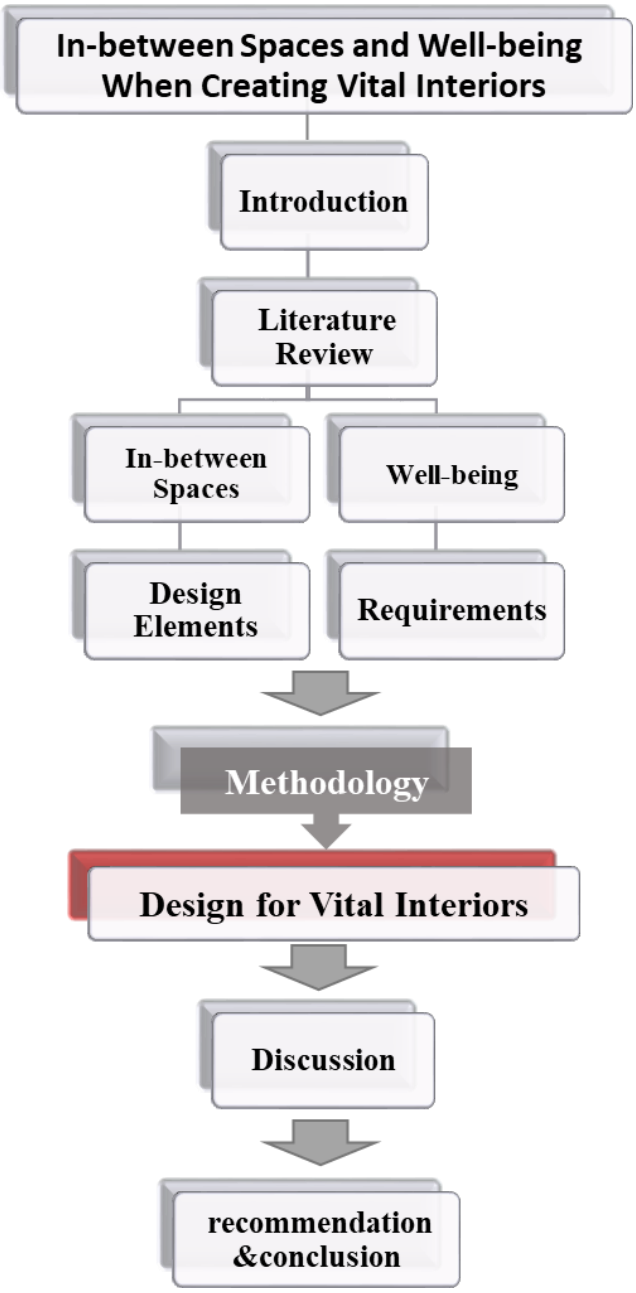
Space Syntax Analysis:

Space syntax is a theory and method that emerged for understanding and analyzing space configuration within the built environment. Studies on the configuration of spatial space reveal that there is a connection between the physical environment of space and the quality of life of its users. (Salgamcioglu, 2014; Dettlaff, 2014).

Study Plan

Figure 1.

Study plan.



CHAPTER II

Literature Review

This chapter introduces related conceptual definitions of "in-between" and "well-being," their concepts and fundamental dimensions that are related, descriptions and information related to higher educational buildings, particularly the Art and Architecture faculties, features, importance, and functions, standards of its interior design, and in-between spaces within these buildings, which already exist in the literature.

Theoretical Frame Work

The Main Concepts with Its Basic Dimensions:

The overall, comprehensive framework of the fundamental ideas linked to the research and its aspects was represented with three axes in this section. The first of the three axes of representation was creating a terminological and linguistic basis for the concept of in-between space. In order to define the in-between space in the areas of architecture in general and interior design in particular, it also touched on the idea of the in-between space in numerous fields of knowledge.

While the second axis examined the idea of well-being, it dealt with the definition of well-being and its dimensions, as well as design issues that related to well-being and their influence on promoting well-being through the user's experience in the interior space, all the way down to the requirements of well-being according to the studies.

The third axis offered the concept of educational buildings in general and higher education in particular, as well as the fundamental aspects of the concept via the development of higher education buildings historically. In order to design the arts and architecture faculties, their uses and the standards that must be taken into account during the design process for the spaces of these faculties, and the in-between spaces in particular, with a list of features of the interior design of the in-between spaces, emphasizing the users of the spaces within these faculties, whether they are students, employees, or visitors.).

The Concept of In-Between Spaces and the basic dimension of the concept

The concept of in-between appears in various fields of knowledge and is discussed in numerous contexts, including linguistic and idiomatic, the Holy Qur'an, philosophy, psychology, sociology, the aural arts, mathematics, poetry, etc., where the term is presented in various ways: as an independent concept that is influenced by the surrounding binaries, as something that stands between two parties, or as something that is dependent on the binaries.

In-between linguistically. The word "in-between" has distinct meanings in Arabic and English dictionaries from a linguistic perspective:

The word "in-between" has several different definitions in Arabic dictionaries, including the middle of a thing, between two things, interstitial thing, mediate, etc**.**

While "in-between" in English refers to the condition of a common impact that sits between two extremes or categories; intermediate, between objects, a state," between two clear or accepted stages or states, and therefore difficult to describe or know precisely" (McIntosh, 2013), etc.

"Being in a space that lies between one particular thing and another" might be used to characterize the in-between (Collins, 2003).

We can see that the Arabic and English dictionaries have come to the consensus that a region of separation where communication occurs is defined as being in-between since it may signify either a link or a separation. As it also has the connotation of surprise, fairness between two objects, and the idea of moderation, there are more definitions of this phrase in Arabic dictionaries than there are in English dictionaries. As a result, the procedural meaning of the phrase "in-between" is a twofold region with the ability to link and separate, a space between two ends that redefines them, clarifies their bounds, and fosters certainty (Anbaki, 2013).

In-between idiomatically in various fields of knowledge.

As Regarding terminology, it goes beyond the idea of the relationship between two things and has a philosophical dimension. According to various philosophical currents, the term "in-between" can refer to a period of uncertainty and hesitance when stability and certainty are absent, and it can also take on the characteristics of duality by redefining dualities, giving them their identity, and clarifying their boundaries by taking certainty into account. It came to emphasize the importance of communication as a common ground between two or more approaches. According to Anbaki (2013), the in-between is a hybrid third space that seems to be a space of separation where communication occurs.

Al-A'raf in the Holy Qur'an means "the border between hell and paradise." Twenty times in the Holy Quran, the term in-between was mentioned: for example, "Lord of the heavens and the earth and whatever is between them" (Maryam, 65). It came as a separating boundary between two parties, so the gaseous mixture known as Earth's atmosphere is a mixture of heaven and earth, as is the horizon line that lies between heaven and earth (Abdullah, 2019).

Eastern Confucianism, which is one of the most influential religious philosophies in the history of China, dealt with the concept of the in-between, saying that man exists between heaven and earth and that he is a fully integrated, holistic being. Therefore, the idea of Confucianism for humans as a whole is about the merging of heaven and earth in human life and also about the human initiative in that merging (Park, 2006).

There is a notion known as "betweenness geometry" in mathematics. It is derived from the term "between" and derives from Hilbert's axiom, which explains the relationship between points on a line as a point's ability to lie between two other points on the same line (Lumiste, 2007).

In poetry, the term in-between emerged with a variety of distinct conceptions, between two contradicting aspects such as functional connection and spatial separation. In aural arts and music, the concept of in-between is related to the interval in musical composition when it is not regulated and unintended. (Clemet,2006).

In the field of networks and social media, there is a concept of betweenness centrality, a widely used measure that captures a person's role in passing information from one part of the network to another (Golbeck, 2015).

The concept of in-between spaces (MA) is prevalent throughout Japanese culture and is defined as a space that exists between two opposing elements, such as whole and part, inside and outside, open and close, central and decentral, and is full of energy, emptiness, and negative and positive space (Bognar, 2009; Park, 2015).

The in-between can be defined as an intermediate point between two other points in time and space or as an indication of a connecting relationship or comparison to encompass space energy filled with possibilities.

The in-between can be defined as an intermediate point to two other points in time and space or as an indication of a connecting relationship or comparison to encompass space energy filled with possibilities.

In-between in the architecture field

The concept of in-between spaces appears in various architectural styles, from Palladian architecture in the Greek era to modernist, postmodernist, and deconstructive architecture, and the concept of in-between has different aspects depending on the binary. Perhaps it is simply through the dominance of one of the binaries over the other, or it reshapes the binaries, combines the contradictions, and occupies a space between them so that there is an enrichment of meaning.

The words inside and outside reflect a dichotomy in direct experience. Inside and outside cannot be seen simultaneously. This leads us to the space that is the in-between (Arnheim et al., 1966).

A relationship between the two worlds is necessary if we are to completely comprehend the meaning of inside and outside with its implications of being open, semi-open, closed, and semi-closed, which is represented by many architectural components such as the window. This is the connection point between inside and outside (Lo, 1986).

In his book "Architectural Composition," Krier (1991) provides a very thorough explanation that emphasizes the renaissance in-between spaces within the exterior spaces, such as the threshold between the public and private realms that form connective tissue, and in the interior spaces that were influenced by Palladio's works (entrances, lobbies, corridors, courtyards, staircases, etc.) as spatial areas that create an important tension in the space. He emphasized the need to be able to overlap two areas and connect them in a way that results in an attractive composition. As in Palladio's Villa Rotonda, Vicenza, Palazzo Porto, etc., Krier demonstrates that spaces should be arranged in a logical order to generate spatial and aesthetic links (Krier, 1991).

The in-between space is a middle space that can represent either a partial overlap or an absolute total overlap, according to Bakr (1997), who presents it implicitly in his study as a joint that could be a defining barrier that separates the inside from the outside (separation), an element that connects them (connection), or an imaginary line between the binaries.

On an urban scale, interior and outdoor environments overlap, according to Nooraddin's (1998, 2002) study. The interstitial spaces, also known as the "in-between" space, are formed when there is an overlap that joins and unifies these two types of spaces; this overlap creates a third type of space, namely the interstitial spaces or the "in-between" space. He clarified that the in-between space is an intermediate space that maintains continuity and ties the inside and exterior together. The sidewalk, the open areas in front of the buildings, the courtyard, and the building facades are examples of in-between places.

The in-between concept appears as a vital environment brimming with energy and enthusiasm, a space to congregate and host various events.

Based on a number of theorists' and philosophers' perspectives, Grosz (2001) identified the "in-between" as a focal point for social, cultural, and natural transitions. It is a place that surrounds identities, defines them, and shapes itself in the orbit of these dualities, not just a comfortable space for movement or an adaptable and harmonious space.

Azmal (2005) defined the in-between as a middle area between binaries (inside and outside, public and private), and he connected it to the idea of a convergence surface by characterizing it as a shared space that is a component of two phenomena and possesses traits from both. The researcher thought that by constructing a place as a transitional region between the dualities that carry the features of both, the in-between may serve as a solution to the issue of the transition between the private and the public, inside and outside, i.e., the house and the street.

Using three perspectives—phenomenological, embodied realism, and neo-structuralism—Laiprakobsup (2007) investigates the essence of the in-between place and contends that in-between places show themselves as transitional worlds. These places reflect live forms of intervals as linking elements between juxtaposed places and in-between places that create vital and aesthetic connections between places.

In-between spaces, according to Zhu's (2009) study, are areas that exist between two opposites, such as the mind and the body, the interior and the exterior, and the truth and intuition. Therefore, it is a location for ongoing innovation, creativity, and change. The aesthetic value of the in-between space is realized through the connection of the separate, such as the connection between remembering and forgetting, past and future. It is a place that is linked to another place without having a distinct and fixed identity and is marked by ambiguity, uncertainty, and instability.

In-between spaces are referred to as a transition from night to day, or from the old to the new, and provide a space where the transitions become obvious rather than simply existing as a line of instability. Through a series of extended spatial experiences at the place where the transition from street to building occurs, in-between spaces are spaces of transition that appear between building and site, indicating the convergence and overlap of spatial layers in an urban fabric (Mouch, 2009).

The intelligibility of the in-between spaces at various urban and architectural scales is emphasized by the spatial aspects of spatial organization, which give them an ambiguous character. It is articulated in three aspects: the physical forms, the functional meaning, and the geometric subjunctive. As a result, the relationship between inner and external spaces necessitates the presence of a third space for the interplay of functions. Moreover, the concept of threshold as a distinguishing component that connects outer space with inner space, according to Lida et al. (2011), governs the space and symbolizes the in-between space by connecting the outside and inner spaces through a transitional field.

A link, transition, border, differentiation, threshold, or line of tension are other names for in-between. The dynamic between inside and outside is the best way to define the architecture of a space that is neither inside nor outside. By blurring spatial boundaries, an inside-outside space simultaneously creates a link between inside and outside on an emotional and physical level (Brookes, 2012).

Anbaki (2013) defined the in-between space as a third space (hybrid space, representative living space, gray space) consisting of four main cases, namely, liminality, threshold, interstitial, and transitional, which change depending on how it is used. The properties of the effective space were determined by some vocabularies cooperation (sustainable in-between space; behavioral within the in-between compatibility of the users with the in-between space).

Due to the significance of in-between spaces in maintaining the harmony of inside-outside, it refers to a hierarchy of the main entrance, open spaces between buildings, the entry space of a building (lobby), spaces between flats on each floor, the entrance space of each apartment, and the balcony (Einifar & Motlagh, 2014).

Every public building has this space, which serves as a transition between interior and exterior spaces and takes up a sizeable fraction of the structure's volume. In addition to acting as the building's circulation path, it handles the change from one state to another and serves as a physical connection as well as a buffer space (Nassar & Samaty, 2014).

Humans made the design decision to combine the characteristics of these spatial realms of inside and outside. However, there are a lot of important factors that have an impact on this area, including architectural features, climate conditions, culture, aesthetics, and lifestyle considerations. In-between spaces are a combination of closed and open spaces as a result of the dynamic interplay of barriers and passageways. These areas were divided into three categories: delightful living areas between them, intriguing transitional areas between inside and outside, or a location that may be used for both of these things. (Shahlaei & Mohajeri, 2015).

According to Nan (2019), there are material and immaterial spaces that surround other spaces, whether exterior or interior. They are positioned between two places that are in contact with each other, with an interaction area on a surface. By virtue of their solid or void character, they may either be solid and create adjacent spaces, be transparent and allow for a visual relationship, or be empty like a blank façade or gallery opening.

In-between spaces, as intersecting areas or "intermediaries,", have an unstable and ambiguous state that is difficult to define while being prominent architectural spaces that begin to enhance the aesthetic and architectural value of their surroundings.

such as a courtyard, which is a void space that constantly oscillates between inside and outside but functions as an organizing element that simultaneously defines and blurs the levels of privacy and publicity and adds architectural and aesthetic value to other spaces. The courtyard is therefore referred to as "one of the most important elements" by Andrea Palladio in Four Books on Architecture (Palladio, 2002).

According to the activity in these spaces, the in-between spaces are elastic environments that may accommodate user presence for brief or extended periods of time, depending on the activity in these places (Felsten, 2009).

In-Between spaces Within the Faculties of Art and Architecture.

It is a flexible space between different interior functional spaces that performs several functions in addition to being a transitional space responsible for the building's circulation. It is an essential component of any public building and takes up a significant amount of the building's overall space. It combines the physical connection between various functions and the buffer space, as well as the dynamic interaction of hallways, lobbies, foyers, staircases, and other functions. It is located between the interior spaces of the faculties (Nassar & Samaty, 2014). In the context of this study, in-between spaces within art and architecture faculties are used for a variety of activities, such as public circulation areas (vertical and horizontal connection areas), transition areas, welcome areas, event areas, waiting areas, public gathering areas, galleries, multipurpose areas, etc.

Within these faculties, in-between spaces typically include the following:

entrance halls and lobbies, foyers, courtyards, corridors (hallways), and staircases. The activities in such spaces are waiting, walking, observing, conversing, studying, etc. (Nassar & Samaty, 2014).

The concept of wellbeing and the basic dimension of the concept.

It may be claimed that since the concept of well-being has existed for centuries in many different forms, it is one of the main objectives of human endeavor. The importance of taking into account people's well-being in their homes, workplaces, and daily lives has grown as research interest in well-being has expanded as societies have improved in numerous domains. It is an advantage that has a strong connection to quality of life (Frey & Stutzer, 2002).

A sense of contentment, good health, and sociability are just a few of the many positive aspects of well-being that practically everyone aspires to. Therefore, it relates to what is inherently important to people, that is, what they believe and feel about their lives, such as positive emotions, happiness, and general life satisfaction. Well-being has two dimensions: one subjective and one objective. A person's life experiences are taken into consideration, as well as how their circumstances stack up against social standards and ideals (Diener, 2009).

well-being linguistically:

The definitions of well-being that apply and how they relate to health are as follows: The Merriam-Webster Dictionary defines well-being as the condition of being well, joyful, and prosperous (welfare). According to the Oxford English Dictionary, well-being is the quality of being comfortable, healthy, and happy.

It is, according to Collins Dictionaries, "the state of being happy, healthy, or successful."

well-being idiomatically in various fields of knowledge

Although the idea of well-being is not new, it has become more and more important in modern society. Finding a single definition for well-being is a challenge, given that there is no consensus in the literature on what exactly constitutes well-being, despite discussions about the meanings of various concepts and how they relate to one another (Camfield et al., 2009).

Although they all have rather different interpretations and underlying meanings, the terms "flourishing," "enjoying a good life," "happiness," and "life satisfaction" are occasionally used interchangeably as synonyms for the term "well-being" in certain publications (Carter & Andersen, 2019).

Philosophers have been interested in well-being ever since the time of the ancient Greeks. Three main categories of well-being theories have been developed over time in philosophical studies of well-being: hedonistic theories, desire fulfillment theories, and objective list theories (Brey, 2012).

Hedonistic theories hold that happiness is characterized by the presence of pleasure and the absence of pain. Hedonism theory encompasses two varieties: quantitative hedonism and qualitative hedonism. A happy life, according to qualitative hedonism, is one in which one enjoys numerous delightful experiences in addition to higher-order pleasures. (Brey,2015).

For instance, desire fulfillment theories make the assumption that people's lives are better to the extent that their current desires are realized. According to them, living a life in which one's wishes are satisfied—and only those things that are suitable to one's nature and are likely to be attainable—is the best kind of life (Brey, 2015).

Theories of well-being that focus on objective factors are dependent on a set of objective conditions rather than a person's subjective preferences or experiences.

In psychology, the psychology of happiness started to emerge in the 1980s. Since Diener, psychologists have tended to concentrate on subjective well-being and use the term "life satisfaction" to describe how people assess the balance of positive and negative affect in their lives as a whole, i.e., how people evaluate their own happiness, which can be measured and recorded (Diener & Lucas, 1999). In the 1990s, positive psychology was developed with the intention of examining well-being and creating psychological strategies and methods to improve people's quality of life and make their lives more satisfying (Seligman & Csikszentmihalyi, 2000).

Diener (2009) argues that three components make up well-being: a cognitive assessment of overall life satisfaction, positive affect, and decreased levels of negative affect. When seen holistically, well-being may be defined as a balanced way of living in which a person's emotions and bodily functions are assessed across various categories, including in relation to their cognitive, physical, social, emotional, and spiritual well-being, among other categories.

Current definitions of health by the World Health Organization include "a condition of total physical, mental, and social well-being," in which health is assessed using a range of factors related to the quality of our built environment rather than merely access to medical care (Cabe, 2009; Who, 2001).

Since the 19th century, happiness and well-being have been significant topics in economics, which explains economic activity in terms of its expected utility (which is often equated with well-being). Since the development of welfare economics in the 20th century, which aims to measure social welfare and enhance it through economic solutions that maximize utility, the capability approach has become a crucial theory in modern welfare economics and has been used in philosophy as well (Brey, 2015). This method makes the assumption that a person's capacity to achieve well-being depends on the presence of a set of fundamental talents, the development of which may be aided by social and economic resources. Recent decades have seen the emergence of happiness economics, a new branch of economics that studies the economic conditions for happiness and well-being and that relies strongly on psychological research on happiness (Bruni & Porta, 2005).

Although there is no one definition of well-being that is universally accepted, it does entail the presence of pleasure, fulfillment, positive functioning, contentment with life, and pleasant feelings, as well as the absence of worry, sadness, and negative emotions, as indicated in prior definitions. Well-being may be summed up as having a positive attitude toward life and feeling happy (Veenhoven, 2008).

Working effectively and feeling well are two crucial aspects of well-being. Positive self-perception is characterized by happiness and participation. Effective functioning is characterized by healthy relationships, good life management, and a sense of purpose.

When a person's psychological well-being is high, Bradburn defines well-being as the existence of an excess of positivity (positive affect) over a negative effect (Dodge et al., 2012).

On the other hand, according to Shah and Marks (2004), well-being goes beyond only good emotions (pleasure and satisfaction) and instead includes things like feeling satisfied, growing as a person, and making a contribution to the community.

Diener and Lucas (1999) go even further in their definition of wellbeing, characterizing it as subjective (hence the name subjective wellbeing, SWB) and made up of three significant related factors, including life satisfaction, pleasant effects, and unpleasant effects.

According to a variety of concepts covered by definitions of well-being, well-being can then be described in very general terms as a holistic, balanced way of living, where well-being needs to be considered in relation to how an individual feels and functions across several areas, including cognitive, emotional, social, physical, and spiritual well-being (Carter & Andersen, 2019).

well-being in the architecture field

Beginning with the Roman city planning invention, architects, designers, and planners have made a significant contribution to the betterment of living circumstances throughout the history of the field of architecture (Capolongo, 2014).

A healthy physical and mental condition that is maintained over time in a supportive physical and social environment is considered to be "well-being. "Well-being is about the combination of our love for what we do each day, the quality of our relationships, the security of our finances, the vibrancy of our physical health, and the pride we take in what we have contributed to our communities." (Frey & Stutzer, 2010; Rath et al., 2010).

We can see that great attention was paid to the psychological and physical well-being of people when looking at the works of architects like Franco Albini, Ignazio Gardella, and Le Corbusier. From this, we can conclude that architectural and interior design subjects related to health and well-being have always inspired and stimulated architecture and interior design. Today, no architectural project can avoid addressing health concerns as well as psychological, anthropological, and social considerations in order to achieve a good and suitable design in terms of sustainability. Considering that people spend 80% of their time in the built environment, it could be argued that the architect plays a more significant role than the doctor in preserving health and well-being when it comes to designing living, working, learning, and recreational spaces, in addition to locations dedicated to restoring and protecting public health (Capolongo, 2014).

Recent years have seen a rise in the importance of well-being and people-focused design. Well-being in architecture and interior design is based on a person's comfort, not just physically with spaces designed for specific tasks, good ergonomics, air quality, and temperature control, but also the mental aspects of being human and our need for social interaction and relationship building. Users greatly benefit from environments created with aspects of well-being in mind, as stress and burnout are reduced, they are more productive, their memories are improved, and they are more inclined to hire new talent. To better comprehend the needs for wellness and design requirements, we should think about our genetic beginnings and the necessities for survival (Baarda, 2020).

Two Traditions in The Study of Well-Being

Psychology has been the most common discipline in well-being studies, where having the best possible experience and functioning for people is central to the notion of well-being, which spans all facets of a person's life. Research in this area was initially dominated by two different traditions of well-being: the hedonic approach, which emphasizes happiness and defines well-being in terms of pleasure attainment and pain avoidance; and the eudaimonic approach, which emphasizes meaning and self-realization and defines well-being in terms of the extent to which a person realizes their full potential (Minuccian & Only, 2020; Ryan & Deci, 2001).

The Hedonic Tradition:

Hedonism has been expressed in numerous ways, from a narrow self-interest-focused narrowness to a broad self-interest-focused breadth. It places a high value on notions like happiness, positive affect, low negative affect, and life satisfaction (Bradburn, 1969; Diener, 1984; Kahneman et al., 1999; Lyubomirsky & Lepper, 1999).

According to the Greek philosopher Aristippus, happiness is the totality of a person's hedonistic moments, and the purpose of life is to experience as much pleasure as possible. Many others adopted the early philosophical hedonism he advocated.

DeSade felt that the pursuit of feelings and pleasure is the ultimate aim of life, while Hobbes argued that happiness comes from successfully pursuing our human needs. According to utilitarian thinkers like Jeremy Bentham, a decent society is created when each person strives to maximize their own happiness and self-interest (Ryan & Deci, 2001).

The experience of pleasure and discomfort that concern subjective happiness, which is broad and includes all judgments about the good and bad aspects of life, is considered by psychologists to be a component of well-being, with happiness being a result of achieving goals or desired outcomes in various domains (Diener et al. 1998). The study of "what makes experiences and life pleasant and unpleasant" is what Kahneman et al. (1999) referred to as hedonic psychology. Hedonic psychology's theoretical underpinnings strongly suggest that the concepts of well-being and hedonism are essentially equivalent.

The Eudaimonic Tradition:

The idea of eudaimonia presupposes that one should think of well-being as including more than just happiness. According to it, a person's perceptions of happiness may not always imply that they are in good psychological health (Waterman, 1993). According to eudaimonic theories, not all desires, when satisfied, result in happiness. Even if they are enjoyable, certain outcomes are bad for people and do not support well-being. Therefore, from a eudaimonic standpoint, subjective happiness and well-being are not the same thing.

The eudaimonic tradition emphasizes human growth and positive psychological functioning (Rogers, 1961; Ryff, 1989; Waterman, 1993).

According to Waterman (1993), eudaimonia happens when a person's life activities are holistic or complete, consistent with or entwined with their innermost ideals, and when they do so.

Ryff and Singer (1998, 2000) looked into the concept of well-being as they attempted to develop a theory of human flourishing over the course of a lifetime. In accordance with Aristotle, they define happiness as "the striving for perfection that is the realization of one's true potential" (Ryff 1995, p. 100), as opposed to just achieving pleasure. There are numerous academics who use the eudaimonic tradition to describe well-being.

Applying the Two Points of View

According to evidence from several researchers, it is probably preferable to think of well-being as a multidimensional phenomenon that incorporates elements of both the hedonic and eudaimonic conceptions of well-being. The results demonstrated that the hedonic and eudaimonic are both overlapping and different, and that evaluating well-being in many ways may aid in our understanding of it (Ryan & Deci, 2001).

The hedonic and eudaimonic perspectives of well-being, which complement one another, must be included in the framework of well-being from a design standpoint. Architecture and spatial design may have a significant impact on both hedonic and eudaimonic ideas of well-being. The eudaimonic approach mandates that functional, social, and psychological aspects of space be taken into account, whereas the hedonic tradition focuses exclusively on aesthetic and sensory components of space (Minuccian & Only, 2020).

Aspects of Well-being

The well-being research is presently dominated by two conceptual approaches.

Objective well-being.

There is a tendency in the objective well-being theories to define well-being in terms of objective, external, and universal notions of quality-of-life indicators, with a focus on accepted core human capabilities as social attributes like health, education, social connections, participation, expressing emotions, and having access to material resources like food, income, and housing. These indicators are formed and influenced by a variety of variables, including the level and stability of income, living conditions, educational opportunities, the quality of the social and natural environment, safety and security, and the possibility of realizing social and civil rights and needs (Bourke & Geldens, 2007; Watson et al., 2012).

Subjective well-being.

Subjective theories of well-being concentrate on subjective overall life evaluations, conceptualized only as an internal subjective experience of each specific individual when he is aware of what is good in life for him and has the opportunity and intention to achieve these good things. Subjective theories of well-being consist of two main components: affective feelings, emotions, and mood, and life satisfaction, which is identified as a distinct construct and defined relative to a specific domain of life such as school, work, and family (Diener & Ryan, 2009).

Subjective well-being develops when happy feelings occur more frequently than negative emotions, according to the effect's deeper exploration of positive and negative emotions (Diener et al., 1998). Since persons and perceptions are at the core of its meaning, Watson and others (2012) contend that subjective well-being has direct utility in characterizing and promoting staff and student social and emotional well-being (Carter & Andersen, 2019).

Subjective Well-Being (SWB): Diener (1984) initially used the term "subjective well-being," or SWB, to describe the general assessment of one's quality of life. He makes the assumption that three factors make up subjective well-being: life satisfaction, which refers to a cognitive assessment that one's life is good; positive affect, which refers to experiencing a high level of pleasant emotions; and negative affect, which refers to experiencing a low level of unpleasant emotions (Deiner, 2009). People who have high life satisfaction, high positive affect, and low negative affect exhibit high SWB (Frey, 2012).

Subjective wellbeing and interior architecture:

The Requirements for well-being in The Interior Spaces:

In order to evaluate the relevance of each spatial aspect of interior space that affects our well-being, the well-being framework for interiors aims to define the spatial dimensions of well-being (Minucciani & Onay, 2020).

Connection to Context

This is a crucial criterion that sets off each interior space based on where it is located and how it interacts with the other areas.

Understanding the local environment requires a thorough understanding of the social and environmental settings, particularly with respect to their effects on well-being.

It's essential to talk about two fundamental dimensions: the location, which offers the designer the most useful information for the design process (topography, climate, etc.); and the relationship to the surroundings, where contextual ties can be discussed in terms of orientation, entrance, openings, nearby buildings and spaces, and natural aspects. It plays an important role in deciding how to make interior interventions.

Instead of merely being an abstract location, the interior context and content, in Forusz and Schulz's (1981) opinion, should reflect and respect the sense of place, which is defined as "a totality of physical objects possessing material substance, form, texture, and color".

Place attachment, which is defined as a sense of comfort and is frequently recognized as a primary predictor of social well-being, is promoted and improved through appropriate context interactions. (Brown et al., 2003; Rollero & De Piccoli, 2010; Wang et al., 2016).

According to Keller (2016), exposure to nature has been demonstrated to promote recovery from illness, and people who live close to open spaces report a better quality of life, fewer social and health problems, a stronger sense of place, and a higher quality of life. (Minucciani & Onay, 2020).

Additionally, natural environmental elements in the workplace enhance motivation and achievement among workers (Ambius team, 2021).

In brief, the connection to context includes: location, relationship to surroundings (natural aspects), orientation, entrance, openings, and surrounding buildings and spaces.

Functional requirements:

The development of spatial solutions that facilitate human activities is the goal of functional requirements.

A new notion of function and functioning has emerged as a result of recent social developments. According to Charytonowicz (2000), current needs and conditions have resulted in the development within the architecture of ways of life and activities that necessitate functional adjustments rather than only the standards that designers take into account in their designs.

They must take into account adaptability as well as the changing demands of people and the opportunities offered by the surroundings.

It is the fundamental demand of living places designed for a certain function, and it is molded by the major activities that occur in and around structures. For instance:

- The organization of all interior features such as furniture, lighting, etc.
- Functional needs in multifunctional spaces must be satisfied by utilizing a flexible strategy that enables the same space to be utilized for diverse purposes at various times (Minucciani & Onay, 2020). It is possible to fit more activity and people into the same

amount of space, which is also suitable for today's public events.

Ergonomic Requirements

It refers to the relationship between all of the interior components and the cognitive abilities of the human body.

The discipline of interior design is always concerned with ergonomics because it is meant to deal with the environment that surrounds the human body and interact with it both physically and cognitively in order to meet the demands and desires of humanity as a whole.

The appropriateness of all equipment and its efficiency in carrying out human tasks while keeping health and safety in mind may also be considered seriously (de Looze & Pikaar, 2006; Minucciani & Onay, 2020).

Psychological requirements:

It is concerned with the results of human-space interaction.

The psychological needs of the living environment are quite significant. It includes:

1. Privacy: having the desired amount of control over one's relationships with others.
2. Security: is the state of being and feeling protected from danger.
3. Competence: Being in control of one's surroundings and having the power to change them if necessary in regard to one's living environment
4. Relatedness: A sense of belonging and the need to engage with others can be derived from the drive to interact with others.
5. Autonomy: The capacity to live one's life as desired while being in sync with one's integrated self (Minucciani & Onay, 2020).

Social Requirements:

It is interested in the prospects for spatial connection between individuals.

According to Keyes (1998), social well-being is the level of relationships that a person has with other people and their community. Spatial elements have an immediate impact on the behaviors we engage in to foster social well-being.

Socially advantageous features are connected to the physical aspects of social well-being. Buildings should provide possibilities for everyone to participate in social interactions at their preferred level in this way. By balancing public, semi-public, and private areas, they should also encourage and promote social activities. Social gatherings may be encouraged, and the benefits of coming together and sharing can be strengthened through collective activities. According to the Green Building Council (2016), both the quantity and quality of social connections—such as talking and listening to friends, family, and strangers—are related to well-being, including actual and perceived happiness (Minucciani & Onay, 2020).

Sensory Requirements:

Physical settings like temperature, acoustics, natural and artificial lighting, humidity, and air quality can all affect one's well-being in a significant way. It includes ventilation, lighting, heating, cooling, and acoustical insulation, as well as their influence on human perception.

where emotional sensitivity detects and assesses the quality of space and environment, substance, and size equally, through the eye, ear, nose, skin, tongue, skeleton, and muscle.

Light, color, sound, temperature, air movement, aroma, and the characteristics and textures of the materials used in our sense of space all have an impact on basic architectural elements and the spaces they identify. These elements, which excite all of our senses, could sometimes be considerably more significant than the real idea of space. So, in order to understand how they evolve, we must evaluate the effect of all these modifying components (Minucciani & Onay, 2020).

Light is crucial for well-being. On an emotional level, individuals appreciate and feel a sense of well-being in daylight. Natural light makes us aware of the passing of time; the specific processes of this link are unclear, but our bodies are inherently sensitive to the quantities and properties of external light.

The eye possesses sensors that perceive the blueness of daylight in addition to the photoreceptors that are responsible for vision. As a result, the color and intensity of light we are exposed to have an influence on the production of chemicals, including melatonin and serotonin, which govern our circadian cycles (Green Building Council, 2016). Artificial lighting, on the other hand, is largely driven by occupants' demands, which fluctuate depending on their requirements and activities, and demands a significant level of flexibility and control.

The presence of useful or enticing sound, as well as the absence of unpleasant sound, may be analyzed in the acoustic environment. In the short term, unpleasant sounds can disturb activities, interfere with speech, and impair rest and relaxation. Longer-term, there is evidence that noise could increase stress hormone levels, increasing the misery produced by poor sound insulation between places that often underestimate the amount of enjoyment. As a result, one of the most basic spatial demands in indoor environments is noise reduction.

Another key component that has a direct influence on physical health is a regulated thermal environment. (Green Building Council, 2016).

Many elements influence air quality, including ventilation, humidity, and material influences. The significance of air quality for learning and conduct in schools, as well as productivity in businesses, has been proven in various studies (Green Building Council, 2016).

Aesthetic Requirements

They It refers to the integrity and harmony of all geographical elements that please the human senses and promote well-being.

It has an influence on how individuals perceive and feel about the location.

People require an appealing and aesthetically beautiful environment to support particular biological functions, according to IOM (2007) (Kaplan and Kaplan, 1971), and human beings are healthier and happier when aesthetic characteristics are realized.

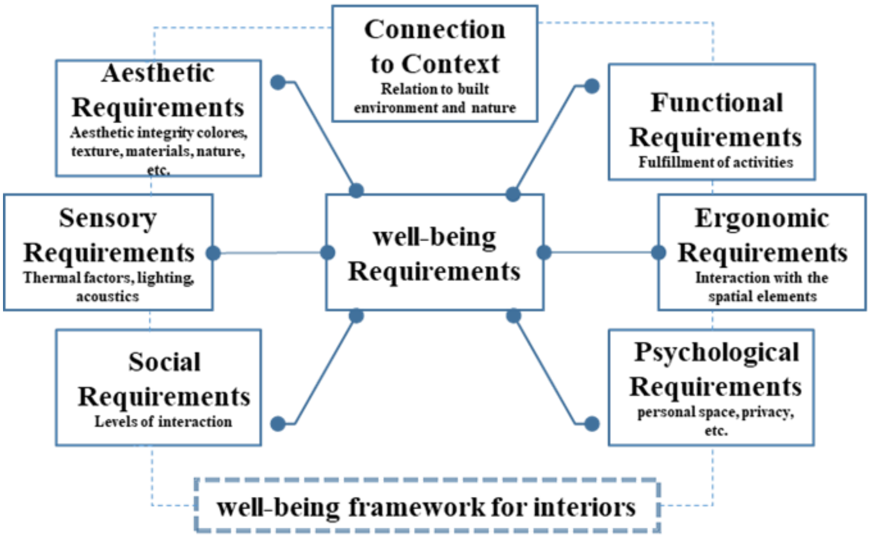
All the spatial elements that work in unison to create a strong aesthetic identity, such as the way light enters a room, the colors of the floors and walls, and even the shape and texture of furniture and home accessories, all work together to influence people's feelings, perceptions, and behavior, both consciously and subconsciously. The framework for interior spaces' well-being is developed according to functional, ergonomic, aesthetic, psychological, social, sensory, and contextual demands. Where all are vulnerable to modifications according to the cultural background of the user (Minucciani & Onay, 2020).

Well-being Framework for Interior Spaces

As shown in the figure below the:

Figure 2.

Well-being framework for interior spaces adapted by the corresponding author from (Minucciani & Onay, 2020).



Well-being in The Education Spaces:

Regardless of the range of definitions of "well-being, educational institutions are increasingly seeking to increase student and staff well-being. Given the relationship between well-being and academic success and productivity, Learners and staff's well-being must be fostered in supportive educational settings by aiding them in developing a good sense of identity, self-worth, and community connectedness (McCallum & Price, 2016).

The Design of Art and Architecture faculties

The faculty's design can alter the social experience of students and faculty members. The emotional effect of designing the interior spaces on the users is part of the reason for the educators' success as well as their efforts. Designing the academic environment must be compatible with the educational philosophy of its academic administrators, just as the design of any workplace must be consistent with an organization's culture (Augustin, 2009).

The educational building nowadays is a collection of adjoining places integrated to support the educational process, maintain psychological equilibrium for students, and enhance their life experiences. A well-designed place is essential for providing the users with positive energy and fulfilling their social interaction needs. Promoting comfort and inspiration, which promote productivity and pleasure, instead of merely an environment meant to accommodate students (Ali, 2003; Reiss, 2004). According to contemporary educational requirements, the process of developing the design of educational facilities has progressed in numerous domains, including:

1. A wide variety of learning environments compatible with a diversity of educational activities gives all the right equipment in the space that users need to accomplish the task they intend.

2: The accessibility of the educational institutions to their surroundings, which communicate both inside and out.

3: Creating challenges by offering opportunities for the user to grow and develop as a person through a psychological environment that promotes and fosters the advancement of creative thinking in students as well as educators

4: Creating an attractive environment for social interaction where spaces allow individuals to associate with others when desired and to be alone when desired, as they choose, that suits psychological demands (Ali,2003; Augustin,2009).

The faculties of art and architecture comprised several teaching venues that differed in their size and equipment. The most crucial of these spaces are the in-between spaces, which are among the key supporting and complimentary spaces for the educational process and where students and faculty members spend a large portion of their time.

Factors influencing the design of Art and Architecture faculties

Within the constraints of the available economic possibilities, the design of the educational building focuses on the human needs of the users, in particular the students, while also taking into account the environmental and educational elements.

Educational process. The design must realize the appropriate spaces and environment that are capable of achieving the objectives of education and study plans through equipped and prepared spaces that reflect the requirements and educational objectives.

The environment. The physical and psychological requirements of students must be taken into consideration while designing the learning environment.

The surrounding environment is divided into two categories:

1. Physical environment: relates to the dimensions and shape of the room, as well as lighting, heating, ventilation, sound, finishing materials, furniture, etc. (Ali, 2003; Wohlwill, 1981).

2. 2: Psychological environment: concerned with the psychological requirements of users, such as visual and psychological comfort, personal space, love of belonging, colors, proportions that determine the type of space, scale where it conveys a sense of simplicity or complexity, and its suitability to the functional requirements, etc. (Ali,2003).

Figure 3.

The physical and psychological needs of the student (Caudill,1954).

Factors affecting the interior design of the educational spaces:

Humanitarian considerations. The human dimension is an effective aspect in the perception of in-between spaces, where the person meets his needs through the environment in which he lives.

A) behavioral factors

Individual behavior is governed by environmental conditions and situations; it includes all the dynamic, mental, emotional, and social responses and activities that the individual performs in order to feel satisfied and adapt to his environment.

1. Spatial behavior:

Spatial behavior is the behavior of the individual within the architectural space; it represents the interrelationship between the architectural environment and the human being and the mutual influence between them. The physiological relationship between man and the surrounding environment is a specific part of the behavior of the human race; it is complemented with the same importance by understanding the nature of human behavior. According to the studies and research conducted in this field, human desires include a need for security, a sense of belonging, and achieving a certain cultural or literary level. These desires are also based on age, society, and the surrounding environment. These desires have been expressed as follows (Ali, 2003):

1. Vital needs (food, drink, excretion, proliferation, etc.).
2. Social needs (belonging, sharing, communicating, and making friends).
3. satisfying, self-confidence, and self-realization.
4. Connecting with nature.

The interior design process requires complicated and overlapping information about the expected behavior of users while dealing with the interior space, and the interior design process is only done if the designer has prior knowledge of the expected behavior of users (Deasy & Lasswell, 1993), through an observational study of users behavior in similar spaces before designing that new space and determining the numbers of groups in each behavioral formation, the amount of this formation, the number of repetitions and activities that occur in the group, and the time required for their continuation within the space (Ali, 2003; Deasy & Lasswell, 1993).

In this case, there is no imposition from the designer on what should happen. Therefore, the designer must take longer to collect data through observational study and then evaluate and determine what should be done through some tools such as personal observation and charting of paths, nature of the movement, activities, and photography (Ali, 2003; Al-issawi, 2004), and using the space syntax, which was explained and used in this study as one of the methodologies that are about identifying, representing, and measuring the spatial relationships that often serve our built environment, which contributes to understanding the spatial design principles and a better understanding of the interactions among design features and social limitations (Peponis et al., 2003).

2. The psychology of students and faculty members of Art and Architecture faculties:

Scientists’ and researchers' attention in the physiological, psychological, and anthropological fields, in addition to the interests of poets, authors, and philosophers, focuses on human behavior as one of the most difficult and complicated fields in terms of being interpreted and analyzed (Raafat, 1997).

Art and architecture students are those who specialize in these fields, which require a sense of artistry and creativity, and have in their programs the practice of any kind of art in its various branches, as in the fields of architecture, interior design, graphic design, fine art, etc.

The art and architecture institutes, including students and faculty members, are considered a special case with psychological and personal features that distinguish them from other faculties.

When studying the psychological aspects of those people, we find that they are supposed to be characterized by creative thinking and innovation, which have a close relationship with their personalities in general. They are also distinguished by their intellectual fluency and mental flexibility, so that they have a high ability to change their surroundings, environment, and society (Ali, 2003).

Among the main personality features of art and architecture students and faculty members are:

Sensitivity to the surrounding problems, whether personal or impersonal, which causes excessive emotional activity, in turn, leads to the embodiment of the material and moral phenomena that surround them, which somehow are motives for their artistic activities.

The atmosphere of artistic practice gives some characteristics that make the specialists in art different in their appearance and behavior from the rest of society. On the other hand, the school of psychoanalysis added some features to the artistic personality, such as mood swings and emotional instability, that make him a different person (Ali, 2003).

If these are some characteristics of the users in the art and architecture faculties, they cannot be isolated from their surroundings and the spatial environment in which they live. There are different factors that may cause stress and psychological frustration, including the inappropriateness of the interior environment and the space for the activities and needs of its users, who spend most of their time in study and work.

Thus, the environment of the faculty of art and architecture affects the development of creativity among its users as the user realizes the design of the interior spaces, which include the dimensions of the space, openings, materials, lighting, quality, forms of furniture, colors, natural elements, and everything that surrounds him (Ali, 2003).

It is necessary for the educational environment to achieve a set of behavioral requirements either for students or instructors during the practice of their activities, such as studying, designing, drawing, and sharing their ideas and experiences with others, in terms of individual and team work. These requirements include the following:

1. Developing self-confidence, self-learning, artistic style, privacy, etc.
2. Reducing the learner's and faculty members' fatigue through connection to nature to give a sense of comfort.
3. Developing the ability to engage in research, study, and learning through the diversity of spaces that are suitable for activities practiced by the users.
4. Working to achieve integration between students and their instructors through an environment that allows discussion and questions between them
5. Developing social interaction through spaces for group work (Ali, 2003).

B-The humanitarian entrance to design the educational building:

The humanitarian entrance means that the designer begins his work with full awareness of the importance of identifying the functional and psychological needs of the student and faculty members, so that these needs represent the most important factor in the interior design of educational spaces to ensure the efficient performance of the educational process (Caudill, 1954).

The educational building is not only classrooms and lecture spaces; there are also movement spaces such as entrances, corridors, halls, stairs, elevators, and other spaces in which students and instructors meet and interact together that complement the educational process, so these spaces should not only be supplementary to the educational spaces but also an integral part of the educational process (Deasy & Lasswell, 1993).

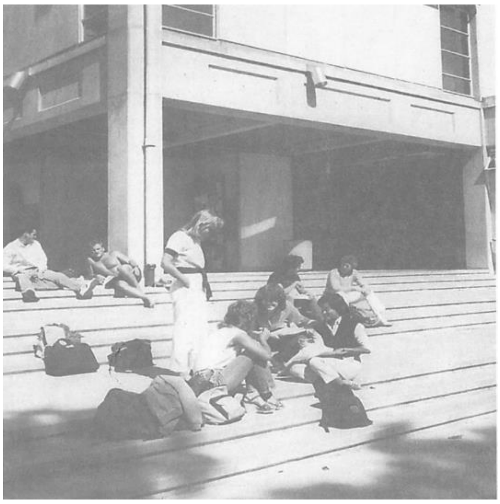
Therefore, it is necessary to provide the following places:

1. **Providing an informal social spaces:**

   Students at all levels of study usually tend to put themselves in groups and identify themselves with their presence in a place. This behavior does not necessarily mean "determining the limits of possession", but rather, simply, it means defining a known place in which an individual can find his friends. These phenomena of the multiplicity of social centers do exist, whether intended or unintended. As demonstrated by one of the human studies carried out by Richard Myrick, he also proved that students visit these centers several times during the school day. Mr. Merrick's study indicated that most of the conversations and discussions that took place between students in the corridors or in the gardens dealt with study topics and school activities, as shown in Figure 3 below:

Figure 4.

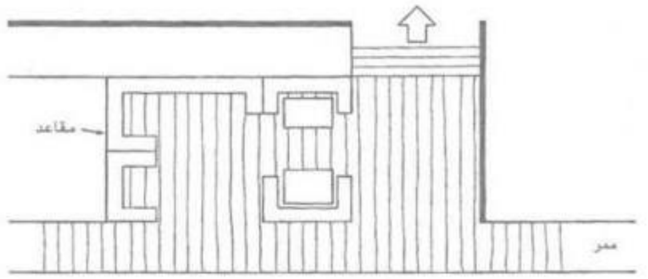
Entrance to one of the educational places where it became a social center (Deasy,1993).



It is not necessary, either, that these informal social centers be gathering halls; they may be in the entrance, staircase, corridors, under a tree, in the garden, or even on the entrance staircase. These social spaces may cause some problems that could be avoided if they were studied and treated from the beginning. For instance, the entrances to the building are usually crowded due to the momentary crowd of students. Therefore, to exchange conversations Therefore, it is advisable to design a social center near the entrance, as shown in the figure below:

Figure 5.

Placing social spaces in a location that does not conflict with the main axis of the entrances to the buildings (Deasy,1993).



Therefore, the general characteristics that distinguish social centers in the educational building are:

A. To be adjacent and close to the main pedestrian path at the university, with the presence of convincing attractions that help pull students from the main pedestrian road.

B. It is expected that these centers will be more successful if they are placed at a crossroads, at the end of a corridor leading to a main place, or near food services.

C. There should be some kind of seating that suits the fluctuations of the weather—that is, not too hot in the summer, nor too cold in winter—and does not get wet when water falls on it.

D. There should be some kind of protection from the outside atmosphere (Deasy, 1993).

Consider the distance of these locations from the classrooms and the library because it is expected that they would be acoustically active and noisy.

2- The necessity of providing information boards

In order for an individual to feel that he is a member of a group, he should know its interests and activities.

If there is one information center, then it must be located at the intersection of a main corridor (Figure 5) and contain multiple types of information for the service:

A. Communication between the institute and the students and administrative advertisements

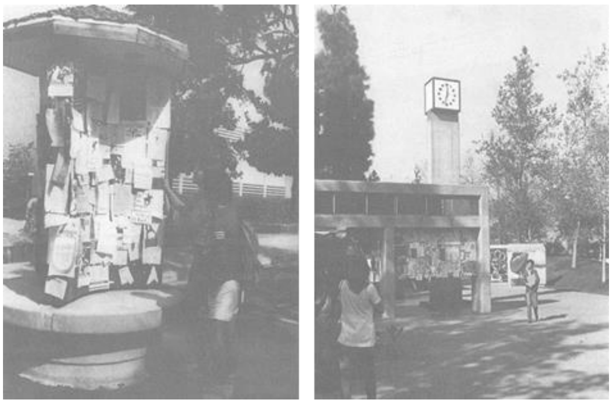
B. Communication between organized groups, such as clubs, study groups, and groups of various activities

C. Communication between students and each other: here it is necessary to provide inside the educational building news that helps to organize the sale and purchase of books, devices, and study equipment. Therefore, a special bulletin board should be provided to practice this type of activity (Deasy, 1993).

D. Providing boards for students to express their free opinions will add a sense of attraction and belonging to the faculty, as well as giving them the opportunity to participate in making some decisions.

Figure 6.

Advertisements board containing all kinds of information needed by the educational community members (Deasy,1993).



3- The necessity of providing informal places for individual and group study:

In general, the students need to study in their break time between lectures; they try to use even a little time to study if a suitable place is available. It has been found from some studies on the follow-up of students in university buildings that many students took place in or near the classroom to study, or by sitting on the corridors near the classrooms, on the stairs of the building, or on the agricultural basins near the entrance (Figure 6).

Therefore, the best place to provide a suitable informal study space is at the end of one of the main halls, at the entrance of the building, or in the interior corridors in between spaces. It is also preferable to provide seats, tables, or chairs with arms and seating suitable for groups so that students can study their lessons together. It is also preferable to be acoustically isolated from the lecture halls (Deasy, 1993).

These halls are equipped to support both individual and group study, and it is preferable that the furnishings be appropriate for reading, writing, and quick drawing.

Figure 7.

Seating for students in the corridors and at the entrance for individual and group study(Deasy,1993).

4- Personal space

Although social interaction is an important part of educational life and should be taken into account when planning and designing the faculties, this does not mean that individual desires for providing their own personal space should be neglected. Therefore, it is better for each student to have his own space.

Getting special places for the students is very difficult compared to obtaining a social vacuum in the university. Some faculties may provide a locker for each student so that he can store his supplies, while many colleges and universities do not reach this limit (Deasy, 1993).

Each student should have access to a booth or designated area that is furnished with a specific study table, an electrical outlet for the use of a typewriter or computer, portable lighting, and a locker with other necessities for the student. It is desirable that this booth only be used by the student and reflect his individuality in the manner he prefers.

"Personal space is an imaginary environment around the individual in which he maintains a distance between himself and others". It can also be defined as a personal bubble, that is, the biological field surrounding a person, whose size varies from one society to another and from one activity to another, and the size of this void depends on several other factors, such as the degree of relationship and the type between the surrounding people, the place around them, and the distances between them" (Hall, 1973).

The interior architecture designer must study the different distances that he must take into account when furnishing the interior spaces, and these spaces include the following:

A- Intimate Distance. It is less than 46 cm and is between loved ones, friends, and very close ones.

B- Personal Distance. It ranges from 0.45 to 1.20 m. It is a protected and very private area for each person, and it varies according to the person dealing with it.

C- Social Distance. It ranges from 1.20 m to 2.40 m; it is the distance between individuals who work or sit together.

D- Public distance. This distance ranges from 3.60 to 7.50, and someone you know may pass this distance without stopping to exchange greetings with you.

E- Personal Status. There is no doubt that the reality of colleges and universities today, which accept many groups of new students at a specific time of the year, is increasing, where these new students are treated without paying attention to their personal feelings, as life in this way will certainly affect the new students' sense of self-worth, so the designers can alleviate the psychological impact factors by providing the students with their own lockers (Hall, 1973).

5- Provide visible landmarks and Find features

The school administration acknowledges the problem of new students' inability to find their way around the educational buildings within the school or university campus. Designers should take this issue into consideration by making the campus more spacious and visible by providing appropriate banners, directions, and understandable maps.

When walking around an area known to us, we unintentionally associate it with landmarks, but when we give directions to others about a place, we are intent on pointing to those landmarks. These parameters will not be clear except for the clarity of the "You are here" schemes. It should be a little high to be seen from afar and unique to be imprinted in the mind, and this landmark may be a tree, a building, a flagpole, a water fountain, a monument, a clock tower, or any appearance that may not come to mind (Deasy, 1993).

Figure 8.

Different types of guidance signage which help users of the place to find the way and know directions within the Faculty of Architecture (Deasy, 1993; wordpress.com).

B- Ergonomic and anthropometric factors:

The science of ergonomics arose as a result of the research done by the armies on the performance of soldiers during the First World War, but the interest in this modern science increased significantly after that war, and after the end of the war, researchers continued their military research, in addition to trying to benefit from these results in the areas of human service.

Thus, ergonomics emerges as a result of design and operation problems that appeared in work systems that developed with technological progress.

In Europe, ergonomics was based on more biological sciences, and in the United States, a similar branch appeared known as "Human Factors", but its scientific roots were based on psychology. Recently, the "Human Factors Association" in the United States changed its name to "The Society of Human Factors and Ergonomics".

In 1949, the first conference was held in Oxford, bringing together those interested in this topic from different disciplines, and the name "ergonomics" was chosen for this new science (Ali, 2003).

Ergonomic definition:

There are many definitions of ergonomics, each of which corresponds to the particular context in which it is stated.

It is the study of human mental and physical performance in any work from the efficiency and effectiveness field of view, in addition to planning for the development of ideal data on the mechanism of movement in humans (Ali, 2003).

The scientific study of the relationship between man and his work in view of anatomical, physiological, psychological, and anthropometric factors (Newton,1981).

There is another definition for ergonomics:

It is the science of designing devices for the purpose of achieving maximum production rate on the one hand and reducing user fatigue on the other.

Ergonomics is an applied field related to many sciences, as the study of man during work requires experience in anatomy, which studies the shape and structure of the body and its various organs, and physiology, which studies the vital processes that occur in the body as well as the functions of the body and the activity of its various organs.

Psychology, which includes all the variables related to human behavior and performance, especially the cognitive, emotional, and social aspects, as well as anthropometric science, which is one of the most important sciences related to ergonomics, gives information about the standards of human body measurements (Abu al-Majd, 2000; Newton,1981).

Anthropometrics definition:

It is a Greek word that has two syllables, one of which is "Anthropo" in the sense of human beings, and the second "metrics," meaning what is related to measurement, and anthropometrics is one of the branches of anthropology that investigates the origin, development, customs, and beliefs of the human race." (Komlos, 2004).

It means a study of the human form by taking measurements. In the past, since the time of the Pharaohs, the measurements of human organs were used as units of measurement, and now we can determine the dimensions of some things by comparing them with the dimensions of the human body, by using the length of the arm and fingers and the size of the head, and those are all instinctive lineages."

It is the science of studying the dimensions of the human body. "Man is the base for every measurement. He is the one who designs and manufactures the things he uses, and their dimensions usually correspond to his measurements and the dimensions of his body. (Neufert,1970).

The measurements of the human body are one of the basic elements on which the design is based, for the designers in general and the designers of interior architecture in particular, for the following considerations:

A. Achieving anthropometric measurements is one of the economic aspects of the product as a result of its association with the actual needs of individuals; as such, it is used in setting specifications for product design that are appropriate to the measurements and capabilities of the body.

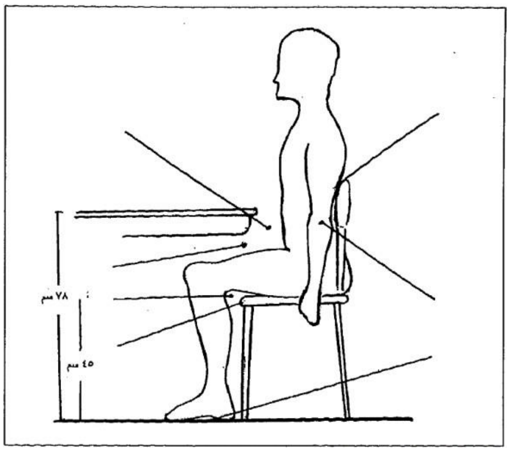
B. Using the anthropometric measurements in conducting an ergonomic analysis of the product to determine the structural and functional dimensions of the product and its extent of efficacy, as well as identify existing problems and develop appropriate solutions for them.

C. Achieving individual and group design through the design for adjustable range, as some cases require a special design that matches the requirements of some individuals and groups, for example, the design of the disabled, the design of drawing tables, and adjustable easels for drawing and sculpture, which require the flexibility to adjust and change their dimensions and compatibility with the user (Ali, 2003).

Anthropometric data are used in ergonomics to determine the physical dimensions of spaces, fixtures, furniture, etc. that are appropriate for the task of humans and to avoid inadequacy between the dimensions of the furniture and the body measurements of the users (Figure 9).

Figure 9.

physical dimensions of spaces work, fixtures, furniture, (Abu al-Majd, 2000).

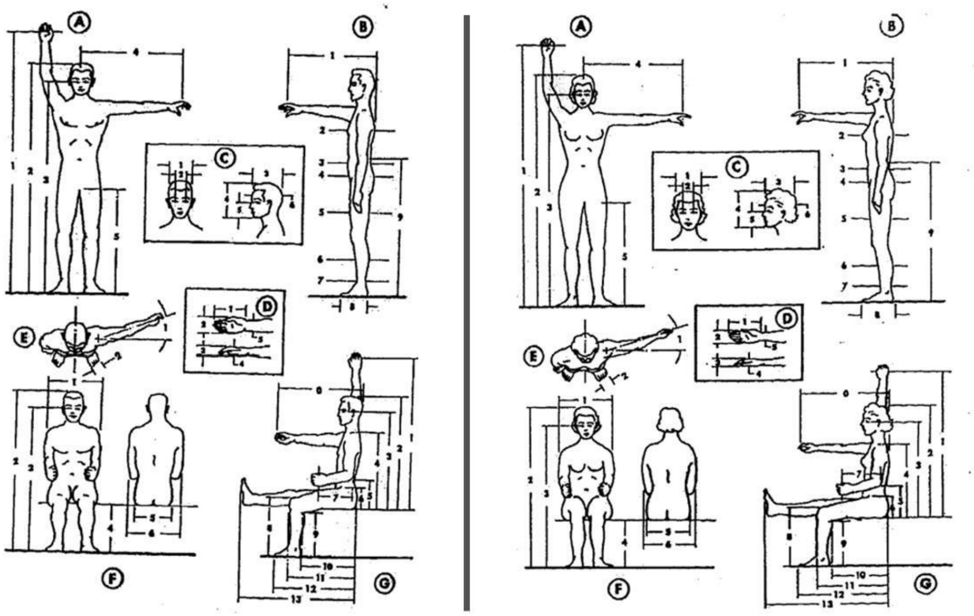


Measurements of the human body that belong to users of universities that pertain to the research.

The identification of the standard dimensions of the students should take priority in dealing with their direct connection to the spatial needs within the limits of human standards according to the nature and type of movement according to the requirements of the various activities within the space (see Figure 9).

Figure 10.

Some measurements of the human body from the age of (18-45) years that are useful in designing the workplace, (Abu al-Majd, 2000).



There are measures for parts of the human body that require specific measures of furniture; for example, the length of the shin determines the height of the seat base, and the level of extension of the hands up determines the height of the shelves, etc.

Therefore, there are standards for the human body required when determining the dimensions of the furniture and the interior space, such as:

1. Measuring the level of height when sitting
2. The height of the shoulder
3. The height of sight above the ground
4. Elbow height above ground level

5. The height of the buttocks
6. Thigh height level
7. Measure from the knee joint to the heel.
8. Measure from the heel to the top of the knee.
9. shoulder width.
10. Measurement from the knee joint to the buttocks from the back.
11. Measurement from the back of the buttocks to the front of the knee. (American Association of School Administrators, 1949).

Environmental and physical considerations in the educational environment

The physical educational environment. The Physical considerations in the educational environment:

It is known that the closed spaces of the educational buildings with all the components represent the physical educational environment through which the bulk of the teaching-learning process is conducted, which supports both the students and faculty members as they spend most of their daily activities within the interior spaces.

Achieving an appropriate atmosphere for the students and the faculty members in terms of the psychological and social aspects depends on achieving a comfortable physical educational environment that meets their psychological and physical needs, which are growing day after day, and requires making changes and using modern techniques in teaching and learning to make the educational process easier and more effective (Vosko & Hiemstra, 1988).

The theoretical literature has shown that the following main components overlap to form the physical educational environment:

A. Exterior spaces and general appearance.

This field deals with the external appearance of educational buildings, exterior entrances, the landscape, green spaces, and exterior furniture and includes the following:

1. The harmony of the faculty building with the other faculties buildings and with the natural surrounding environment.
2. The compatibility of the exterior spaces with the interior spaces and the relationship

between the buildings and the open spaces in the surrounding gardens.

3. The ability of the faculty building to be developed and renewed to keep pace with developments within the educational and technical fields

4. Paying attention to the appearance of external entrances and their ability to facilitate the requirements of people with special needs (disabled people).

5. Taking care of service spaces, equipment, and other service spaces (Al-issawi, 2004).

B. Interior spaces

These are the specific spaces within the buildings where most educational activities and events occur. Different methods of teaching are applied in these spaces. They have horizontal determinants such as floors and ceilings and vertical determinants like walls with their details and treatments.

The internal spaces in universities are divided into three sections, which are:

1. Administrative Spaces: It includes spaces designated for administrative purposes such as administration offices, faculty members, meetings, storage spaces, and equipment.

2. Educational spaces: They are the spaces designated for educational activities, classified according to space, size, function, teaching methods, materials, and devices used in these spaces. These spaces include the teaching halls and major lectures, laboratories and engineering workshops, engineering and technical ceremonies, studios, exhibitions, theaters, computer halls, training places, and libraries. It is classified according to the curriculum and the activities within it as follows:

A. Theoretical topics spaces (lectures): in which topics are taught as a group lecture.

B. Applied Subject Spaces (Seminar): in which topics are taught in a systematic manner, as a small discussion group of students (seminar) or seminar.

C. Laboratory spaces include scientific experiments in laboratories, workshops, and classes equipped with drafting tables for drawings and designs for the project's implementation.

D. Training Spaces: It deals with training and practical application in the university and work sites according to the specializations, either related to engineering or medical fields.

E. Transitional spaces: It includes the following spaces: corridors, entrances, lobbies, stairs, elevators, student assembly yards, sitting and waiting areas, and open exhibitions, which represent the paths of movement inside the buildings.

F. Service: It includes the following spaces: lockers for students, storerooms, bathrooms, internet halls, sales spaces, sports clubs, recreational spaces, equipment stores, clean rooms, restaurants, cafeterias, and smoking areas (Al-issawi, 2004).

Instructional and Design Specifications:

These specifications seek to achieve a set of goals so that the educational environment meets the needs of society in education, through which workers in the educational field determine the factors affecting teaching and then provide the designers with the information required for designing the physical educational environment (Lang, 2002; Niemeyer, 2004; Kirk, 2002).

Instructional Specifications. The teaching specifications represent the general framework that guides the design of the physical educational environment, which includes:

1. Inclusion of the general educational philosophy in some specifications of the physical educational environment through frameworks, ideas, and concepts on which educational decisions are based and used to design vital, influential, comfortable, and effective learning environments (Kirk, 2002; University of Washington, 2000).

2. Determining the objectives of educational programs, including the goals of education, the psychological objectives of design, and its relationship to students and other users, and defining the performance goals to be achieved in the physical environment. These objectives can be observed and evaluated when evaluating programs and environmental educational components (Kirk 2002).

3. The suitability of designing the physical educational environment according to the requirements of teaching methods, strategies, and accompanying activities These methods and strategies are described so that designers can use them to build and design infrastructure systems (mechanical and electrical) that facilitate the task of the faculty member in the implementation of his lectures and make the space more comfortable. Learning spaces are places for personal and social interaction between individuals and

groups, whether small or large, as well as for groups during simultaneous activities, and facilitate creative thinking that requires arranging architectural elements and equipment within the physical educational environment and the provision of compatible technology that aims to enhance teaching.(Princeton University, 2003; Illinois State Board of Education, 1999; University of Washington, 2002; University of Melbourne, 2004).

4. Design the physical educational environment in such a way that it focuses on providing comfort and attention to the students. such as attention to viewing angles, lighting, air conditioning, sound insulation, color processing in the surrounding spaces, and ways of arranging the seats to provide the maximum degree of student focus to accept education without any internal or external distractions (Hoffman et al., 2003).

5. The physical educational environment fits into the interdisciplinary fields of knowledge; the goal of the overlapping is to address multiple topics in the same educational situation, and this requires an appropriate linkage of equipment within the educational space of diverse activities such as the classroom with the studio and laboratory. The cognitive overlap is reflected in the multiple uses of the educational space, such as the distribution of seating in small groups and the distribution within the hall zoning, such as the teaching and lecture area, the drafting table area, and the implementation area. Where moving from one activity to another requires flexible, moveable seating, moldable tables, and soundproof floors.

6. The physical educational environment should take into account the requirements of technology and its applications in planning for the future, taking into consideration new and expected future developments. There is a need to calculate the possibility of its absorption in the technical specifications that are being prepared for the educational environment and for the infrastructure of academic buildings, and the ideal vision is that the educational spaces provide and support teaching in terms of good design, resulting in an integration of educational space and educational technology that is easy to use. This requires the provision of the appropriate technological equipment (Niemeyer, 2004; Maryland, 2000).

7. The educational environmental spaces must meet the requirements of flexibility in creating and providing appropriate equipment and supplies for study plans and teaching methods, such as modifying the educational space to accommodate a certain number

and the use of certain equipment and methods in the implementation of some lectures. Allowing the students to join various educational activities with different sizes of groups, characterized by flexibility in keeping pace with the modifications and development in the curriculum , which allow and encourage the collaboration and interaction between students through teamwork, which contributes to and encourages mutual respect and sharing of ideas, and this is done in the physical educational environment through the way of forming groups and facilitating their movement by the highly flexible seats that are adjustable and move easily, and the role of corridors through and around the halls affect the movement and circulation, as well as the organization of furniture in a curved manner that leads to the expansion of dialogue, discussion, and visual interaction.

8. Appropriate viewing angles contribute to visual communication between the teacher and students, enhance relations between the main educational spaces, and support the spirit of cooperation and interaction between teachers and students. (Virginia Polytechnique Institute & State University, 2003; Niemeyer, 2004; Lackney, 1998, 2000).

9. To be in line with cultural diversity and to meet the requirements of society by providing education for all its members, male and female, taking into account people with special needs, and facilitating their learning by providing special design requirements in the educational environment (Lackney, Niemeyer, 2004; Kirk, 2002).

Design Specifications. The quality of the building matters as much as its ability to do its function, where any building, regardless of its intended use, can be elevated by thoughtful articulation and careful design that change the level of the quality of the experience. There are many ways that buildings can be elevated from just a building to architecture.

The considered and careful design of in-between spaces (unassignable) or non-programmed spaces found in every structure One of these ways may not be apparent. In particular, this study focuses on the in-between spaces (entrance, lobbies and foyers, corridors, stairs, and courtyards) that present themselves as circulation spaces and movements as well as crossing points that remove barriers and make gathering places that are useful and attractive to people connect.

This part of the study describes the specifications of the in-between physical educational environment according to the following aspects:

The interior design of the in-between spaces:

In-between spaces (spaces for movement) are an essential component of any building organization and take up a sizable portion of the building's volume. Circulation pathways would be unending if they were seen only as functional connecting elements. However, the shape and size of the circulation space (width and height) should be proportionate to the type and amount of movement and function inside it; where there is a distinction between a service corridor, a public promenade, and a more private hall, it should permit the flow of people as they promenade, rest, wait, stop, or admire the scenery along a path. Sections of paths and in-between spaces can be widened to accommodate more traffic as well as to create spaces for pausing, resting, or viewing. They can also be enlarged by merging with the spaces they pass through, etc. A path can be random, without form or definition, determined by the arrangement of furnishings and the activities within the space.

The form of the circulation space varies according to its boundaries; its form relates to the form of the spaces it links, its qualities of proportion, light, scale, entrances that open onto it, and its changes in level with stairs and ramps. The form of the circulation space may be closed (an enclosed path encourages forward motion), open on one side, or open on both sides. (Ching,2014).

In order to increase a building's efficiency, circulation areas are typically kept to a minimum in modern architecture. They are always entirely pushed into the interior, depriving these areas of the light and natural views that their users most require.

People who spend most of their time indoors desperately need a connection with nature, and the in-between areas have the greatest potential to provide it.

Intangibles have a big role in how we perceive the world. The idea is that the in-between spaces, such as stairs and corridors, are the potential significance of the architectural buildings, which affect the user's perception of space in a non-tangible way. If it is successful, these are the places where a sensation of expectancy arises, where our senses are alive with potential and expectation, and where the mind is free to move between thoughts in a manner that resembles the movement of its body between spaces. (Mclennan & Oldani,2018).

Transition spaces help a person orient themselves within a building and to the outside world; the design of circulation spaces can support us in accessing this mental space, so we should assign higher importance to these places and not seek to minimize them as unprofitable, unusable, and unnecessities. (Alexander, 1990; Mclennan & Oldani, 2018).

Types of the in-betweens (Movement Spaces & Circulation) interior spaces

The in-betweens of the educational spaces are divided into the following areas:

Entrance:

The means or place of entry is an opening, such as a door, passage, or gate, that allows access to a place (Merriam-Webster).

A building's entrance signifies the transition from one space to another. The most common method of creating an entrance is through a building's opening. A change in level can be used to describe an entry and indicate the transition from one area to another.

The shape of the entrance may approximate the interior area, providing an indication as to what is beyond. As an alternative, it might set itself apart by being different from or in contrast to the form of the space beyond. An entrance might be displaced from the center to provide a more dynamic composition, or it can be centered along the elevation. It can also be strengthened further by being made longer, wider, taller, or shorter than expected. Making it broader, thinner, taller, or shorter than expected might also strengthen it more. It can be made deeper or more circuitous to improve the look. The entrance can also be further distinguished via designs such as ornamentation materials, etc. (Ching, 2014).

Lobby (Foyer)

The lobby space is a large open area that is often oversized, which allows visitors to move between the interior spaces.

It is one of the circulation spaces that could be the entrance hall, the space between the outer door and the interior of a building; it’s also an entryway or reception area; or it could be a hall connecting the interior corridors with other rooms or a series of rooms, used as a passageway, waiting room, gathering area, or another venue (Merriam-Webster).

The lobby area is one of the most visible and heavily used portions of the building. For this reason, the aesthetics of the lobby become an important interior design consideration.

Lobby space is an integral part of educational space design, where it serves primarily as a gathering and waiting area for students who arrive for class. This lobby space should be sufficiently large to accommodate the passage of students attending consecutive class sessions and to congregate without interfering with the normal traffic flow of students entering or leaving the faculty. Also, if the lobby will be used for events, juries, and galleries such as receptions and social gatherings, then lobby areas should be designed to accommodate large groups of users.

Seating in the lobby area should be placed away from the entrance and exit and away from the lecture halls to avoid any noise interference caused by students' interactions. Seating in such a space should be selected with durability in mind; as it is used continuously by many users throughout the day, it’s better to integrate it into the overall structure of the building (Ash, 2004).

Stairs

Stairs (stairways and staircases) provide vertical circulation (transport) between the levels of a building for climbing from one floor to another. The width of a stairway also provides a visual clue to the nature of the stairway, whether it is public or private. Wide, shallow steps can lead to an invitation, while a narrow, steep stairway can serve more private places. The slope of a stairway, determined by the dimensions of its risers and treads, should be proportioned to fit our body's movement and capability.

A stairway should be wide enough to accommodate people's passage as well as any furnishings and equipment that must move up or down the steps (Ching, 2014).

Since the invention of the elevator in 1853, the traditional means of vertical access have been pushed into the background, downgraded from an impressive structural element occupying the center of a floor to just a route to escape (Andreas, 2014).

In low and mid-rise buildings, the stairs could still play a major design role and can be opportunities to elevate design and improve the experience of a building’s inhabitants (Mclennan & Oldani, 2018).

The use of stairs is not limited to vertical circulation. This architectural feature may quickly take on the role of the main character in space because of its size and power. The flow of people may be seen from a distance, and the observer is treated to unique angles and viewpoints of the structure from inside the stairway.

Stairs are one of the most important components of a building, and the placement and design of the staircases are often more important to the conception of a building than the rooms within it, where they offer opportunities for meetings and informal conversations while connecting people visually on multiple levels within the building (Mclennan & Oldani, 2018).

One of the roles of architects is to give proper attention to design through the active design of the stairs, "accessible, visible, attractive, and well-lit," to become a vital space to reflect, connect, and be active, where it becomes a space to get views outside as an important biophilic connection that encourages people and promotes their health. Starting from the location of the stairs near elevators with signage that encourages the use of them to the use of high-quality materials and the addition of views, art, music, and natural ventilation to make them more attractive (Tucker, 2010; Mclennan & Oldani, 2018).

Corridors

A long, covered area inside a building, an enclosed passageway, into which compartments or rooms open (Merriam-Webster).

Along passage in a space, for instance, a building, ship, or train, esp. with rooms on one or both sides (Cambridge Advanced Learner's Dictionary). It is one of the essential components of the circulation inside the building.

Most spaces in buildings have some kind of specific activity, while the corridors and hallways, as a circulation route throughout a building, are design opportunities just as often overlooked.

Where corridors are a functional necessity and minimized as much as codes in the standards, we attribute the least value to these spaces, which may paradoxically have the most effect on our well-being.

It represents the break or transition area and the completion of an activity in these in-between spaces, where we are most alert and open to change. The designers should take into consideration that the corridors are vital places that take up an important space of the buildings, which can be supported by the artful design of corridors that merge daylight with the views outside. People are always enriched through interaction and encounters with other people, and they use these spaces to transition from one mental mode to another, where we most need a quality experience that engages our senses and enriches our well-being (Mclennan, Oldani, 2018).

All are familiar with the images of the "corridor", What comes to mind when the word corridor is mentioned are long, dark corridors, blinding white, as in the corridors of hospitals or even hotels, which are decorated with a few decorative elements like patterns in an attempt to make them less boring. These types of corridors distort communication, create visual distortions, and if it’s too narrow, it causes anxiety for the users. As Christopher Alexander mentions in his book, "long, sterile corridors set the scene for everything bad about modern architecture. In fact, the ugly, long, repetitive corridors of the machine age have so far infected the word ‘corridor’ that it is hard to imagine that a corridor could ever be a place of beauty" (Alexander, 1990).

Courtyard

An open space within a building, a courtyard is a design element in most vernacular buildings and was originally used in the Mediterranean, Middle Eastern, and tropical regions. The courtyards may be classified with respect to size, height, depth, typology, and number of planes, making an enclosure function as a unique way to bring the outside in (Aulakh, 2018).

A courtyard or court is a circumscribed area that is often surrounded by a building or complex that is open to the sky.

Both ancient and modern architects have used courtyards as a typical and traditional building feature because they are common elements in both Western and Eastern building patterns (Caves, 2004).

Location of the in-between spaces

The location of the in-between spaces is determined based on the following:

1. The location of the entrance is taken into account in relation to the surrounding exterior environment and according to the faculty's location on campus, and the number of entrances to the building depends on the size and location of the building.

2. The location of the corridors, foyers, and lobbies is determined based on the location of the classrooms and their orientation. The corridors may be open on one side to the surrounding exterior environment and on the other side to the rooms and classrooms, or they may be central and overlooking the rooms of the building on both sides.

3. It should be taken into account that the lobbies are near public services to facilitate users' access.

4. It is preferable that the lobbies be away from the classrooms, as the gathering of users generates noise that may disrupt the functioning of the classroom.

5. The large classrooms are located near the entrances to reduce the impact of large

numbers of students gathering on the rest of the building’s activities.

6. The locations of the entrances, staircases, and hallways shall be considered to facilitate the access of disabled people to the different spaces (Lang, 1996; Lang, 2000).

Size and proxemics

The amount of space that people feel it necessary to set between:

1. There should be ease of circulation and orientation for students, faculty members, and visitors. While coming to school from any entrance, it should be possible to move to any point within the faculty without meeting an area of overcrowding.

2. Circulation and social areas are generally calculated on the basis of 18% of the total area of teaching and non-teaching space. The circulation should be at least 22.5% of the occupancy.

3. The faculty's main entrance area should have a strong sense of arrival and be a welcoming space.

4. Internal signage should be clearly visible to all users, with particular regard to signage for the disabled (Jain, 2019).

5. Pathways that allow freedom of circulation within the faculty are linked to better student outcomes.

6. There must be equitable and sufficient access for all students located in appropriate places within the faculty.

7. Consider corridor width to allow equitable circulation.

8. Accessibility for the disabled should be considered during the design phase. (Jain,2019).

9. For multi-story educational buildings like schools and colleges, concrete stairs must have a width of not less than 1.50 meters.

10. The maximum number of steps per flight in educational buildings like schools and colleges is 12.

11. Handrails with steel railings must be provided, with a minimum height of 100 cm.

12. The maximum height of rising educational buildings like schools and colleges is 15 cm for other buildings.

13. The minimum tread width of educational buildings like schools and colleges is >30 cm for other buildings (Kothandaraman, 2016; Llego, 2017). Corridors with lockers shouldn't be the same size as ones without lockers, since when the locker doors are open, the effective width decreases by at least 60cm (Caudill, 1954).

14. For multi-story school buildings, the corridor or passageway width must not be less than 2.50 meters and should be provided with steel railings at a height of not less than 1.50 meters (Kothandaraman, 2016; Llego, 2017).

15. The minimum clear width of corridors shall be 2.0 M. The clear width applies to the face of any storage, lockers, furniture, etc. in the corridors. The minimum height of the handrail should not be less than 1.4 m. (Jain,2019).

Determinants of in-between spaces within the interior spaces.

It includes two types of Determinants:

1. horizontal Determinants

A. Floors:

It could have flat, sloping, or tiered floors, depending on its location and function.

1. Rubber tile floors (PVC), where they have smooth surfaces and are easy to clean, are used for floor finishing in educational spaces in general.

2. Carpet floors that are stain and fire-resistant act as sound isolation and increase the floor's durability.

3. Any other finishing that are suitable for the code, such as wood, tile, and marble.

4. wall skirting 10 cm high around the floor, at the bottom of the wall.

5. Smooth flooring will reduce noise and make it easier for wheelchairs and equipment carts to move around. Additionally, floors must be nonslip, especially close to outside openings. (Ash, 2004; Al-issawi, 2004).

B. Ceilings:

The interior design of educational spaces includes ceilings, which are critical to how the space functions aesthetically and acoustically. Innovative ceiling solutions are now used in educational facilities, ranging from horizontal panels and latticework to vertical baffles that work with lighting systems. Designers might integrate hues that encourage focus and productivity with styles that inspire creative learning.

There are several considerations that must be taken into account when designing a ceiling in terms of lighting, acoustics, and aesthetics:

1. The minimum ceiling height shall be three meters, and the higher the ceiling height, the better, to allow for the installation of indirect lighting and acoustic treatments, as well as air conditioning and heating units. Spaces with high ceilings enable students to pay more attention and facilitate a better learning environment than enclosed spaces, which can increase the stress hormone (Maganga, 2021).

2. A fall ceiling (gypsum ceiling) of 60 cm shall be designed to install electrical, mechanical, and technology systems.

3. The ceiling is the most critical element inside the room in ensuring effective distribution and an appropriate volume of sound throughout the room. The ceiling should act as a sound mirror, reflecting sound downward to blend with the direct sound. This is why the ceiling should include significant amounts of hard-surfaced material. This leads to a significant and undesirable difference in the volume and distribution of sound within the room.

4. The surface of the ceiling must be designed to accommodate the required acoustical properties of the space. The area of the ceiling that should be covered with acoustical tile is related to the ceiling height (Ash, 2004; The University of Melbourne, 2019).

2. vertical Determinants

A. Walls

The walls work to define and divide the internal educational space and to use them for several functions and goals, and their characteristics are varied in terms of finishes and colors according to the function and location.

The wall could be made from many materials, like stone, gypsum board, wood, or glass, and it could be a complete wall or just a partition (Deasy, 1993).

Among the specifications of the walls, niches can be designed in the walls of corridors and foyers to be used for students' seating, as well as cavities that may be used to place vending machines, printers, and some seating furniture, in order to reduce the problems of overcrowding in the in-between spaces.

In contrast, enclosed spaces are somehow detrimental to learning as they can increase cortisol, the stress hormone. The designer should take into consideration the issue of using the walls inside the educational spaces, where sometimes the continuous sightlines throughout the in-between spaces encourage interdisciplinary discourse and enhance the sense of peripheral vision for students and faculty through the open spaces, which is much better than using the enclosed wall everywhere (Ash, 2004; Al-issawi, 2004).

B. Doors

Doors are the openings that offer entry into a room and influence the patterns of movement and use within them. The doors shall have the following specifications:

1. The doors should be easy to use, open and close easily, and not require much effort to suit wheelchair users.
2. The door locations should be taken into account to minimize the corridor's crowding problems when switching lectures.
3. The minimum width of the door shall be (90) cm.
4. The doors should be equipped with fittings that provide quiet, slow, and tight sound seals when fully closed.
5. The door, frame, and opening mechanism should be designed with safety in mind.
6. Doors should be recessed into the room so that the door does not swing into the

hallway or into the main traffic lanes, except for the emergency doors. If it is necessary for the door to open into the hallway, some kind of visual sign can be used to indicate the amount of space that the door will occupy when it swings open, to prevent pedestrians from hitting the edge of the door.

7. Doors overlooking the corridor, if they're not glass, should contain a transparent, glazed, and slightly shaded viewing window that allows seeing the person coming from the other side in order to prevent injury when being opened, and know the nature of the lecture for late students to avoid entering another hall.

8. Capable of keeping the doors open during the change of classes to facilitate traffic flow.

9. Doors should not contain ventilation louvers (holes) because they permit the transmission of smoke and sound inside.

10. Put a metal plate under the door to protect it from the effects of kicking, scratching, and collision (Al-issawi, 2004; Ash, 2004; Chiara& Callender, 1983; Tanner & Langford, 2002).

C. Windows

These are the openings that provide a room with natural ventilation, let light penetrate the space and brighten the surfaces, provide views of the outside from the room, create visual connections between the room and other spaces, and more. Although these openings give adjacent areas a visual connection to nature, depending on their size, quantity, and placement, they may also start to compromise the enclosure of the space, where the room's quality is largely determined by the type of openings within the enclosure spaces.

Its presence in lecture rooms, studios, public and seminar halls, especially in the in-between spaces of corridors, staircases, and foyers (Al-issawi, 2004; Ash, 2004; Ching, 2014).

Windows and their specifications:

1. The windows are placed on the side walls in places that do not cause glare.

2. It shall be treated internally and externally to insulate heat and sound.

3. It has the ability to be shaded during the day automatically or manually by different types of shading elements, for instance, the curtains (Al-issawi, 2004).

Accessibility and circulation in the in-between spaces within faculties of art and architecture:

We continuously practice architectural circulation and accessibility in our daily lives. This procedure might be as simple as going from one space to another or as complicated as attempting to escape from a fire. A main impression of the overall quality of the architectural design is introduced by efficient movement around the exteriors and inside the interiors of any place, which reduces physical exertion, improves the emotional state, and introduces a first impression about the overall quality of the building design (Mahmoud, 2017).

Circulation problems might cause difficulties like wasted time, reduced safety, discomfort, and stress. The architectural and interior design of the space, as well as the degree of information integrity and clarity, have an impact on accessibility and circulation. When it comes to public buildings, such as educational institutions with numerous large-scale amenities, the influence of accessibility on physical and psychological aspects is even more significant. All users must be able to access educational facilities, with specific consideration for those with disabilities (Mahmoud, 2017).

According to the type, size, layout, and user needs of the space, different architecture faculties have different designs for accessibility and circulation inside the in-between areas. The design of these areas must take into account all of the hallways, corridors, staircases, courts, and foyers rather than just designing an entrance or putting up signage. Within any space or building, all paths for both horizontal and vertical circulation elements should be as clear of obstructions as feasible and be distinct from one another; this, in turn, helps users in the wayfinding process.

The following are some of the movement requirements in the in-between spaces of the ART and ARCH faculties related to accessibility and circulation:

1. The main paths from the streets to a building or space should be clearly identified and be slip-resistant.
2. Entrances should be well-defined, well-lit, and placed so as to organize student traffic. They should also have waiting areas, and it is preferred that they be adjacent to the classrooms, particularly the large ones.
3. To support natural light and improve visibility in the spaces, sufficient artificial light should be provided for all parts of the in-between spaces.

4. Use signs to indicate the lines of horizontal and vertical circulation inside the faculty and to provide information about the area.

5. Signboards in the entrance halls must convey information about the area.

6. The efficient flow of students through the halls and corridors, taking into consideration the proper circulation during the movement of students between spaces both inside and outside, with a design of the in-between space that provides access to windows, furniture, appliances, and storage.

7. Consider national rules and standards when designing entrances, emergency exits, and doors.

8. The lobbies, foyers, and corridors must be processed both acoustically and visually.

9. In faculty buildings with more than one level, the circulation should account for at least 25% of the total net area.

10. Except for storage rooms that may be reached directly from learning spaces, all rooms should be accessible through a circulation path; hallways linking to more than one or two teaching rooms should have a clear width of at least 1.8 m wall to wall (2.50 m wall to wall when there are lockers).

11. Shorter hallways with one or two tiny spaces should have a minimum clear width of 1.2 meters.

12. Make accessible equipment available for people with special needs, such as ramps at entrances and exits to make it easier for them to move around and accessible stairs to the upper level with elevators to assist them.

13. Lobbies, halls, and corridors should ensure safe and sufficient movement between the various spaces. The faculties should provide large, well-equipped foyers for multipurpose use, and the corridors should have an appropriate width to accommodate the number of students and users during peak hours.

14. The accessibility of elevators and staircases to handle large numbers of users entering and exiting the interior spaces These facilities should be visible from the entrance and have enough space compared to the amount of usage.

15. The entrances are placed in areas where they won't block student circulation and are adjacent to the classrooms, especially the bigger ones. (Al-Issawi, 2004; Ali, 2003; Mahmoud, 2017).

Furnishing of in-between spaces and the mechanism of the human body:

The science of ergonomics and mechanisms of the human body is of great importance in furnishing interior spaces, especially the design of equipment and furniture, the provision of comfort in the seats, and the determination of the size, scale, and appropriate arrangement, for instance, in response to the needs of some individuals who face a problem in the spine and need a backrest. For students of arts and architecture, they need to sit on the chairs for long periods to finish their projects, and the seats without padding may not be comfortable for them to sit for long periods.

Some characteristics of furniture may cause inconvenience and discomfort to users and thus reduce their ability to complete the required work, whether learning or otherwise.

One of the characteristics of good seats is that they allow movement, change the way of sitting, and suggest a sense of comfort as they support the weight of the body.

In this regard, Kleeman pointed out that most students prefer studying on beds rather than using uncomfortable chairs in classrooms and educational spaces (Kleeman, 1983). He added that the students do not deserve to be punished with straight-back chairs, unlike swivel chairs with adjustable backs, which are equipped with wheels and are therefore movable. This type of seat prevents fatigue and lethargy.

Comfortable chairs for learners, which are appropriate in their sizes, designs, and finishes, increase students' focus and sustain their attention in the educational environment, as opposed to uncomfortable chairs, which may negatively affect students' concentration and performance within educational spaces. (Babey,2002; Bartlett,2003)

Furnishing the in-between spaces in the educational spaces within the faculties of art and architecture plays a key role in providing the required comfort for both students and faculty members, which in turn affects the educational process and increases their productivity.

The shape, size, and arrangement of furniture depend on the place and function of the space used in it, and the distribution of furniture within the in-between spaces affects the interaction and participation between people, which is one of the important factors affecting the ideas, creativity, and performance of students of art and architecture.

Below are the specifications and types of distributions and arrangements of furniture that can be used in the in-between spaces:

A. Non-social distribution (Socio-fugal)

It is also called the closed distribution method (introverted), in which the seats are arranged in rows (formats) that do not allow visual contact between the seats easily, and the interaction is weak between the seated, directed to the front of the hall. It is used in the case of theoretical lectures in the classroom.

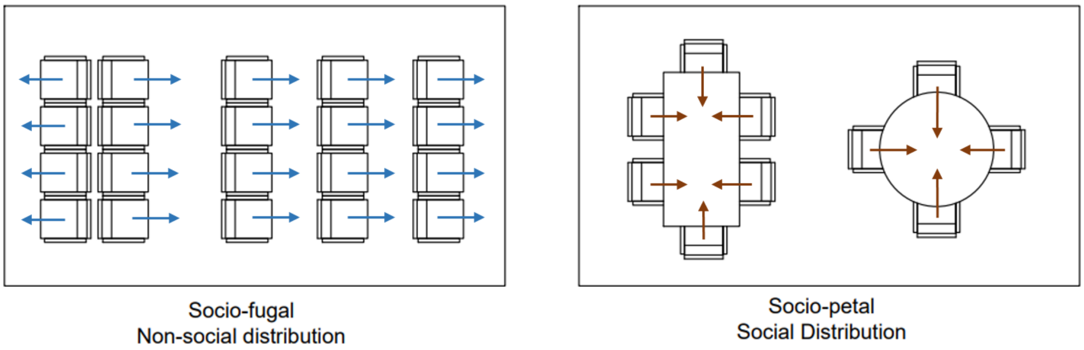
However, this arrangement is undesirable for areas of social activity, corridors, foyers, etc.

B. Social Distribution (Seat Convergence Method) (Socio-petal)

It is called the open distribution method (the petal) or the welcoming, and the seats are close together, adjacent or opposite, and allow easy visual contact, according to the relationship of the seating angle between people so that this distribution helps adjacent and opposite in social interaction between them and focus on a focal point, and the application of this is in the arrangement of seats around the table whether it is circular or rectangular in shape, this distribution is preferred in university education, and the petal arrangement furniture allows flexibility for people to move chairs from one location to another for social interaction (Strange & Bannig, 2001; Vosko & Hiemestra, 1988).

Figure 11.

The effect of seating arrangement and seating direction on communication and dialogue. (The researcher)



Specifications related to Furniture

1. Providing chairs that can be moved and adjusted easily without causing noise to obtain the appropriate conditions for cooperative education and give flexibility in arranging and using the in-between spaces, and at the same time, these chairs should have a backrest and padding for comfortable seating like the office chairs as in Figure 11.

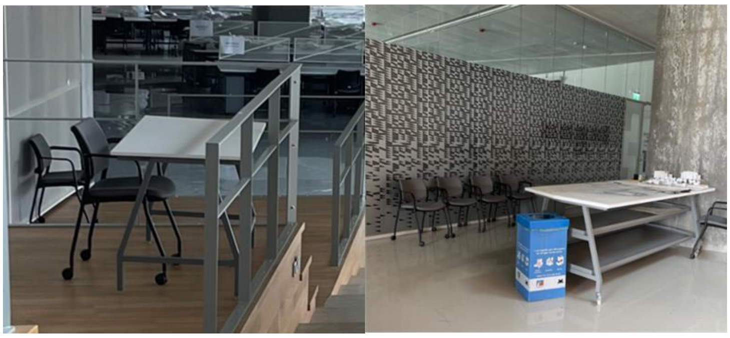
Figure 12.

A. Modern chairs used in educational spaces and offices (https://officesnapshots.com/products/flirt-lounge/), B. Modern chairs used in educational spaces (Ozyegin University) (The researcher)

2. Providing wide tables suitable for computers as well as student projects to be used in the study, both tables and chairs are in medium and matte colors, as shown in figure 12.

Figure 13.

Wide tables used in educational spaces for individual and group works (Ozyegin University) (The researcher)



3. The size of the furniture should be suitable for the space in which it is placed so that it does not negatively affect the movement of people.
4. Providing a suitable locker in terms of its size for students to put their own things in, as architecture and art students use many tools and laptops, etc.

Figure 14.

The lockers of the students in the University of Wollongong Science Teaching Facility (https://blog.interface.com/what-is-the-role-of-floors-in-wayfinding/).

5. The type of furniture used in terms of specifications should be compatible with the type and function of the in-between space (Al-issawi, 2004).

specifications related to Ergonomics

A comfortable educational space is compatible with the ergonomics of the human body, and it also plays an important auxiliary role in the education process.

Educational tables and chairs must include features that allow for a high degree of adjustability in response to the user's particular ergonomic preferences. These characteristics must be specifically developed for completing study tasks.

Some of the specifications related to the ergonomics of the human body that are supposed to be available are:

1. Providing comfortable seats that meet the needs of users and are durable, attractive, interchangeable, and adjustable without exceptional effort.

2. The design of the furniture pieces must fit the mechanism of the human body, as users move constantly, and the design of the furniture pieces must match this movement, otherwise it will be harmful to the user’s body.

3. The width and depth of the seat shall be a minimum of 45–55 cm.

4. Chairs are upholstered, and it is preferable to place a backrest on chairs, as most of them are used for long periods of more than 40–50 minutes.

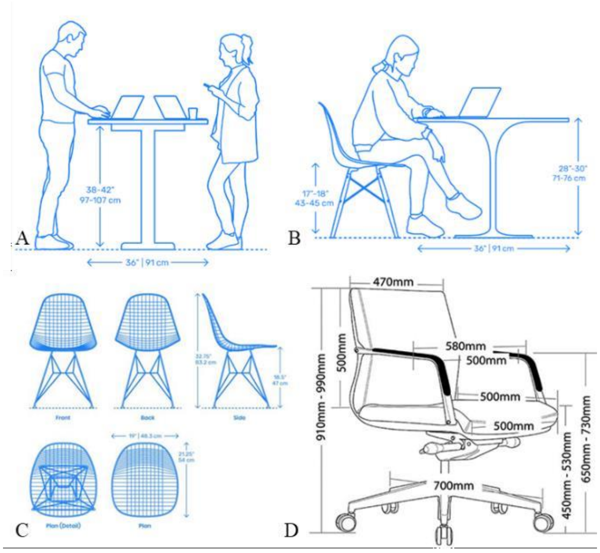
5. The movable furniture, whether tables or chairs, allows for maximum flexibility and the formation of small and large groups.

6. The height of the chairs is comfortable and adjustable, as the height of 45 cm known by international standards is no longer suitable for many bodies, as a slightly high chair may put pressure on the bottom of the knee and cause body fatigue.

7. A certain percentage of the seats can be customized to a size larger than the standard size used to fit people with large bodies.

Figure 15.

Dimensions of some tables and chairs which are suitable to ergonomics at the educational spaces (https://www.dimensions.com) (https://valueofficefurniture.com.au).



Lighting in the in the in-between spaces within faculties of art and architecture

The educational system should be carefully designed to ensure optimal utilization of natural and artificial light and the efficiency of the user's performance. Where the goal of lighting in the educational environment is to provide rich and effective illumination for the educational environment. The best lighting systems are created when the designer is fully aware of the lighting needs of each educational space.

During the design of an educational building, the lighting is very important due to the effect of natural and artificial light on the behavior and performance of the users, especially students, so it is a must to study the lighting of these spaces to consider reducing the amount of energy consumed from artificial lighting compared to natural lighting (Grocoff, 1995; Ali, 2003).

Lighting is one of the most important natural characteristics of educational spaces in general in order to provide a suitable visual environment for the educational process, as the visual environment affects the cognitive ability of the learners (Jago & Tanne, 2012). In particular, lighting is an important factor in the process of studying arts and architecture, as it is one of the delicate works that require lighting with special specifications, and light also has an important role in highlighting the surfaces of models and elements that the students draw, design, etc.

Lighting is either natural, which comes from the sun, or artificial, which comes from electricity sources.

Natural lighting:

There is a large amount of consensus on the value of sunlight and a correlation between daylighting and the educational performance of students because sunlight emits a continuous spectrum of all wavelengths of light that includes green, red, and blue waves, which results in bright white light, as well as natural lighting that gives an open environmental feeling connected to nature (Ali, 2003).

When designing natural lighting, the phenomenon of glare must be avoided, which is one of the defects that must be encountered when designing openings for educational spaces. The surface's ability to reflect light is called the reflection coefficient, and the reflection coefficient for white surfaces or reflective mirrors reaches 100%. While this factor does not exceed 2%, it is only for black surfaces.

Glare occurs in cases of strong lighting when direct sunlight falls on a reflective or light-colored surface in a room with dark walls.

Luminous intensity is the amount of illumination distributed over the illuminated area. As for the metric system, the unit of illumination intensity is Lux, which is lumens per square meter and is measured by a light meter.

Criteria for obtaining suitable natural lighting within in-between spaces in the faculties of architecture:

1. Obtaining the largest amount of natural lighting in the farthest place in the in-between space.

2. Control the amount of lighting available through sunshades and curtains so that glare does not occur, which reduces the eye's ability to see and focus.

3. Avoid direct lighting in places of delicate work (drawing and design).

4. Since the light reaching the farthest part of the space enters through the windows, the depth of the hall is largely determined by the height of the ceiling.

5. It is taken into account that the spaces between the windows are as few as possible so as not to obscure the light or cast a shadow inside the hall (Ali, 2003).

6. It is taken into account that the spaces between the windows are as few as possible so as not to obscure the light or cast a shadow inside the hall (Ali, 2003).

Limitations of natural lighting design

1. In the case that the lighting is for horizontal objects, it is preferable that the windows be at a high vertical height, and vice versa, in the case that the lighting is for vertical objects, they are low and of horizontal elongation.

2. With regard to the arrangement of furniture inside the educational space, it must be taken into account that the light comes from the student's left to avoid shadows.

3. The area of windows in the walls shall not be less than 20% of the floor area of the space (Neufert, 1970).

Factors affecting the design of natural lighting for educational spaces

A- External factors

1. The degree of brightness of the sky and the condition of the clouds.

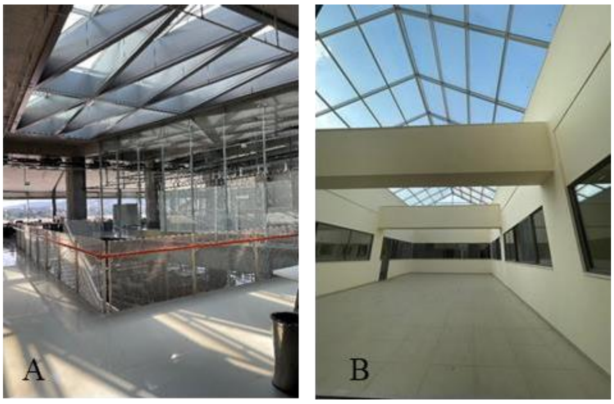
2. The effect of building orientation on the intensity of interior lighting

In the case of changing the angle of sunlight, the intensity and distribution of lighting will change accordingly, noting that the orientation of the building may have a very slight effect on the amount of natural light penetrating into the interior space. That is, by controlling the way it enters the building by:

A. Using the skylight (overhead lighting) and making openings in the ceilings, as shown in Figure 15.

Figure 16.

skylight used in the educational spaces: A. Ozyegin University. B. University of Jordan (The researcher).



B. Forming in the details of the facades as shown in Figure16.

Figure 17.

Forming in the details of the facades (Ozyegin University/ Istanbul) (https://www.archdaily.com/).

C. Using the louver windows that allow controlling direct sunlight without the need for blinds or curtains.

Figure 18.

louver windows covering the facades (Monash University, Australia) (https://www.archdaily.com/).

D. The effect of the surrounding site on the natural lighting Where very huge trees block the light from the building, the building should be surrounded by a group of evergreen shrubs that cast light shadows on the building.

B- Internal factors

The relationship between the depth of the room and the intensity of lighting:

A. Reducing the lighting intensity by 18% and increasing the depth of the space from 2.7 to 3.2 from the height of the windows

B. For a room with lighting from one side, the depth of the hall should not exceed twice and a half the height of the hall.

C. The effect of the dimensions of the openings on the intensity of illumination and its distribution within the space The effect of the type of glass used in the openings, where the amount of light penetrating into the space depends on the type and thickness of the glass, is that smooth white transparent glass is the most common glass in windows because it is highly efficient in transferring light through it.

Interior finishes, colors, and their ability to reflect or absorb light.

From the foregoing, it is clear the importance of using natural lighting in educational spaces for the following considerations:

A. Natural light gives a person a sense of time and direction.

B. Natural lighting is a true ambiance for composition and color mixing.

C. Availability of natural lighting and sunshine throughout the year for a long period of the day in the Mediterranean region, where the heat generated by its use is less than that of artificial lighting.

D. Natural lighting is preferred within in-between spaces because it is easy to focus lighting in optimal places for the direction of the light.

E. The gradation of natural lighting gives the eye a chance to adjust and prevents the boredom of constant lighting.

F. The semi-horizontal direction of natural lighting gives better shadows, a minimum of reflections, and better lighting for vertical and horizontal surfaces.

G. Using natural light as an economic aspect.

The previous characteristics of natural light are required within in-between spaces in the faculties of architecture and arts, and it must also be taken into account that direct sunlight could cause glare, so it must be treated with shading elements, curtains, or optimal guidance for halls and spaces (Ali, 2003).

Artificial lighting:

Artificial lighting design needs accurate technological information on the basics of lighting design. The current regulations and standards of the National Electrical Code should be followed when designing lighting. Additionally, lighting design should take into account the special requirements of each educational space. It is essential that all educational spaces have a range of lighting possibilities, from a comfortable level for reading and seeing to still permitting enough light in the seating area for notetaking, studying, etc. The control of light has become increasingly important. While adequate lighting levels can be achieved through a variety of approaches.

Although low lighting causes less attention and affects vision as a problem, too much lighting can also create difficulties (e.g., eye strain, glare, reflection, etc.).

In view of the difficulty of maintaining lighting units in educational environments, lighting designs should attempt to ensure a long lifetime of the bulbs. It is recommended that the equipment be of high durability and require less maintenance.

The lighting source is chosen on the basis that the source does not cause any glare or any difficulty in installation or maintenance, and fluorescent lighting is the most commonly used so far for lighting educational spaces, especially when using artificial lighting as supplementary lighting during daylight hours because it lasts longer (Ali, 2003; Al-issawi, 2003; Ash, 2004).

The goal of the lighting design is to provide the appropriate and distributed illumination intensity for multiple activities, and it may need to provide variable illumination intensity by controlling lighting sources in the case of delicate activities (Ali, 2003).

Artificial lighting standards and specifications:

1. The educational spaces should use natural lighting as much as possible while providing requirements for controlling glare and thermal insulation.

2. The lighting design should meet the requirements of the activities in each educational space.

3. The necessary data needs to be taken into account, for instance, the location and orientation of the space to be lit, the dimensions of the space to be lit, the colors of walls, ceilings, and curtains, the equipment and furniture used in the space, and the nature of the ceilings, whether they are flat or have levels.

4. Providing high lighting for the spaces that need it, as the person's eyes move towards the illuminated object in the field of view and thus affect his behavior.

5. Choosing the appropriate type of light source in terms of color, size, and stability

6. Provide lighting with graduated levels, and it is preferable that the lighting units be recessed and dimmable, and both types of direct and indirect lighting are used.

7. Lighting is distributed in the students’ seating areas and in the exhibition areas so that it can be turned on and raised to help students perform their projects if they wish or study in any of the in-between spaces. The lighting is distributed to more than one public and private group.

8. The level of artificial lighting is generally determined in the in-between spaces, including foyers, corridors, stairs, and elevators, within 200 lux, and it is connected to an automatic system that operates in the event of a power outage, and the lighting of the halls may reach 300 lux (Al-issawi, 2003).

9. Equipping fluorescent units with non-reflective light diffusers to reduce the effect of ultraviolet radiation, reduce sharp shadows, increase light diffusion efficiency, and

reduce dazzling.

10. When distributing glowing lighting, it is taken into account that it is not projected directly above the seats in order to avoid the occurrence of thermal heating areas on the seats.

11. Lighting is controlled through switches installed at the beginning and end of the corridors and at the beginning of the hallway and staircase. It is preferable that the switches be illuminated to facilitate locating them in the dark (Al-Issawi, 2003).

12. Using sensors for light units to turn off automatically when natural daylight shines and when there is no movement inside the space

13. Direct or indirect lighting distribution (Neufert, 1970)

Use direct and indirect lighting distribution, where the direct lighting system provides high illumination for most educational and work environments. It is suitable for educational spaces because it spreads lighting in a balanced and equal manner in the interior space. The combination of direct and indirect reflected lighting creates a comfortable environment for the education process (Neufert, 1970).

Among the characteristics of indirect lighting are the following:

A. The down lighting gives a good view without shadowing the table tops.
B. The lighting gives rise to the ceilings and provides a sense of psychological comfort, which in turn enhances the physical learning environment (Ali, 2003).

Colors and finishing in the in-between spaces within faculties of art and architecture

When students and teachers spend a lot of time in educational settings, the colors of the surroundings have a big impact on them subconsciously.

The colors of space affect the human sense of place in several ways, including the physiological effect of the color, such as the disturbances that occur as a result of the red color, the stimulating effect of the yellow color, and the sedative effect of the green color.

The psychological effect includes the effect on the human mood and feeling of comfort, tranquility, fun, and activity in the place, and this in turn affects the educational process and the behavior of the users. The appropriate choice of colors may transform the monotonous space into a dynamic and stimulating one.

The colors of the space affect the attention and focus of both the student and the teacher alike, and they also affect mental and motor activity and positive feelings, so it is necessary to choose the appropriate and correct colors in the educational spaces, whether the classrooms or the in-between spaces, to create a comfortable atmosphere for the student (Ali, 2003; Al-issawi, 2003).

The success of choosing colors depends on their suitability for the activity of the space, their appropriate relationship with lighting, and their harmony with each other, which in turn requires a high level of artistic ability (University of Georgia, 1999).

The inconsistency of colors leads to confusion and slow response, and appropriate, harmonious colors lead to improving the quality of visual operations and reducing tension and boredom among students (Al-issawi, 2003).

Some studies prefer that the colors in educational environments be comfortable and calm colors such as light blue and light green to give a feeling of comfort and coolness (Vosko & Hiemestra, 1988; University of Georgia, 1999), whereas others prefer warm light colors and bright lighting that increase brain activity and thus attention and focus by increasing breathing rate, pulse, blood pressure, and circulation, while cold dark colors with a lack of lighting make people feel tired and stressed. It is preferable that the color scheme of educational spaces be based on balance and harmony between warm and cool colors, so that warm colors contribute to stimulating activity and cold colors contribute to adding a calm atmosphere (Jago & Tanner, 1999; Sinofsky & Knirk, 1981; Vosko & Hiemstra, 1988).

Reflectance values of colors.

For each space, the choice of color and the reflective qualities of finish materials must be taken into account. Painted surfaces should be a light color with a washable finish. Spaces where multiple activities will appear need to be handled with extra care. Gray and light blue are suitable colors for these spaces. Additionally, none of the finishes should reflect light.

Paints, PVC covers, laminates, and other finish materials colors should be chosen based on their reflectance value to improve ambient lighting and work surfaces' illumination.

The colors in the educational spaces are determined according to reflectivity, and the appropriate color scheme is chosen for the function of the space so that the floors are given colors with a low level of reflection, while the walls are given colors with a higher percentage of reflection, and the ceiling is given a very light color with the highest percentage of reflection.

The following table shows the percentages of reflectivity of colors for each element of the floors, walls, and ceilings, as well as work surfaces (Ash, 2004). that are recommended:

Table 1.

Surface Reflectance Values (Ash,2004)

Ceilings	80 percent or higher
Walls	50 to 70 percent
Floors	20 to 40 percent
Desktops	25-45 percent

Among the specifications related to colors and finishes:

A. Choose standard colors to facilitate the maintenance process later.

B. The colors of the furniture are neutral, and the colors of fixtures and materials such as upholstery and tires are effective colors to create a fun and beautiful learning environment.

C. The colors of the ceilings and walls are light to reflect the lighting.

D. Harmonious colors are given to all the furniture in the specified space.

Acoustics in the in-between spaces within faculties of art and architecture:

Good acoustic design in educational spaces is one of the important environmental conditions in the process of interior design of educational spaces, and poor acoustic design may negatively affect the success of the educational process as it increases the distraction of users of the space and reduces their concentration.

The interstitial spaces need an acoustic design that controls the noise inside and prevents unwanted sounds. The interstitial spaces are designed with the following acoustic specifications:

1. Insulation of walls and ceilings and treatment of architectural openings (doors and windows) in corridors and lobbies, in addition to the internal insulation of halls using fiberglass tiles and other sound-absorbing techniques, with the use of types of sound-absorbing floor finishes, where vinyl floors or rubber tiles are used, for

example.

2. Determine the locations of the entrances to the halls from the corridors in places that do not cause disturbance, interference, or entry of sound and light during the lecture. It is preferable that there be a door at the back of the hall.

3. Keeping sales booths and student gathering halls away from classrooms to reduce overcrowding and noise, especially during student breaks.

4. Bathrooms, mechanical equipment rooms, elevator rooms, and any other noise-generating spaces should be well isolated (Ali, 2003; Al-issawi, 2003).

Thermal comfort, ventilation and air conditioning in the in-between spaces within faculties of art and architecture:

Environmental standards for ventilation, heat, shading, etc., play an important role in preparing a healthy climate for educational spaces, as studies in art and architecture faculties and institutes require students to be present in the interior spaces for long periods of the day, which requires providing a suitable thermal comfort.

The change of temperature and humidity affects the comfort of the users of the place in addition to reducing attention and concentration, increasing stress and psychological stress, and thus reducing productivity.

In all learning environments, airflow is a crucial component. Students who have poor air circulation feel sleepy and unfocused. In order to obtain successful combinations of adequate air flow and silent mechanical system performance in all interior areas and lecture halls, care must be taken while choosing duct diameters, air handlers, and fan units (Ash, 2004).

One of the objectives of interior design is to provide as many comfort factors as possible for the users of the space, and among the specifications that must be taken into account in the ventilation and air conditioning of the interspaces in the faculties of arts and architecture are the following:

1. Control the limits of climatic comfort in terms of heat, humidity, and ventilation. The temperature within the classroom might be controlled to be between 20 and 25 degrees Celsius, and the relative humidity may be between 30 and 50 percent. The degree to which a person can be thermally comfortable depends on how well his body can expel the heat and moisture that are constantly produced as a result of the metabolism process,

which provides the energy needed to carry out all functions.

2. Relying on natural heating by allowing the sun's rays to penetrate into the inner space through a wide southern window with double glazing and an appropriate area estimated at about 20% of the space of the inner space, which is also called heat gain through the greenhouse effect (Ramsay & Pressman, 2007).

3. Pay attention to the natural ventilation, which is the natural entry and flow of air into the building and its natural exit, where it is affected by the shape of the openings. It is preferable to make a large window when air flow is needed throughout the entire inner space. It is preferable to make openings with louvers along the walls on both sides, with the possibility of moving some of them to control the direction of the air flow. It is desirable that the area of the exits be equal to the area of the air inlets or slightly larger than it.

4. The entrance halls of the buildings should contain two sets of doors to reduce the effect of the temperature difference and insulation, or any equivalent system within the available economic capabilities.

5. The ventilation system is separated from the air conditioning system to provide fresh air continuously throughout the year, while the air conditioning system operates seasonally, and the system is enhanced by ventilation through windows.

6. Ceiling fans shall be installed in non-air-conditioned halls, provided that this does not interfere with projectors and screens.

7. The locations of the air-conditioning distributors shall be designed appropriately so that they do not open onto display screens, and the best location of the air-conditioning is in the front part of the hall, and the best location for return air is at the back of it (Ali, 2003; Al-issawi, 2003; Ash, 2004).

Safety and security

It is one of the important factors in designing in-between spaces by providing a sense of safety and assurance and directing the users' attention to the teaching and learning process. It has the following specifications:

1. Creating a path connecting all interior spaces to the emergency exits, as well as installing large emergency doors, posting signs pointing to the exits during

emergencies, and providing effective emergency lighting in the case of an electricity outage.

2. Provide a path linking all the interior spaces with the entrances for emergency and other services, providing large emergency doors in addition to signs for the exits during emergencies, and providing emergency lighting that works in the case of an electricity outage.

3. Floor finishes must be secure, non-slippery, tough, chemically resistant, long-lasting, resistant to wear, and simple to clean, especially near entrances. They must also be made of anti-skid varieties of local raw materials. The consequences of the flooring choice for health and safety should be taken into account.

4. The raw materials and materials used in the design of the physical educational environment spaces should be selected from materials that are safe for health and moderate in terms of their economic cost.

5. Equipping all entrances and in-between spaces with facilities for people with special needs, for instance, ramps and elevators, etc., with bathrooms for the disabled (one room) for each public bathroom

6. The corridors, foyers, and halls are equipped with furniture and designs that provide maximum safety, especially the treatment of surfaces, materials, and edges to reduce injuries.

7. Provide safe cabinets to store devices, preferably using an electronic card if available, along with suitable lockers for the students.

8. The doors of the classrooms that open to the corridors should contain a vision hole to prevent any injuries or collisions when opening the door for those entering and leaving, and it shall be unbreakable.

9. Equipping the doors with a lever for people with special needs.

10. Provide camera devices in the corridors to monitor the general situation.

11. Carrying out periodic maintenance of the equipment and components of the in-between physical environment.

12. Place a rail of wood or plastic around the perimeter of the classrooms to protect the walls from dirt scratches caused by the friction of furniture (Al-issawi, 2003).

Accessories and aesthetics:

It's important to recognize the significance of the physical aesthetic aspect of educational spaces. Students learn best in educational spaces that have high aesthetic values and make them appreciate the space. The faculty building should complement and be compatible with the whole campus and its surroundings. Faculty should encourage students and faculty members to feel pride in and enhance their education. The interior design should support learning and meet the requirements of both students and teachers (Al-Issawi, 2003; Mahmoud, 2017).

The primary elements that affect how aesthetics and beauty are implemented are used by interior architects and designers to represent the aesthetics and beauty of a particular place (texture, color, form, and light).

Every surface has a unique texture, whether it be flat or lumpy, shiny or unpolished, smooth or rugged. Based on our memories of feeling comparable surfaces, contrast sensitivity has a direct effect on the mind. The maximal impact of spatial elements that influence how people see color is classified as those that interact with the perception of the users about the interior space.

In the in-between spaces within the art and architecture faculties as well as other educational spaces using lighting patterns with different degrees of illumination, we may create specific emotions like relaxation, activity, warmth, and coldness. By combining artificial and natural lighting, removing glare, and using exciting or calming colors depending on the function of the space, you may create an interior space that is both aesthetically relaxing and stimulating (Al-issawi, 2003; Mahmoud, 2017).

The following are some considerations related to the accessories and aesthetic aspects that the in-between spaces of the art and architecture faculties in the educational buildings should be characterized by:

1. Giving an identity to the external formation of the faculty, especially at the entrance, by forming the design of the entrance façade through shapes, colors, and lines, with a welcoming area that maintains a balance between unity and variance in the design.

2. Use imaginative designs with suitable geometric lines and ornamental decorations

to convey the faculty's purpose.

3. Providing a guide to introduce the activities in the interior spaces at the building's entry, if there is more than one distributor available, and signage directing people to the classroom is required.

4. In order to maintain consistency with the interior design of the building and classrooms, as few signs as possible should be placed inside and outside the classrooms. Additionally, each hallway should have an identifying number that is mounted to the wall at the door.

5. Recognize how each color affects a person's psychological state, then select color schemes based on an understanding of color impacts and the function of the space.

6. Utilize the most of natural light while balancing it with artificial light, keeping in mind the amount of adaptability and illumination needed for various activities.

7. Use the student exhibition areas near the entry hall to create a strong statement about the faculty by displaying the students' works, projects, artworks, pictures, and other materials that convey a unique sense and reflect the function of the space; also display their works in the whole in-between spaces of the faculty, which give an aesthetic touch that improves the general atmosphere and emphasizes the role of the faculty.

8. Preparing places on the walls to hang students' works, especially to use the in-between spaces for the juries of the student projects.

9. Determine the proper ratio between the floor, walls, and ceilings, making sure that the furniture is in good proportion in terms of size, form, material, and color to the walls and floors.

10. Using contemporary materials that are durable and easy to clean and maintain while also enhancing the visual appeal of the space by choosing colors and textures appropriate for the design

11. Providing indoor plants to add aesthetic appeal and color variety, as well as to cleanse the air and add oxygen during the day.

12. Providing indoor and outdoor spaces with water elements in the proper places of

the in-between spaces, which are water-efficient, affordable, and do not produce noise compared to standards utilized in educational settings.

13. Due to its sanitary significance, providing drinking water stations (coolers) on each floor helps to improve the educational process.

14. Placing trash bins next to the vending machines in the sales areas so that they complement each other as interior design components in the physical environment (Al-issawi, 2003; Mahmoud, 2017).

Vital In-between Spaces and Their Impact on the User's Well-Being within the Faculties of Art and Architecture

Educational environments are working harder than ever to improve staff and student well-being (van Merriënboer et al., 2017). Users considerably benefit from environments designed with well-being requirements in mind because of the relationship between well-being and academic accomplishment and productivity (McCallum, 2015). Through decreased stress and burnout, they are more comfortable, productive, and have better recollection (Jones, 2020).

In faculties of design and architecture, the concept of collaborative learning and one-on-one interactions with instructors predominates as a feature of an effective learning environment (Iranmanesh & Onur, 2021, 2022). As a result, the uniqueness of the "learning by doing" technique utilized in design education must be taken into consideration (Alnusairat et al., 2021; Schön, 1987). A vital aspect of architectural design learning is the interactive learning process. Students may better comprehend design concepts, building techniques, and how architecture affects society by interacting with their teachers, colleagues, and the built environment. The sharing of ideas, feedback, and cooperation are necessary for developing unique and innovative solutions for the design process and are also made possible by this interactive approach to learning (Maghool et al., 2018).

Vital In-between Spaces refer to the intermediate transitional spaces within the built environment, particularly within the faculties of art and architecture. These spaces play a crucial role in shaping the user's well-being and overall experience within these educational settings. By providing opportunities for connection, inspiration, and reflection, these in-between spaces contribute to the holistic development and creativity of students and faculty members and achieve an interactive approach to learning (Beigi, 2018; Can & Heath, 2015; Goldenberg et al., 2020).

The design studio setting differs from the traditional classroom from an educational, social, ideological, and epistemological standpoint. The architecture of a dynamic social environment encourages students to collaborate with their classmates even beyond class without the guidance of their teachers (Park, 2020). L. Kahn predicted that by making the in-between spaces like halls significantly larger as well as adding spaces with views of nature, they would be transformed into student-owned learning environments (Kahn et al., 1998). They would evolve into spaces where friends had the opportunity to meet and where students were able to discuss their projects. He claims that by providing such spaces with an appropriate environment instead of using them just as a way of transiting from one space to another, they would change into gathering spaces in place of serving as corridors, providing students a chance to self-learn (Merrill & Kahn, 2010).

One of the primary impacts of vital in-between spaces is fostering social interaction and collaboration. These spaces serve as gathering points, encouraging informal discussions, exchanges of ideas, and interdisciplinary collaboration among students, professors, and staff. By facilitating social connections, these spaces enhance the sense of community, support the exchange of knowledge, and stimulate creativity (Guo et al., 2022; Rugel et al., 2019). Furthermore, these transitional spaces can also serve as exhibition spaces. They offer opportunities to showcase student work and faculty projects. By integrating art and design elements, these spaces stimulate visual interest, creativity, and aesthetic appreciation, which positively impacts the well-being and productivity of the users (Hanna, 2021; How to Create a Positive Learning Environment | Prodigy, n.d.).

According to studies, human perception—which utilizes the senses of spatial perception, size, color, depth perception, and constancy of sounds, temperatures, and weights—is the only way we can understand the environment around us (Gallagher, 2010). The physical environment's designs, including its spaces, openings, materials, shapes and proportions, colors, and textures, have an impact on students and educators' perceptions and behaviors (McCoy & Evans, 2002). This is particularly true for individuals studying art or architecture, who have the chance to express themselves in tune with their surroundings. Many research studies have demonstrated that people's perception and behavior vary as they get older and are exposed to different environments, including the built environment, social interactions, and the natural environment. The attitudes and conduct of students in educational environments, as well as their social interactions and gathering spaces, are therefore among the main issues of architectural design performance (Kozulin, 2004; Onay & Minucciani, 2018; Unlu et al., 2001).

Amabile and Kramer (2011) assert that when one's "inner work life" is pleasant, an individual conducts better and becomes more inventive, whereas when it is bad, one's productivity decreases. Four elements— a sense of belonging, respect, emotional support, and encouragement—can be increased to enhance the positive aspects of work. The main element influencing our inner work life is how important we perceive our work accomplishments to be, suggesting that these factors have an impact on our well-being and how we feel in social environments (Alamry, 2022).

Future designers' aptitude, motivation, and academic achievement are significantly influenced by their physical and emotional environments (Seligman, 2002). Thus, schooling is unquestionably necessary for one's social and personal development, and the influence of the built environment is particularly significant. As these students will have an effect on the character of these spaces in the future, it is necessary to know the function of in-between spaces in architectural environments. As a result, the way individuals encounter such places during their schooling may have an effect on how they conceptualize in-between locations.

In terms of spatial design, vital in-between spaces should prioritize flexibility and adaptability. They can incorporate movable furniture, modular configurations, and versatile layouts to accommodate various activities and changing needs. This flexibility allows the spaces to evolve and adapt to different requirements, enabling users to utilize them in ways that best support their creative processes, interactions, and personal preferences (Can & Heath, 2015).

Moreover, vital in-between spaces offer moments of respite and relaxation. These spaces can feature comfortable seating, natural lighting, greenery, or other elements that promote a sense of calmness and tranquility. By offering these moments of reprieve, in-between spaces contribute to reducing stress and enhancing the well-being of the users (Creating Care Spaces, n.d.; The Spaces in Between Where the Next Big Ideas Emerge | Insight, n.d.; Moreira, 2021).

In conclusion, vital in-between spaces within the faculties of art and architecture significantly influence the well-being and experiences of users, so it is essential to consider the concept of well-being as a key component to the best user performance, and therefore, a higher quality of life, in order to promote the well-being of both students and staff for their present and future well-being (Minucciani & Onay, 2020; Jackson, 2013).

From all of the above, the importance of considering the well-being of students and teachers while designing their internal work environments (the educational environment) becomes clear, so to achieve vital in-between spaces, the fulfillment of users' needs, activities, and behaviors should be regarded through the performance of these spaces, knowing that the interactive performance of such spaces can enhance their efficiency and create an interactive environment that is invaluable to the educational process (Nassar & Samaty, 2014; Wiechel, 2002).

Recognizing their importance, incorporating these spaces into the design and planning of art and architecture faculties can enhance the overall educational experience and the personal and professional growth of students and faculty members alike. Through social interaction, providing spaces for relaxation, and promoting artistic expression, these spaces contribute to a vibrant and supportive learning environment that encourages students and their teachers to be creative and increase their productivity.

Related Research

A number of related studies that dealt with the in-between spaces and the well-being concept in architecture will be presented in a chronological order, from the most recent to the oldest publication.

In-Between Spaces: The METU Faculty of Architecture Building Complex.

This research construed the in-between spaces as both material and immaterial spaces, which were limited to the METU Faculty of Architecture Building Complex. It redefined the concept of in-between spaces to become a theoretical tool for the analysis of architecture in connection to its discourse. Hence, the concept of "in-between space" is introduced as an overarching term (İnan, 2019).

The study argued that the success of the Inici architects in the Faculty of Architecture building is the result of the prioritization of the in-between spaces during the design process. These in-between spaces become objects by themselves and imbue other spaces with architectural and aesthetic value. Moreover, the in-between spaces of the Faculty building and the METU Campus gain identities that are visible in their acquired "names," like Alley or Göbektaş, which are a result of being internalized by the inhabitants. In such spaces, the condition of the in-between acts as a "noun" by itself rather than an adjective signifying another element. The study concluded with Grosz stating that the in-between spaces are the openings towards the future, in other words, the "locus of futurity". In fact, the in-between spaces are "pregnant spaces", which, like Chora, are awaiting to give birth to be the location of new formations (İnan, 2019).

Transition space in higher education buildings as an efficient "behaviour setting" model.

This study investigated the transition spaces at higher education buildings to examine the hypothesis (higher-education transition space is an efficient behaviour setting model) and created a form that satisfies behaviour, as the ultimate object of design, through studying the students' behaviours and their interactions in such a space. The paper presented an analytical approach to identify higher education transition space as an effective behaviour setting model for better use of these spaces. Several samples of international higher education transition space were described and analysed to make a better understanding of these spaces and to provide designers with a developed vision about their performance (Nassar, &Samaty, 2014).

To develop the transition spaces, a variety of functions and activities can be achieved to produce an environment that is interactive.

In-Between Space in Architecture a Study in the Nature of Active In-Between Space.

This study determined the types and properties of the in-between space in architecture and the characteristics of the active in-between space. by three steps, restructured a conceptual framework about in-between space and its properties as a third space. Accordingly, a hypothetical thought model was built to represent an in-between space in architecture as a third space (Al-Muqaram & Al-Anbaki, 2014).

Through a set of main and secondary vocabulary that the researcher reached after a review of architectural propositions that dealt with the interspace in architecture and other supporting propositions, these propositions came to be crystallized after tabulating and hierarchically structuring them to serve the research, which in turn included secondary and sub-vocabularies of its own, namely (in-between space as a third space): hybrid space, the representative living space, and grey space. As the second vocabulary, which is "the characteristics of the effective in-between space," in turn includes secondary vocabulary, which is "sustainable in-between space," "behavioural within the in-between space," and the user's compatibility with the in-between space, all these vocabularies work together to integrate the final theoretical framework (Al-Muqaram & Al-Anbaki, 2014).

The research reached the construction of a hypothetical intellectual model for the in-between spaces in architecture that includes a description of that space as a third space consisting of four main cases, namely (liminality, threshold, interstitial, and transitional), changing according to the nature of using it to show the growth of the space between architecture to grow as space in the city (Al-Muqaram & Al-Anbaki, 2014).

In-between Place: The Emergence of the Essence

The study intends to evolve the theory of in-between places as transitional worlds, utilizing three points of view: phenomenological, embodied realism, and neo-structuralism, through case studies. The study argues that in-between places present themselves in three frameworks. The presence of place and the in-betweens, in which in-between places reflect living forms of intervals as interconnecting mediums between neighbouring places (Laiprakobsup, 2007).

The in-between places turn out to be critical domains to develop comprehensive relationships between juxtaposing places; as intermediary domains creating vital and aesthetic links between places, they play an important role in defining the aesthetic and rhythmic movement and experiential sequences. It indicated the theories that distinguish between in-between places and in-between spaces and examine the complexity of in-between places, which allows interdisciplinary concepts of environmental place-making. It identified the essences of in-between place characteristics and patterns in relation to place design by examining the in-between functionality of place that reflects the systemic relationships of place (Laiprakobsup, 2007).

Laiprakobsup, N's study, explores the essential nature of the in-between place. It distinguishes between in-between places and in-between spaces. The study identified in-between places and essences: qualities, characteristics, and patterns in relation to place design. It defined the unique significance and potential of the in-between place and made a contribution at the theoretical discourse and practice levels through the case studies. It attempted to provide designers with a paradigm for the holistic design of place in architectural practice. However, the study is not adequate for understanding the way of applying the in-between places’ concepts into architectural practice (Laiprakobsup, 2007).

A study on creating a user-centred wellness design evaluation tool for healthcare design: focusing on the analysis of user's experience in the main lobby of a healthcare facility.

The study examined the main entrance area of a healthcare facility. The purpose of the study is to create a user-centered wellness design assessment tool for healthcare design, specifically for the main entrance, that develops the physical, emotional, and social experiences of users. The study showed that in public spaces, such as a healthcare facility, people need to spend their time doing some activities while waiting for their treatments, such as sharing their emotions by talking to friends and family, letting their children play, getting social support, and recovering from caring for their sick loved ones (Cho, 2016).

The study identified five wellness design criteria: positive distraction, social interaction, sense of control, safety and security, and user experience. The results of the study showed that enhancing safety and security was the most significant consideration in designing the main entry lobby for a healthcare facility to develop the overall wellness experience of users, while the most significant consideration in supporting emotional wellness was affording the best positive distractions. In conclusion, a framework for establishing wellness design evaluation criteria was given to design the main lobby of a healthcare facility for the future (Cho, 2016).

Criteria for evaluating the compatibility of the interior design of residential buildings with their residents in terms of (health - physical) as goals of sustainability.

The research revolves around the concern for the psychological and physical health of residential building users through interior design, attention to the means of human perception and all that affects human health, and the application of these in designs that help achieve psychological and physical comfort for users. The study demonstrated the force that influences the structure of the interior design of residential buildings and studied the characteristics and features that influence the user to achieve the criteria used to evaluate the residential building as a primary target for sustainability by focusing on the behavioural and functional aspects that are related to humans and serve the psychological and physical aspects of them. It focused on the performance evaluation of the building after occupancy to improve current designs and develop future designs (Sayed, 2019).

The study concluded by emphasizing the importance of interior design in improving residential buildings and its impact on the user at the tangible and intangible levels, as well as the need for interaction between the user and the designer to achieve a residence that promotes human psychological and physical health (Sayed, 2019).

Design requirements that support wellness in the interior spaces of elderly nursing homes.

The study aims to find a clear idea of the effect of design elements on the wellness of the elderly in the interior spaces of the nursing homes. To achieve a future model for the buildings of the nursing homes, the researcher assumes that the design elements of the interiors promote the wellness of the elderly in the nursing homes. It has a positive psychological impact on the elderly, which helps to accelerate the healing process and improve their psychology (Asadi, 2015).

The research intended to investigate the phenomenon of wellness and the design of interior spaces that support elderly care based on three concepts that support recovery: 1) improving the sense of control in relation to the physical and social environment; 2) improving the sense of social support; and 3) improving the sense of positive distraction.

The study involved developing a theoretical framework and then applying it to selected architectural samples to test the validity of the hypothesis.

The study concluded that the phenomenon of wellness has a major role in the design of interior spaces in nursing homes for the elderly, as it helps to create a healthy and psychological atmosphere suitable for medical treatment to bring positive psychological changes for the residents by using various sensory stimuli such as texture, sound, color, smell, lighting, landscapes, etc. to encourage the elderly to love the place and move around in it, as well as to create a safe and happy atmosphere where the elderly forget their fears and pains (Asadi, 2015).

Healing Spaces: Designing Physical Environments to Optimize Health, Wellbeing, and Performance.

This research covers a discussion of eight publications about design, health, and well-being, as these articles dealt with the most up-to-date research and latest technology. The articles demonstrate how the built environment influences human psychology, physiology, and overall well-being in a direct or indirect manner; they also demonstrate the universal advantages of green space, independent of culture or location. The study anticipates expanding evidence on the health outcomes of built and natural environments at all scales and building types, which will influence future directions in built environment, education, practice, and policy, as well as promote research in all of these areas. (Engineer et al., 2020).

Human-environment interactions are multifaceted, encompassing social, cultural, and behavioural factors as well as individual features. Indoor, outdoor, urban, and natural places in the constructed built environment all have the ability to contribute to human well-being and healing, including internal in-between spaces (Engineer et al., 2020).

After indicating and discussing the relevant literature review that studied the concept of in-between spaces in architecture and the impact of its design on well-being and data analysis to discover relationships between human well-being and environments, and after highlighting the basic ideas on which those studies focused that related to in-betweens and wellbeing, the researcher concludes that:

The architectural studies dealt with the concept of the in-between spaces within multiple aspects and several levels in the context of urban and architectural design, such as the in-between as a third space, the in-between areas, the multiple features and forms of them, the applications of such space, and the relationship between the in-between and the binaries, etc.

Each of the previous studies focused on one or more aspects related to the in-between in urban and architectural contexts, with no focus on the significance of in-between spaces as a driving force for better wellbeing or the effect of designing the in-betweens to provide vital spaces.

The previous studies didn't deal specifically with the in-between spaces in interior design, except for the paper of Nassar and Samaty, which presented an analytical approach to identify the higher education transition space as an effective behaviour setting model (Nassar & Hosam, 2014).

The interior in-between spaces are often neglected by the designers; it's designing without taking into consideration the effect on wellbeing and the importance of in-between spaces as interaction spaces (Al-Muqaram & Al-Anbaki, 2014).

It was discovered that almost all of the studies related to the concept of well-being in architecture focus on natural environments and urban aspects, using either forest conditions or open spaces as spatial tools for influencing human well-being (Engineer et al., 2020).

Few studies have looked into the relationship between wellbeing and the design of indoor spaces, and the majority of them have been limited to interior spaces related to health care and services, such as hospitals, nursing homes, and offices. The point is that while the impact on wellbeing is becoming a focus for the design of environments at all scales, the impact of design and its features on the well-being of users in various educational environments still needs to be investigated.

After reviewing previous studies related to the design of the in-between spaces, the researcher reached the conclusion that: it seems there is a need to develop a more comprehensive theoretical framework for the concept and importance of the in-between space within the interior architecture and to clarify the characteristics of vital in-between spaces at the interior space and the extent to which they fulfil the requirements for well-being, to set an application of design criteria that enhance the behaviours, optimize the user's wellbeing, and increase their productivity when utilizing this space.

CHAPTER III

Methodology

This chapter discusses the study strategy, participants/sample, data collecting and analytic processes, and how the findings are analysed.

It explains the researcher's technique and processes for carrying out this investigation. It dealt with a description of the research population, sample, and statistical methods employed in data analysis, as well as the instruments utilized and the actions taken to assure the validity and reliability of these tools.

Research Design

This Using a mixed-methods approach (Creswell & Clark, 2007), this study combined qualitative and quantitative methods to provide the best answers to the research questions and problems. Conducting and following a qualitative approach through a comparative descriptive approach, by the observation of the architectural characteristics of in-between spaces, followed by a quantitative method, where a survey of the reality of the in-between space design within the art and architecture faculties in Jordanian universities according to the perception of faculty members and students based on well-being requirements, and using space syntax as one of the quantitative analyses, which is a theory of space and a set of analytical tools, are the initial steps of the mixed-methods approach.

First, comparative descriptive approach: This section describes how the qualitative analysis was conducted after the standards of design in art and architecture faculties were presented in the chapter on the literature review.

On the basis of observation by walk-throughs, and a literature review, the current architectural and interior design features of the in-between spaces in art and architecture faculties are determined in accordance with the requirements for users well-being. The comparative descriptive method consists of the following:

A. Qualitative methods analyse and identify the design characteristics of transitional spaces and their significance by investigating the architectural and interior design characteristics of these spaces and identifying the current properties of transitional spaces. It is a method for analysing existing written documents and records, whether they are public or private, as well as existing evaluation and design criteria (Esterberg, 2002).

B. The observation, which focused on specific in-between spaces such as corridors, lobbies, foyers, and staircases, where these spaces constitute the predominant form of in-between spaces in educational buildings, and the variety of activities that occur in these spaces, was done by taking pictures and walkthroughs (site visits), taking notes, and then analysing the data by comparing the researcher's observations regarding these spaces with the results of other methods.

Second, survey (questionnaire): The study conducted a quantitative method using a questionnaire to evaluate the reality of the in-between space design within the art and architecture faculties in Jordanian universities according to the perception of faculty members and students based on well-being requirements, which is essential for promoting a vital space that affects the user's productivity. The anticipated data from the questionnaire revealed users' perceptions of the space and the extent of their need for some of the interior elements and design features that promote well-being.

Third, Space Syntax (depthmapX): Space syntax is a theory and method for comprehending and analysing the spatial configuration of the built environment.

This research's space syntax analysis was presented with an emphasis on integration, visibility graphs (VGA, and through vision analysis.

The selection of these analyses sought to comprehend the organization and layout of the in-between spaces, as well as their location and degree of integration with the overall space, in order to comprehend how users can move and interact within the space and what they can see within the space. The paths are depicted on the maps in order to determine whether the intermediate areas are suitable for the various activities. In this study, we utilized DepthmapX software analysis to calculate syntactic values and comprehend spatial connections. It is a potent instrument for comprehending the connections between spatial configuration and human behaviour in the constructed environment (Turner, 2004; Dalton & Hillier, 2007).

These methods were utilized as diagnostic tools to propose enhancements to the design of in-between spaces in the art and architecture faculties.

Participants/Population and Sample

It is essential to select an appropriate participant population for the investigation of the study. As mentioned previously, the selection of higher education buildings (universities) as the study's research environment, particularly art and architecture faculties, is advantageous because the users of these buildings represent a segment of society that spends the majority of their time in the educational spaces of the university, particularly students, where Leedy and Ormrod's (2015) research indicated that "individuals enrolled in a university are at a formative stage in their lives." (Leedy, Ormrod, 2015).

This investigation of the physical educational environment was conducted at six art and architecture faculties at six distinct universities in Jordan as follows:

Three of Jordan's earliest public universities.

The University of Jordan

General information

- Location: Amman, Jordan.
- Architects: Aryaf construction company/ Engineering department
- Area: approximately 1000 m²
- Year: 2002

General information about the universities especially the faculty of Art and Design

The University of Jordan (JU) was founded in 1962 as the first university in the Hashemite Kingdom of Jordan. It is an official public university located in the Jubaiha district of the Jordanian capital, Amman. The university has twenty-five faculties and offers more than two hundred and fifty academic programs across a variety of disciplines and degrees.

The Faculty of Art and Design at the University of Jordan in Amman, Jordan, is one of the university's humanities faculties. The faculty is regarded as one of the most contemporary at the University of Jordan. It was founded in 2002. Department of Visual Arts (interior design, graphic design, etc.), Department of Music, and Department of Performing Arts After separating from the Faculty of Engineering, the Department of Architecture was added to this faculty in 2018 (University of Jordan, 2022).

Figure 19.

The faculty of art and design in the University of Jordan (the researcher).

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University of Science and Technology

General information

- Location: Ramtha, Jordan.
- Architects: Japanese architect Kenzō Tange
- Area: approximately 9000 m²
- Year: 1986

General information about the university especially the faculty of Architecture and Design

The University of Science and Technology (JUST) is one of the public universities in Jordan, situated within the municipal limits of Ramtha in Irbid, northern Jordan.

It was founded in 1986 as one of Jordan's main universities. It currently consists of 12 academic colleges and offers over 47 disciplines.

In 1986, the faculty of architecture and design began as a division within the faculty of engineering. Due to the need for greater specialization in the field of architecture and design, the department became a separate faculty in 2008. It consists of three departments: the Department of Architecture, the Department of Urban Planning and Design, which is one of the engineering disciplines, and the Department of Landscape Architecture. The faculty also comprises the Department of Design and Visual Communication (University of Science and Technology, 2022).

Figure 20.

The faculty of Architecture and Design in the University of Science and Technology (the researcher).

The Hashemite University

General information

- Location: Zarqa, Jordan.
- Architects: Bitar Consulting Engineers & Project Managers
- Area: approximately 12400 m²
- Year: 2006

General information about the university especially the faculty of Architecture

The fifth state university in the Hashemite Kingdom of Jordan is the Hashemite University (HU). It is one of the most famous public universities in Jordan. The university is located east of the metropolis of Zarqa.

There are currently (19) academic colleges and (52) bachelor's degree disciplines, in addition to postgraduate specializations.

The faculty began as a department within the Faculty of Engineering, which was founded in 1998 and consists of eight departments, including the Department of Architecture, which was founded in 2006/2007. The Department of Architecture is an integral element of the College of Engineering, as it confers both bachelor's and master's degrees in architecture (The Hashemite University,2022).

Figure 21.

The faculty of Architecture in the Hashemite University (HU) (the researcher).

Three of Jordan's oldest private universities.

Al-Ahliyya Amman University

General information

- Location: Al-Salt, Jordan.
- Architects: —
- Area: approximately 4300 m²
- Year: 2010

General information about the university especially the faculty of Architecture and Design

Al-Ahliyya Amman University (AAU) is the first private university in the Hashemite Kingdom of Jordan, established in 1990, located in the city of Salt.

The faculty began with the name of the faculty of Literature and Arts, and it included the majors of English Language and Literature, Translation, Psychology, Special Education, and Humanities and Social Sciences. In addition to the majors of interior design and graphic design. In 2010, the name of the faculty was changed to the Faculty of Architecture and Design, which is considered a leading college in the field of art and design and includes 4 majors, as it grants a bachelor’s degree in architecture, interior design and graphic design. And cinema, television and theatrical design, in addition to a master's degree in interior design (Al-Ahliyya Amman University, 2022).

Figure 22.

The faculty of Architecture and Design in the Al-Ahliyya University (the researcher).

Petra Private University

General information

- Location: Amman- Airport road, Jordan.
- Architects: ———
- Area: approximately 10000 m²
- Year: 1991

General information about the university especially the faculty of Architecture and Design

The University of Petra (UOP) was established in 1991 as a private university for girls in Jordan, then it turned into a mixed university in 1999, and it is considered one of the oldest private universities in Jordan. The University of Petra is located in the West Amman region on the road to Queen Alia International Airport. The university includes (8) colleges and 32 majors.

The Faculty of Architecture and Design was established at the University of Petra in two departments: Architecture and Interior Design in 1991-1992. The Department of Graphic Design joined them in 2003, then the Department of Animation and Multimedia in 2016, and in 2022 the Department of Digital Film Design Technology was introduced. The Faculty is distinguished by its applied specialties, which gives it a different privacy from other faculties (Petra Private University, 2022).

Figure 23.

The faculty of Architecture and Design in Petra Private University (the researcher).

Applied Science Private University

General information

- Location: Amman - Shafa Badran, Jordan.
- Architects: ———
- Area: approximately 3200 m²
- Year: 1991

General information about the university especially the faculty of Art and Design

Applied Science Private University (ASU) was established in 1991. Applied Science Private University is located in Shafa Badran in Amman. The university currently includes (10) academic colleges and (35) majors

The Faculty of Arts and Design started as a department of fine arts that included the majors of graphic design and interior design in the academic year 1992/1993 as one of the departments of the College of Science and later the College of Literature, before it became the first private Faculty of Art and Design in Jordan. Later, the design specialization for digital media was introduced within the Department of Design and Visual Communication. A master's degree in interior design was introduced with the beginning of the academic year 2022/2023 (Applied Science Private University, 2022).

Figure 24.

The faculty of Art and Design in Applied Science Private University (the researcher).

Table 2.

Summation general information of the case studies (the researcher).

Name	Shortcut	Public/private	Faculty selected	Establishing Date	Population
University of Jordan	UJ	Public	Faculty of art and design	2002	520
University of Science and Technology	JUST	Public	Faculty of architecture and design	1986	375
Hashemite University	HU	Public	Faculty of architecture	2006	282
Al-Ahliyya Amman University	AAU	private	Faculty of architecture and design	1990	419
Petra Private University	UOP	private	Faculty of architecture and design	1991	639
Applied Science Private University	ASU	private	Faculty of art and design	1992	543

Following stratified random sampling by calculating sample size using the Steven K. Thompson equation (Thompson, 2012),

By speaking with the faculty deanship and the student registration office, it was possible to determine the population size of each case study.

Figure 25.

Steven K. Thompson equation.

$$n = \frac{N \times p(1-p)}{[[N - 1 \times (d^2 \div z^2)]] + p(1-p)]]}$$

Where:

n: Sample size (338)

N: Population size (2778)

Z: Confidence level at 95%

d: Error proportion 5% (0.05)

p: Probability 50%

Next table shows distribution of the universities.

Table 3.

Distribution of the universities (the researcher).

Universities	UJ	JUST	HU	AAU	UOP	ASU	Total
Total	520	375	282	419	639	543	N = 2778
Percentage %	18.7%	13.5%	10 %	15.2%	23%	19.6 %	100%
Ideal sample size calculated	64	46	34	51	77	66	n = 338
Actual sample size	76	52	34	61	82	79	n = 384

Data Collection Tools/Materials

Participatory design (PD), was used for the data acquisition procedures; It aided the researcher in evaluating the well-being experience in the faculty of architecture's transitional spaces and in developing a criteria of well-being design criteria useful to architects and designers.

1. Data collection for the first part of the study involves a descriptive, qualitative approach: existing material through a review of books, relevant theories, academic articles, publications, previous theses, archives, and other pertinent sources was used to better understand the concept of in-between spaces and well-being and to clarify design issues that may affect the well-being of users in the in-between spaces of architecture faculties. The acquisition of data through direct observation (walkthrough), in which the researcher relied on her own direct observations This essential phase fills in the gaps in the collected materials and evaluates the accuracy and validity of information gathered via other methods, using case study plans and photographs.
2. The second part of the study employed a quantitative approach to data collection: online questionnaire created with Google Form surveys that is capable of handling any aspect of questionnaires. This type of questionnaire is essential for conducting the survey with more effective measurement instruments for data collection while

sparing the researcher time and effort, in accordance with the change that occurred after the Corona pandemic and the trend of Internet communication. The data were gathered using a questionnaire that can be generated rapidly and administered with ease. Also, a survey was used to collect data on a broad range of topics, including 11 design characteristics and 7 fundamental requirements of well-being that are incorporated into them. The questions were answered using a Likert scale with five response options. The options span from "strongly agree" to "strongly disagree" in order to provide the researcher with a comprehensive view of people's opinions and levels of agreement. There are two primary varieties of inquiry. The first assesses the significance of the design features, while the second measures and evaluates well-being and related constructs by assessing the impact of the design features on physical, social, and affective well-being.

validity and Consistency of questionnaire

1- The validity of the questionnaire:

After the questionnaire was developed as one of the primary research instruments, decisions were made with the supervisor and subject matter experts regarding the paragraphs' relevance to the study's objectives, lucidity, linguistic formulation, and applicability. Subsequently, the questionnaire was presented to the Near East University's ethics committee in order to demonstrate the instrument's validity and suitability for measuring what it was intended to assess and to request permission to use the questionnaire (Appendix A–D).

The necessary modifications were made, and the final version of the questionnaire contained 43 paragraphs. It was distributed across 11 dimensions of the tangible educational environment, and its validity was thus confirmed.

2- The validity of the internal construction:

It means the degree to which all the paragraphs are consistent with the aggregate score of the scale, i.e., the paragraph only measures what it was intended to measure and nothing else. Therefore, the "Pearson correlation coefficient" was computed between the degree of each paragraph and the degree of the dimension to which it belonged.

Table 4.

Paragraphs correlation coefficients with the degree of dimension belonging to it (the researcher).

physical features and visual appearance		**Ergonomics & Furnishing**		**Heating, Ventilation & Air Conditioning**	
1	.779**	**1**	.829**	**1**	.802**
2	.821**	**2**	.846**	**2**	.879**
3	.805**	**3**	.837**	**3**	.853**
Size & Design of in-between spaces		**4**	.825**	**Visual Communication & Instructional Tools**	
1	.745**	**Lighting**		**1**	.773**
2	.743**	**1**	.678**	**2**	.841**
3	.774**	**2**	.739**	**3**	.751**
4	.532**	**3**	.792**	**Social& Cultural Spaces**	
5	.683**	**4**	.726**	**1**	.853**
Circulation & Movement Space Zoning		**5**	.786**	**2**	.834**
1	.596**	**Colors & Finishing**		**3**	.848**
2	.733**	**1**	.843**	**Accessories**	
3	.679**	**2**	.876**	**1**	.818**
4	.618**	**3**	.795**	**2**	.817**
5	.687**	**Acoustics**		**3**	.816**
6	.717**	**1**	.856**	**4**	.657**
		2	.791**	**5**	.712**
		3	.832**		

**** Statistically significant at the significance level (0.01).**

According to the correlation coefficients of each scale paragraph with the degree of dimension to which it belongs, which are all statistically significant, the scale's internal structure has a total of (43) paragraphs in its final form, as shown in the table 5 below:

Table 5.

Structure of the questionnaire (dimensions, questions, and requirements) (the researcher).

Dimensions	Questions	Requirement
Physical features and visual appearance	1. The faculty's main entrance is clear and contributes to the building's outstanding appearance. 2. Appropriateness of surrounding natural views with the faculty's internal environment through the windows and doors access that reach the gardens and green areas. 3. Appropriateness of the faculty's surrounding outdoor spaces for architectural educational activities.	Connection to context
Size and design of in-between spaces	1. The sizes of in-between spaces within the faculty are proportional to the number of users. 2. The in-between spaces inside the faculty are characterized by high flexibility (reconfiguration) to implement activities and diverse educational requirements demanded by the educational process. 3. The faculty's in-between spaces give the users privacy and independence (e.g., each student has his private place to complete his work) personal space. 4. The ceiling heights are proportionate to the size of in-between spaces inside the faculty that convey a feeling of comfort and affinity to the place. 5. The in-between spaces are designed to meet the needs of the disabled (providing space for the wheelchair and the person accompanying him in the space).	Functional, ergonomic, and psychological requirements
Circulation and movement space zoning	1. The corridors between classrooms and instructional places are adequate. 2. The corridors were designed with considering the movement of users within the space during times of crowding. 3. Directions for corridors within the faculty are clear, and there is easy access to other locations and amenities. 4. The staircases are sufficient and have an adequate design for vertical movement within the faculty. 5. The elevators are sufficient and have an adequate design for vertical movement within the faculty. 6. The in-between spaces provide ease of movement for the disabled between classrooms and other spaces within the faculty.	Functional and ergonomic requirements
Ergonomics and furnishing	1. The furniture in the foyers and corridors within the faculty provides is quite comfortable. 2. The in-between spaces within the faculty provide a suitable seating layout and arrangement for individual and group use. 3. The furniture within the in-between spaces of the faculty which can be adjusted to meet the user's sitting style and body mechanics is appropriate for the human body and its requirements. 4. The seats in the in-between spaces within the faculty are designed to be used for long periods of time.	Functional, ergonomic, and social requirements
Lighting	1. The in-between spaces inside the faculty receive an adequate amount of natural daylight through the openings (doors and windows). 2. Within in-between spaces, enough levels of lighting (natural and artificial) are accessible for the entire day's activities. 3. There is the ability to adjust illumination levels to fit activities within the in-between spaces inside the faculty without the assistance of professionals.	Functional, sensory, and psychological requirements

	4. There is the ability to regulate the direct and indirect glow (glare) within the faculty's in-between spaces. 5. Within the faculty's in-between spaces, there is proper distribution of lighting units considering their influence on colors.	
Color and finishing	1. The psychological influence of colors on users is considered in the design of the in-between spaces inside the faculty. 2. Within the in-between spaces of the faculty, appropriate colors are used for the ceiling, walls, and floors which are coordinated with other design components such as furniture and curtains. 3. Non-reflective hues were chosen in the foyers and other in-between spaces, where juries and gallery events take place, where colors have an impact on the entire lighting inside the faculty.	Aesthetic, Social, and psychological requirements
Acoustics	1. The efficacy of acoustic noise isolation was considered in the design of the in-between spaces inside the faculty to decrease noise resulting from the congestion of users. 2. There is an appropriate separation between the classrooms and in-between spaces within the faculty, where diverse activities are conducted. 3. The floor coverings serve to relieve the noise created by users while moving through corridors and foyers.	Sensory and functional requirements
Heating, ventilation, and air conditioning	1. The in-between spaces inside the faculty considered the quality of natural ventilation, and the possibility of ventilation without being disturbed, by noise and exterior air currents, by providing appropriate windows in terms of size and orientation. 2. The in-between spaces have the ability to manage and modify the temperature within the faculty, through aids for the prevention of temperature swings. 3. The in-between spaces maintain a comfortable temperature within the faculty.	Sensory, functional, and psychological requirements
Visual communication and instructional tools	1. The in-between areas inside the faculty, have the availability of electrical points (sources) for the devices used for various activities by the users (students and staff). 2. The in-between spaces inside the faculty have the availability of required communication lines as well as an Internet connection. 3. Presentation boards for projects and other activities of various sizes are acceptable and appropriate for use in the faculty's in-between spaces.	Functional, psychological, and social requirements
Social and cultural spaces	1. The in-between spaces within the faculty are suitable and perfect for the social activities of architecture and design students. 2. The design of in-between spaces inside the faculty enhance social life and interaction among students and faculty members through the use of appropriate gathering areas. 3. In the faculty's in-between areas, there are many appropriate solo and group places for students and employees.	Social, psychological, and functional requirements
Accessories	1. The indicative signs are clear in recognizing the circulation throughout the faculty's various in-between spaces. 2. The in-between spaces within the faculty have efficient signs that identify classrooms and other interior places, as well as their design compatibility. 3. The placements, colors, and sizes of the announcement boards in the faculty's in-between places are appropriate. 4. The in-between spaces within the faculty have adequate areas to display students' works and their scientific and artistic productions, as well as their creative achievements.	Functional, psychological, social, and aesthetic requirements

5. Indoor natural decorative plants and water spaces are available in the in-between spaces within the faculty to offer aesthetic and physiological impacts to the interior spaces.

Consistency of the questionnaire:

The tool was applied to a group of thirty (30) faculty members and students from outside the study sample to ensure the stability of the questionnaire "The reality of the in-between space design within the art and architecture faculties in Jordanian universities according to the perception of faculty and students based on well-being requirements". The stability coefficient was extracted using the "Alpha Cronbach" coefficient, as shown in the table below:

Table 6.

Stability coefficient using Cronbach's alpha coefficient method for the paragraphs (the researcher).

Design Features	**Cronbach's Alpha**
physical features and visual appearance	0.72
size & Design of in-between spaces	0.74
Circulation & Movement Space Zoning	0.75
Ergonomics & Furnishing	0.85
Lighting	0.80
Colors & Finishing	0.79
Acoustics	0.77
Heating, Ventilation & Air Conditioning	0.80
Visual Communication & Instructional Tools	0.70
Social& Cultural Spaces	0.80
Accessories	0.82
The overall score of the scale)Stability coefficient)	0.95

Cronbach's alpha coefficient for the total score of the scale of the reality of the in-between space design within the art and architecture faculties in Jordanian universities according to the perception of faculty members and students based on well-being requirements was (0.95), and the Cronbach's alpha coefficient for dimensions ranged from (0.70 to 0.85) (Table). And it satisfies the requirements for Nany's scale, which was selected as the minimum level of stability (0.70) for field applications (Nunnally & Bernstein, 1994).

Data Analysis Procedures

Post-occupancy evaluation (POE) in higher education, such as behavioural observation (direct observation) and surveys, is used to evaluate each feature in the selected samples. It took approximately 20 to 25 minutes to complete the survey. Participants had to disregard the query if it did not pertain to them. Respondents were divided into two groups: students and faculty members, as participation is not limited to students in the art and architecture faculties. Participants were selected by stratified random sampling by calculating sample size using the Steven K. Thompson equation (Thompson, 2012) from a list obtained from the faculty secretary's office and contacted via email invitations containing a link to the survey.

Based on the Corona pandemic and subsequent life changes, the questionnaire was administered via the Internet. The online survey utilized Google Team software that can manage any aspect of questionnaires. Participants were asked to rate eleven dimensions of the design features of the in-between spaces. This procedure is essential because the results can be used to validate the proposed well-being assessment instrument's design features.

Procedures for distributing the questionnaire

After obtaining the official texts from the Near East University and the Jordanian Ministry of Higher Education, the questionnaire was administered.

The link to the questionnaire was disseminated alongside a letter describing the objectives of the study, thanking the sample participants in advance, and assuring them that their responses would be kept confidential and used solely for scientific research. The questionnaire was distributed to the research participants, including the instructional staff and students at the Jordanian universities included in the study (Appendix A).

The SPSSV program was utilized to statistically evaluate the Google form responses.

The key to scale correction is:

The questionnaire was revised with consideration that the five-point Likert scale used in the study is graded according to the following scale norms and characteristics:

Table 7.

The key to scale correction (five-point Likert scale).

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
5	4	3	2	1

To answer the research questions, the scores of each component of the university's physical educational environment were monitored, and the arithmetic mean and standard deviations were extracted.

On the basis of the antecedent, the obtained values of the arithmetic mean were treated according to the following equation:

The lower value is subtracted from the upper value of answer choices divided by the number of levels, i.e. as follows:

$$\frac{5-1}{3} = \frac{4}{3} = 1.33$$

1.33 This value is equal to the category length.

Thus, the quality levels of the design of the features were classified from the users' point of view as follows:

The weak level is the field that gets an arithmetic mean between 1.00 and 2.33.

The moderate level is the field that obtains an arithmetic mean between 2.34 and 3.66.

The high level: It is the field that obtains an arithmetic mean between 3.67 and 5.00.

Table 8.

The classification of the quality levels.

High	Moderate	Low
⬆	➡	⬇

CHAPTER IV

Findings and Discussion

This chapter presents the findings from the study questions that sought to assess the reality of the Art and Architecture faculties' physical environment in Jordan. In order to determine whether these faculties need a design criterion based on well-being requirements and to identify the features that need to be reconsidered in their specifications and design. This was done in order to support the user's well-being and improve the vitality of the learning environments. The findings are consistent with the nature of Jordanian universities, particularly in the technical and design fields, where the design features that were built in the past and need to be examined were identified to change and edit as necessary to enhance education spaces and their quality. The findings are presented below according to the study questions

Findings for research questions 1 and 2

1. What are the standards for designing a university's in-between spaces, especially art and architecture faculties?

2. Do the design features of in-between space influence the space vitality, thus effect users' well-being within art & architecture faculties?

The answer to these questions was discovered by looking over a number of references from international sources, standards, and guidelines for universities, particularly art and architecture faculties (Time sever, Nufert, etc.), as well as by reviewing earlier research and theoretical literature pertinent to the study using the descriptive analysis method. In the second chapter, it is covered in full detail.

As a consequence, physical environment features have been determined on 11 dimensions according to well-being requirements as a reference used in evaluating the reality of the educational environment. It was used for the observation and the questionnaire regarding the specifications of the in-between spaces within the faculties of art and architecture

The table below (9) shows the 11 dimensions, the number of specifications for each of them, and the ratio of these specifications to their total number.

Table 9.

Design Features and the Specifications Numbers with the percentage of it (the researcher).

#	(Dimensions) Design Features	Specifications No.	percentage
1	physical features and visual appearance	3	6.97
2	size & Design of in-between spaces	5	11.62
3	Circulation & Movement Space Zoning	6	13.95
4	Ergonomics & Furnishing	4	9.30
5	Lighting	5	11.62
6	Colors & Finishing	3	6.97
7	Acoustics	3	6.97
8	Heating, Ventilation & Air Conditioning	3	6.97
9	Visual Communication & Instructional Tools	3	6.97
10	Social& Cultural Spaces	3	6.97
11	Accessories	5	11.62
#	**Total**	43	100

Findings for research questions 3 and 4

3. What is the reality of the in-between space design within the art and architecture faculties in Jordanian universities according to the perception of faculty members and students based on well-being requirements?

4. Can the current designs of in-between spaces within art & architecture faculties be considered vital spaces that achieve the user's well-being?

To answer these two questions:

2 Findings from the observation.

A qualitative study was conducted to see closely the reality of the in-between spaces according to well-being requirements within the faculties of art and architecture using the observation tool, through walkthroughs (site visits)to the six universities included in the study, which are the University of Jordan, University of Science and Technology, the Hashemite

University, Al-Ahliyya Amman University, the University of Petra, and Applied Science Private University, where the pictures were taken, and observing the reality of being in space, then the data were presented and analyzed based on the researcher's observation.

The University of Jordan

Summation of the Overall Design:

The faculty building has a contemporary design that blends well with the surrounding structures.

Given the age difference between the university's founding and its older buildings and the comparatively new faculty building, the faculty building was designed to complement the campus environment. It features contemporary architecture, with the building and surroundings complementing the characteristics of the location.

The building has a contemporary design and was constructed with local materials such as Jordanian stone, glass, metal, and Alucobond panels. The upper floors are relatively standard, with the exception of the ground floor, which is the largest.

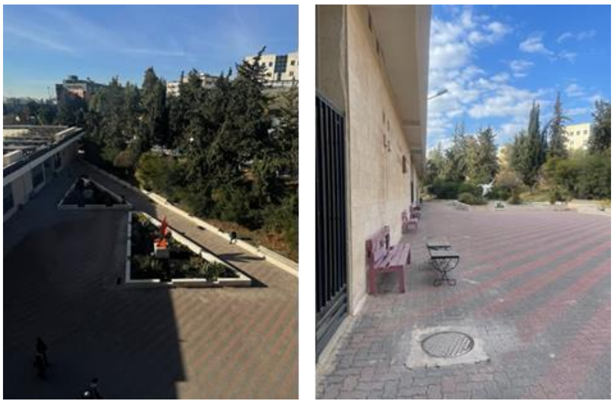
Figure 26.

The faculty building's facades display the local materials used in its construction (the researcher).

The faculty is surrounded by a front yard with ponds planted with various types of trees and a back yard with cypress trees, the vast majority of which are the same as those in the rest of the university, as well as ponds planted with various types of plants as shown in the figure below:

Figure 27.

The surrounding environment of the faculty (the researcher).



The structure comprises six floors that are partitioned according to academic disciplines. The majority of the building's capacity is located on the ground floor, which contains two central courtyards where activities and events are conducted. It is directly connected to the external courtyards and adjacent external environment, which fosters interdisciplinary dialogue and enhances students' and faculty's sense of environmental connection.

The college is located on the southern side of the university next to the southern gate, and it is closer to the medical colleges. It has a distinct main entrance, which contributes to the building's exceptional appearance and is in harmony with the surrounding university buildings. The building's facade, which is constructed from a substantial combination of stone, Alucobond, and glass, has a straightforward design with two contrasting hues using local materials. The windows along the building's facade let in natural light and enhanced the building's relationship with its natural surroundings. In addition to the use of Alucobond tape on the building's facade, there are a number of sculptures in the college's exterior courtyards that serve as visual indicators of the Faculty of Art and Design's design-based distinction from the other university faculties.

In addition to the other entrances that contribute to the organization of entry and departure, the main entrance of the faculty is clear, and the outdoor area encircling the building has ample space suitable for architectural educational activities. There are numerous entrances with large entrance halls and foyers that are comparatively spacious in relation to the number of users.

As seen in the following figure, the in-between spaces within the faculty:

Figure 28.

The in-between spaces in the University of Jordan (the researcher).

Through their expansive windows, the building's foyers provide a physical and visual connection between the interior spaces and offer expansive views of the surrounding area. It represents the spaces within the faculty where students congregate, converse, and complete their work while waiting for lectures. Some of the foyers on the upper levels open to the staircase, which enhances the uninterrupted vertical sightlines.

The central atrium (courtyard), which is located on the two upper floors and illuminates the upper corridors via a large pyramid-shaped skylight, is another type of the college's multifunctional in-between spaces. This courtyard is suitable for a variety of events; as students congregate in their leisure time to work in groups or converse with one another, it has become a vital space that is illuminated by natural light.

Figure 29.

The central courtyard which is located on the two upper floors covered with skylight (the researcher).

The corridors that serve as effective horizontal in-between spaces for entry and exit to studios and classrooms are sufficient in size, have distinct directions, and are easily accessible.

This faculty uses two types of corridors: single-loaded corridors with doors on one side and extensive windows on the other, which promote students' and employees' environmental awareness.

Figure 30.

Single-loaded corridors within the building (the researcher).

And the double-loaded corridors, in which classroom entrances are located on both sides of a passageway within the building and access to the various rooms is available from both sides of the corridor, It was designed with easy access to a variety of destinations and amenities and with the mobility of people in the area during periods of heavy foot traffic in mind.

Figure 31.

Double-loaded corridors within the building (the researcher).

Lobbies, foyers, and others are significant due to their high degree of adaptability, allowing for the arrangement and format of gathering areas (group or individual) to implement activities and diverse educational requirements that the educational process requires.

Figure 32.

The main foyer as an exhibition of the students works (the researcher).

Certain spaces have double-volume ceilings, which elicit a sense of grandeur and affinity for the space, whereas the majority of spaces have fall ceilings with heights of approximately 3 m net.

The building's stairways are situated on both sides and they are deemed sufficient. Some are intermediate and accessible, but they are not utilized in a crucial capacity. These staircases provide vertical access to the building's upper stories, whereas others are concealed and relegated to the background. However, elevators are the most popular means of accessing the upper floors of the building.

Figure 33.

The building's stairways are situated on both sides (the researcher).

The elevators located in the building's central area are the first stop for vertical movement within the faculty, thereby facilitating the access of students and lecturers to the upper floors with less time and effort and facilitating the vertical movement of disabled individuals between classrooms and other areas within the faculty.

Figure 34.

The elevators that located in the building's central area (the researcher).

The foyers and corridors of the faculty are suitable for both individual and group use, but they only provide a few varieties of furniture that do not meet the needs of the users.

There were only a few chairs, a few tables of various types, and a few seats in the entrance corridors and upper courtyard.

In order for architectural and design students to work on individual and group projects during their leisure time, the spaces must be furnished with extremely comfortable lounges and chairs.

Figure 35.

The foyers and corridors have few furniture variants (the researcher).

The faculty's in-between spaces (lobbies, foyers) are far from the classrooms in order to lessen noise from user congestion. They are also expansive to prevent groups from creating a commotion that would disrupt lectures.

The lobbies and corridors are designed with covering materials that reduce pedestrian disturbance.

The design of the faculty's transitional spaces took into account both the effectiveness of natural ventilation and the possibility of ventilation that could aid in maintaining an appropriate temperature. Wide windows with the correct orientation are installed, and central heating is utilized during the winter, but it is insufficient to warm the faculty's vast areas.

Figure 36.

The wide windows for the natural ventilation (the researcher).

The ground-floor gallery has sufficient space to exhibit student projects as well as their artistic, scientific, and creative accomplishments. The gallery contains display panels of student work. Moreover, there are no display panels in the corridors or lobbies, with the exception of the bulletin boards and a few paintings and murals in the corridors, in addition to the movable presentation boards (partitions) used during the juries.

Through the use of in-between spaces as gathering areas, the faculty's in-between spaces are ideal for architecture and design students' social activities; however, the lack of suitable furniture in these spaces results in a lower number of users.

Figure 37.

The display panels within the faculty's in-between spaces (the researcher).

In the in-between spaces, there are directional signs that designate the various spaces and assist users in locating their ways (wayfinding), but they are insufficiently distinct, sparse, and insufficiently effective.

Figure 38.

The directional signs within in-between spaces of the faculty (the researcher).

There are a few indoor ornamental plants in the faculty's in-between spaces, and there are numerous outdoor plants in the surrounding courts to provide aesthetic and physiological effects on the exterior and interior spaces.

Figure 39.

A few indoor ornamental plants within faculty's in-between spaces (the researcher).

The entrance lobbies of the faculty are equipped with colorful lockers for students to store their personal possessions and architectural equipment.

Figure 40.

The colorful lockers in the entrance lobbies of the faculty (the researcher).

University of Science and Technology
Summation of the Overall Design:

The design of the faculty building has a modern style that is compatible with the adjacent buildings, as the architect adapted a pattern that was used on all campus buildings at the time as shown in the figure below:

Figure 41.

The pattern that is used on all the campus buildings of the University of Science and Technology .

The structure is constructed of precast concrete with a pebble-like texture and the hue of Al Ramtha. Its architectural design marries tradition and modernity.

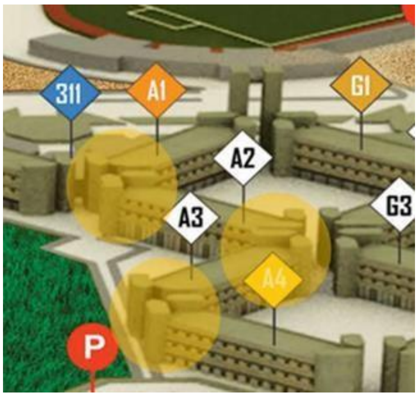
Figure 42.

The precast concrete with a pebble texture that was used for the construction of the building (the researcher).

The structure consists of several duplicated sections (pavilions) for multiple stories (A2, A3, and A4) that are connected by central distributors.

Figure 43.

The structure of the building consists of several duplicated sections (pavilions).



The location of the faculty building at the beginning of the university, with a distinct entrance, contributes to the building's exceptional appearance, which is in harmony with the environs of other university buildings, which are surrounded by greenery in the courts.

The facade, which is composed of a solid/void composition of glass and concrete with expansive windows in the central distributors (connectors), allows natural light to transition elegantly within the building, thereby establishing a strong connection with the surrounding environment. In terms of design, there is nothing that distinguishes the Faculty of Architecture from other faculties of the university.

The "distributors" of the Foyer at the center of the building result in a visual and physical connection between all spaces in a spatial flow with extensive access to nature through glass, thereby creating a vibrant social space within the Faculty.

Figure 44.

The "distributors" of the Foyer at the center of the building (the researcher).

It is a vital space in the faculty where students congregate, converse, and complete their projects while awaiting their lectures and presenting their work. The foyer on the upper floor overseeing the lower floor of the center has a double volume, which facilitates uninterrupted vertical sightlines. As seen in the following figure, the in-between spaces within the faculty:

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Figure 45.

The in-between spaces in the University of Science and Technology (the researcher).

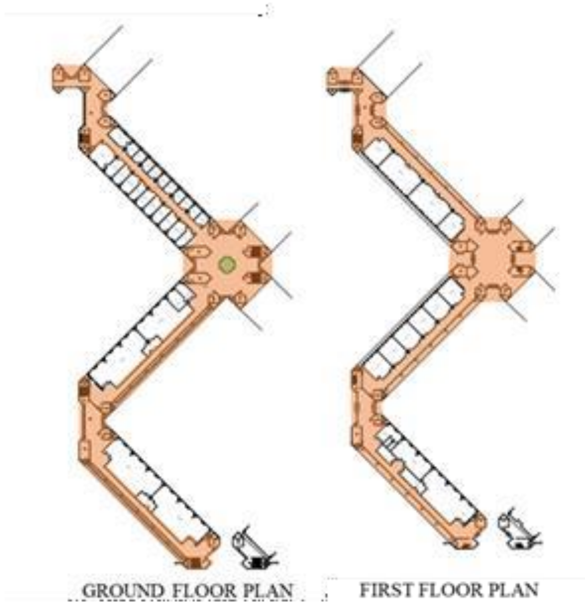


Figure 46.

The foyer on the upper floor overlooking to the lower floor (the researcher).

The most efficient horizontal access to studios and classrooms is through the corridors of the building. The corridors between classrooms and other areas are adequate in size and layout, with distinct signage.

These hallways (corridors) have single-loaded doors on one side and a wide glass facade with windows on the other, which encourage and enhance students' and faculty's environmental vision. It was designed with the flow of users within the space during periods of congestion in mind, with simple access to other areas and amenities.

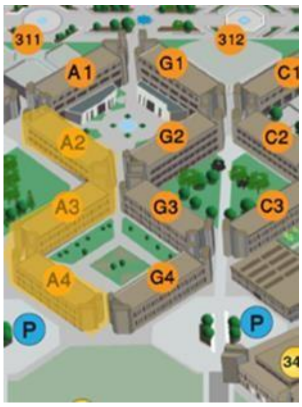
Figure 47.

The hallways (corridors) have single-loaded doors within the faculty (the researcher).

Due to the fragmentation of the building, there are no uninterrupted sightlines between spaces, which can make some individuals feel disoriented about seeing the other side of the building.

Figure 48.

The zigzags of the parts of the building (the researcher).



In relation to the number of users, the entrance halls and foyers of the faculty are deemed to be relatively spacious.

It is characterized by a high degree of reconfiguration, with the ability to alter the arrangement and format of the gathering areas (group or individual work) to accommodate the activities and diversified educational requirements demanded by the learning process.

The ceiling heights are proportional to the extent of in-between spaces within the faculty, which is approximately 3.5 m net, and the central entrance hall has a double-volume ceiling that conveys a sense of connection and affinity with the space.

The staircases are adequate, but they are located on the building's periphery, are somewhat concealed, and serve no purpose other than vertical mobility within the faculty.

Figure 49.

The staircases are concealed within the building (the researcher).

There are no elevators for vertical movement within the faculty, so it is difficult for disabled individuals to move between classrooms and other spaces within the faculty.

The in-between spaces (foyers and corridors) of the faculty have a limited quantity of furniture that does not meet the needs of the users, but their scale makes them suitable for both individual and group use

Figure 50.

The limited furniture within the in-between spaces of the faculty (the researcher).

Few chairs in the upper foyer and a limited number of seats in the entrance hall constituted the faculty's in-between furniture.

In order for architecture and design students to work on individual and group projects during their leisure time, the areas must be outfitted with exceptionally comfortable furniture and seating.

Regarding acoustics and noise, the floor covering material (PVC) in some areas may cause some potential disturbance if users are congested.

The faculty's in-between spaces, where a variety of activities are conducted, are well separated from the classrooms in order to reduce commotion caused by the congestion of users.

The in-between spaces of the faculty took into consideration the effectiveness of natural ventilation and the potential for ventilation that would assist in maintaining a comfortable climate within the faculty. By providing windows of the proper size and orientation, along with a small balcony, users are able to appreciate the view without being disturbed by weather fluctuations or outside air currents.

Figure 51.

The expansive windows that offer natural ventilation and connection to nature (the researcher).

There are three types of display panels in the in-between spaces, including acrylic panels fixed to glass, presentation boards for projects and other activities made of pressed wood that cover the walls of the corridors and portions of the halls, and movable presentation boards (partitions) that are used during the juries.

Figure 52.

The three types of display panels within the in-between spaces of the faculty (the researcher).

Student projects, artistic and scientific creations, and creative accomplishments can be displayed in the faculty's in-between spaces.

The in-between spaces within the faculty are ideal for the social activities of architecture and design students, as the use of these spaces as gathering areas enhances the social life and interaction between students and faculty.

Figure 53.

Some of vital in-between spaces within the faculty (the researcher).

The in-between spaces of the faculty have effective signs that identify classrooms and other interior spaces and are consistent with their design. Moreover, the directional signs clearly indicate the circulation throughout the various in-between spaces of the faculty.

Figure 54.

The effective signs within the faculty (the researcher).

A few indoor ornamental plants are located in the in-between spaces of the faculty, and a water element is located in one of the courts in front of the faculty to provide aesthetic and psychological effects to the exterior and interior spaces.

Figure 55.

A few indoor ornamental plants, with a water element in the front yard of the building (the researcher).

The faculty's lobbies and corridors are outfitted with colorful lockers for students to store their personal possessions and architectural tools.

Figure 56.

The colorful lockers for students within the in-between spaces of the faculty (the researcher).

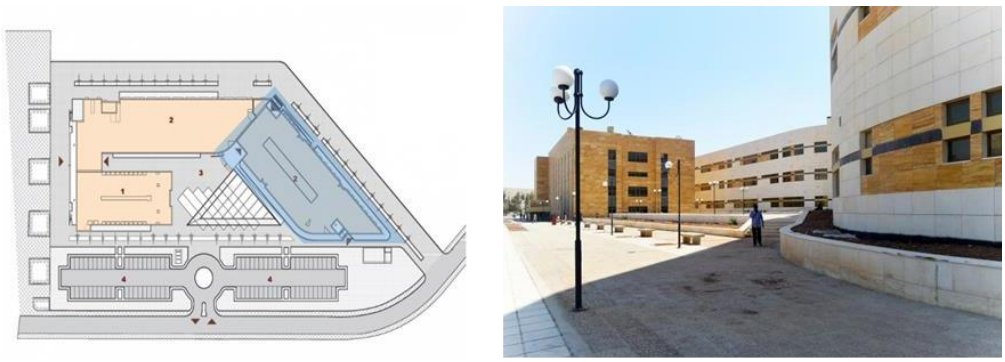
The Hashemite University
Summation of the Overall Design:

The faculty building was designed to have a uniform appearance with the other structures on campus.

The structure is divided into three sections that are duplicated over four floors; one section is dedicated to the departments of architecture and building technology and contains 15 studios and 10 specialized engineering and architectural laboratories on each floor. There are also 40 private administrative offices and offices for academic members. The classroom complex is the second section, and the auditorium is the final one.

Figure 57.

The site plan of the faculty with the surrounding area (the researcher).



The faculty building is located at the university's north portal, with a distinct entrance that blends in with the environs of other university buildings, which feature basins of various plants among shrubs and vibrant blooms. The facades are comprised of three distinct colors of

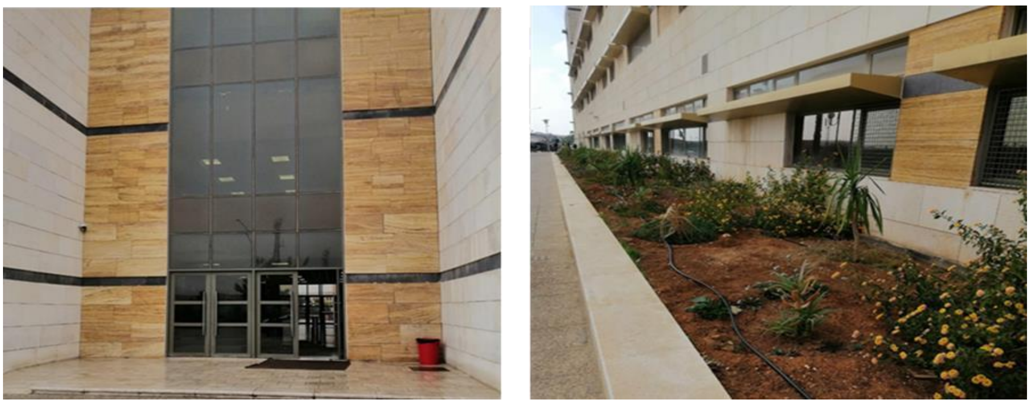
Jordanian stones: white stones, golden-hued travertine stones, and black stones. In addition to the glass in the entrance facades that enables natural light to flow elegantly throughout the building, Alcobond is used for the shading elements that cover the windows. In terms of design, there is nothing that distinguishes the Faculty of Architecture from other university faculties.

Figure 58.

The in-between spaces in the Hashemite University (the researcher).

Figure 59.

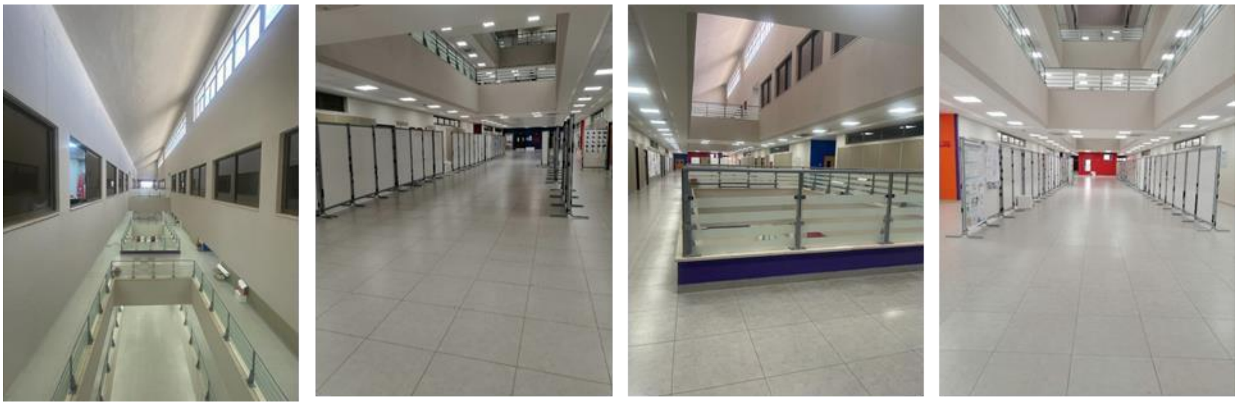
The main entrance of the faculty with the natural environment (the researcher).



The large foyer in the center of the building, which appears as a courtyard and is surrounded by internal corridors on all floors that overlook the ground floor, improves the visual and physical connectivity between all spaces, resulting in a lively social space within the faculty.

Figure 60.

The central vital courtyard surrounded by internal corridors on all floors (the researcher).



It represents the vital spaces at the faculty where students congregate, communicate, complete projects while waiting for lectures, and submit their work when the jury convenes.

Figure 61.

The courtyard of the faculty s an exhibition for the student projects during the Jury time (the researcher).

The building's corridors, which are the horizontal passageways that connect the classrooms to other areas, are of appropriate width and have legible signage.

The two types of corridors utilized by this faculty, the single-loaded corridors with doors on one side and a glass barrier facing the courtyard on the other, promote connections between view lines for staff and students and increase the significance of the space by providing easy access to a variety of spaces and facilities.

Figure 62.

The single-loaded corridors within the faculty (the researcher).

And the double-loaded corridors, in which the doors of classrooms and other facility rooms are located on both sides of a passageway within the building and the various spaces are accessible from both sides of the corridor, are designed to facilitate the movement of people within the area during times of crowding.

Figure 63.

The double-loaded corridors within the faculty (the researcher).

The faculty has multiple entrances, and the halls within are spacious, with double volumes in height at the entrance's front and approximately 3.5-meter-tall drop ceilings in the majority of the entrance hall's remaining spaces. Glass encompasses the entire height of the doors, allowing natural light to enter the room.

Figure 64.

The double volumes height at the entrance front hall (the researcher).

Notable are the faculty's lobbies and foyers, which feature high degrees of adaptability, allowing the gathering spaces (group or individual works) to be organized and formatted in order to carry out activities and satisfy the diverse educational requirements that the educational process necessitates.

Figure 65.

The adaptability of faculty's lobbies and foyers that can be gathering spaces (the researcher).

The building's staircases are deemed adequate; there are two staircases leading to the faculty, one located next to the faculty's main entrance and the other in the courtyard hall. As they overlook the central courtyard, the stairs in the middle could serve as an essential transitional space.

Figure 66.

The staircases within the building (the researcher).

The stairwell is the principal vertical access to the building's upper stories, followed by the elevator. It is situated in the main entrance's hallway, which is most frequently used by faculty members and disabled individuals to access upper levels. This reduces the time and effort required to reach their destination and facilitates disabled vertical movement between classrooms and other spaces within the faculty.

Figure 67.

The elevator situated in the main entrance's hallway (the researcher).

The foyers and corridors of the faculty are suitable for both individual and group use, but they lack furniture that meets the needs of users. It is considered devoid of chairs and tables, with the exception of the leather armchairs in the faculty floor's hallway.

Outside of classrooms, students should be able to use appropriate furniture to work together during their leisure time, as well as wait for lectures or participate in study-related discussion.

Figure 68.

The dearth of furniture in the faculty's various in-between spaces (the researcher).

Several in-between spaces (lobbies, foyers) within the faculty are located far from classrooms and can be used for a variety of purposes in order to reduce commotion caused by user congestion. To prevent groups from generating commotion that could interfere with lectures, they are sufficiently sized. The flooring used in the design of the lobbies and corridors consists of standard tiles, as they do not generate disturbance.

The design of the faculty's transitional spaces considered both the effectiveness of natural ventilation and the potential for ventilation that aids in maintaining thermal comfort with the aid of a central heating and conditioning system.

In the in-between spaces, there are two distinct types of display panels: one type consists of movable presentation boards (partitions) that can be moved throughout the faculty and can be found in the majority of areas. The corridors and a portion of the passageways are lined with presentation boards made of pressed wood that are used for projects and other activities. In the faculty's in-between spaces, student endeavors and artistic, scientific, and creative accomplishments can be displayed.

Figure 69.

The different types of display panels within the faculty (the researcher).

Through the use of in-between spaces as gathering areas, the faculty's in-between spaces are ideal for architecture and design students' social activities; however, the lack of suitable furniture in these spaces results in a lower number of users.

The in-between spaces in the faculty lack directional signs that identify the various spaces and assist users in locating their location (wayfinding), with the exception of a few signs indicating exits and less-effective no-smoking signs.

Figure 70.

The faculty lack of directional signs (the researcher).

There are a few indoor decorative plants accessible just in the faculty members' floor corridors, but they are insufficient to enhance the psychological and aesthetic qualities of the space. It is essential to increase and integrate vegetation into all of the faculty's interstitial spaces. There are no student lockers that are suitable for storing their personal possessions, and architectural equipment.

Al-Ahliyya Amman University

Summation of the Overall Design:

The Faculty building has a modern design that integrates nicely with the campus buildings, fitting the location's attributes. It was constructed by using local materials, which are Jordanian white stone, glass, and metal.

The faculty features a front yard with ponds planted with palm trees and pots implanted with different plants, where activities and events are being hosted. It is closely related to the outside environment, which promotes interdisciplinary discussion and promotes students' and staff members' connections to the natural surroundings.

The college is located on the northern side of the university next to the western gate of the university, and it is closer to the Engineering Workshops and the Arena Sports Complex, with two entrances, that harmonizes with the surroundings of other university buildings.

The building's facade, which is built of a combination of stone, and glass, has a simple design of local materials with the use of two contrasting colors. The building is composed of 7 floors that are divided among the different academic disciplines. Three of them are underground floors, exposed on the other side according to the topography of the land, that is dedicated to the faculty of literature and Sciences, and four floors, starting from the ground floor, dedicated to the faculty of Architecture and design.

The faculty has a clear main entrance on the southern side, in addition to the other entrance on the northern side, which helps organize entry and exit from the building. The surrounding outdoor area offers a large space suitable for art and architectural educational activities. The lobby areas at the entrances are relatively small, to some extent, appropriate for the number of users.

Figure 71.

The lobby area at the entrance of the building (the researcher).

The building's foyers are relatively small and provide a physical and visual link between the internal spaces, but they do not offer views of the surroundings except through small windows at the end of the main corridor on both sides, which made it lacks to vital space that benefits from this natural lighting. It represents the in-between spaces of the faculty where the students gather, converse, and wait their lectures.

Figure 72.

The in-between spaces in the Al-Ahliyya Amman University (the researcher).

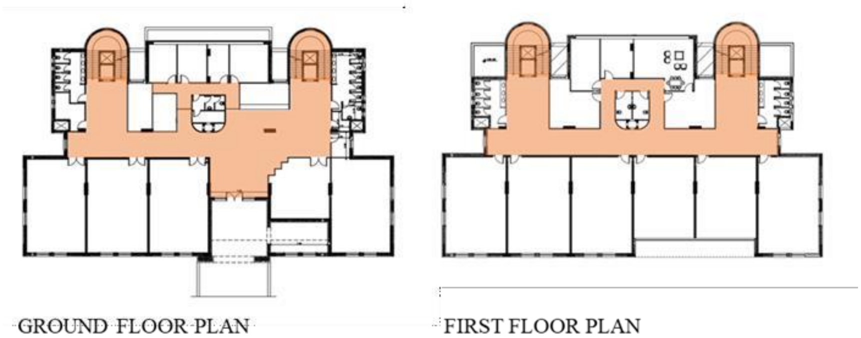


Figure 73.

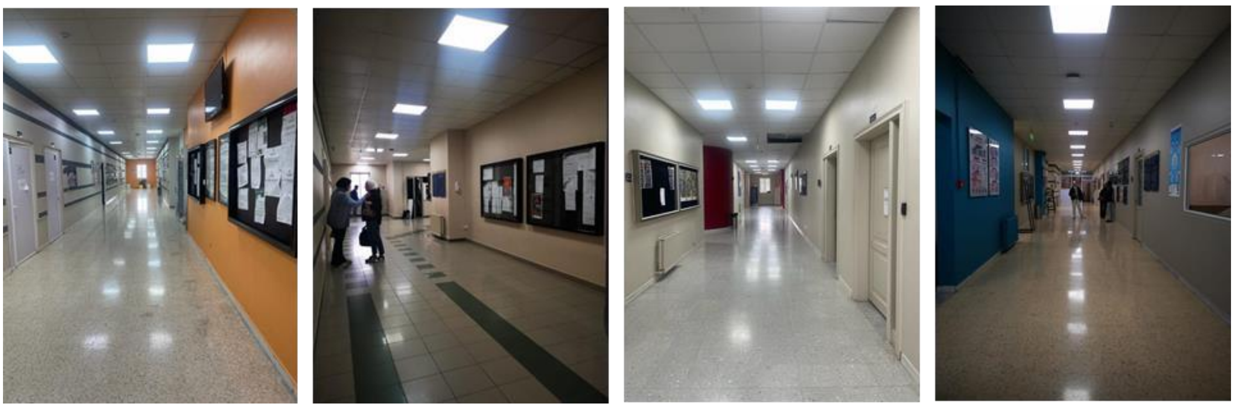
The foyer of the building in Al-Ahliyya Amman University (the researcher).

Every floor of the faculty has a main corridor with clear and easy access, which is the horizontal in-between space to move between the studios and classrooms and other interior spaces. It connects the two small halls at the end of the corridor.

The two kinds of corridors used by this faculty are single-loaded corridors which have doors on one side, and double-loaded corridors in which doors are located on both sides of a passage within the building, and the various spaces are accessed off both sides of the corridor. It was designed with a convenient access to various destinations and facilities. Planned considering the mobility of people inside the area during times of crowding in consideration.

Figure 74.

The inner corridor of the faculty (the researcher).



The lobbies in the building are relatively small despite their importance as gathering areas, as well as for carrying out the various group activities required by the educational process.

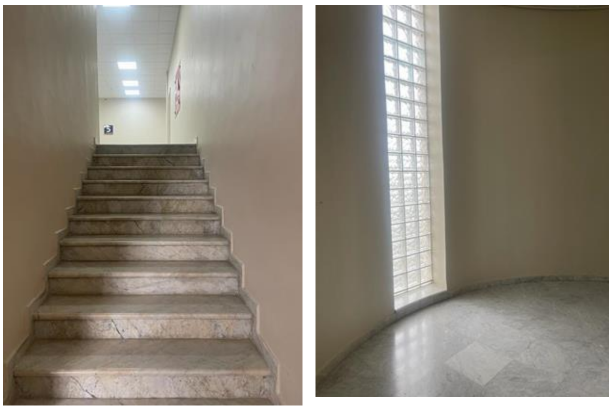
Figure 75.

Lobbies within the faculty of Al-Ahliyya Amman University (the researcher).

The interior spaces have fall ceilings with heights that are around 3 m net. There are two staircases in the building that exist on both sides and are considered sufficient, with a column of glass bricks in their structure that helps to introduce natural lighting to the staircase, but they have no vital use except for the vertical movement within the faculty. While they provide vertical access, which is the most often utilized as a method in the building to access the upper levels, the elevator comes in second after staircases.

Figure 76.

The staircase (vertical in-between spaces) of Al-Ahliyya Amman University (the researcher).



The elevators located in the central area of the staircases, they are used most frequently by faculty members and disabled individuals to access the upper levels. This helps them reach their destination in less time and effort and provides ease of vertical movement for the disabled between classrooms and other spaces within the faculty.

Figure 77 .

The elevators at the staircase central area (vertical in-between spaces) of Al-Ahliyya Amman University (the researcher).

The faculty's foyers do not provide any kind of furnishings that do not suit the demands of users. The spaces must have highly comfortable chairs so that architectural and design students can use it during their free times.

In-between spaces (lobbies, foyers), where a variety of activities are carried out, are situated close to the classrooms, increasing the noise caused by user congestion. Additionally, because of their small size, they are unable to prevent groups from making noise that could disrupt lectures. There is no pedestrian noise due to the covering materials used in the finishing of the lobbies and halls.

Figure 78.

The narrow in-between spaces (the researcher).

The in-between areas of the faculty were designed considering both the efficiency of natural ventilation and the possibilities for ventilation that might aid in maintaining the faculty at an appropriate temperature. Windows at the ends of the corridors are provided, and central heating is used in the winter.

Figure 79.

Windows providing natural light and ventilations (the researcher).

There are no boards dedicated to display students' work in the corridors and lobbies, as they are mainly located inside the classrooms (except the announcement boards), and some corridors are limited to a few students' works fixed directly to the wall.

Figure 80.

The lacking of displaying boards in the in-between spaces (the researcher).

There are enough directional signs in the in- between spaces to clearly identify the different areas and help users locate the areas they want quickly (wayfinding). These signs are in the proper places and are as efficient as it is required.

Figure 81.

directional signs in the in- between spaces (the researcher).

There is no any indoor ornamental plants, available in the in-between spaces within the faculty. It is important to increase and merge plants into all of the faculty's in-between spaces to improve the psychology aspect and aesthetics of the space.

There are no student lockers that accommodate their requirement to store their belongings and the architectural tools, which should be taken into consideration and work to improve it.

Petra Private University

Summation of the Overall Design:

The faculty building was built using local Jordanian stone, concrete, and reflecting glass in a modern style that blends nicely with the other buildings on campus.

The building is comprised of two sections that are duplicated for several floors, one of which has been established since the university's founding and the other section of the building established recently, to meet the needs of the faculty based on the number of students and the capacity of the faculty and its departments.

The new section of the building blends in with the older section and the other university buildings, and it also has a huge glass façade that satisfies the faculty's requirement for natural light and connects the building with the surrounding environment.

The faculty building's central location and distinct entrance contribute to its outstanding look that blends with the university's surroundings, which include a landscape of ponds filled with trees and various plants, as well as green flats. In addition, there are benches for the students to sit on.

Figure 82.

The in-between spaces in the Petra Private University (the researcher).

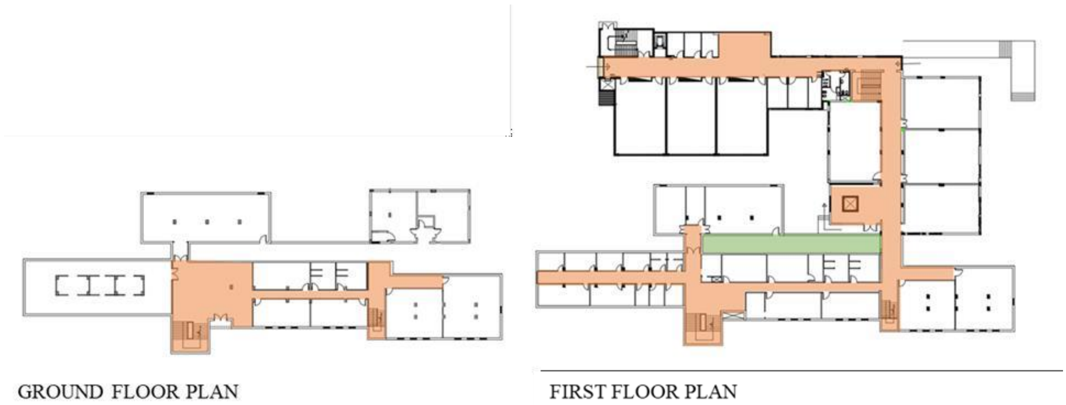


Figure 83.

The distinct entrance of the faculty with the various plants and benches in front (the researcher).

While the rear façade is distinguished by a mostly glass façade with wide reflective windows that introduce natural lighting and ventilation as well as provide a powerful connection with the surrounding environment, the front façade, which is made of stone and glass, is considered more traditional. There is nothing special that indicates the identity of the Architecture and Design faculty in terms of design.

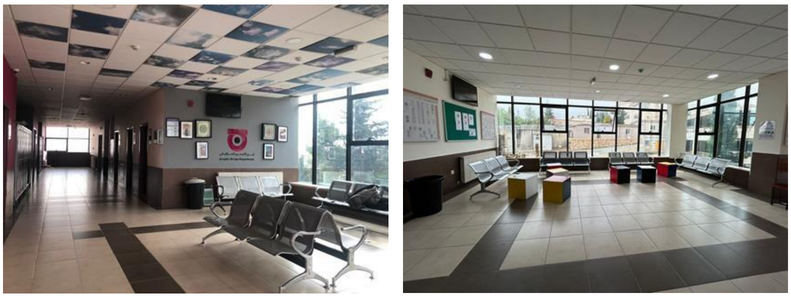
Figure 84.

The façade of the building missing the architectural identity (the researcher).

The Foyers in the new building core connect all juxtaposition areas visually and physically, allowing for wide interaction with the outside environment via the glass and fostering a lively social atmosphere within the Faculty. It represents the vital in-between space within the college where students congregate, talk, and wait for their lectures.

Figure 85.

The Foyers of the new building in the Petra Private University (the researcher).



The main horizontal entry and egress to studios and classrooms are through the building's corridors. The corridors between classrooms and other spaces are adequate and have an appropriate size. There are too many long corridors within the building that affect the clarity of the wayfinding, which can occasionally make people feel disoriented.

The faculty used two kinds of corridors: single-loaded corridors, which have doors on one side, and double-loaded corridors, in which doors are located on both sides of a passage within the building and the various spaces are accessed off both sides of the corridor. It was designed with convenient access to various destinations and facilities and planned with the mobility of people inside the area during times of crowding in consideration.

Some of the corridors have doors on one side and wide windows on the other, which encourage and enhance the sense of environmental vision for students and faculty members.

Figure 86.

Different corridors within the faculty (the researcher).

There are many entrances to the building from various levels based on the topography of the land. The size of the main entrance hall within the faculty is considered adequate in relation to the number of users.

Figure 87.

Different entrances in the building of the Petra Private University (the researcher).

The foyers are characterized by high reconfiguration, where the possibility to adjust the arrangement and format of the gathering areas (for group or individual work) is provided to implement activities and diverse educational requirements that are demanded by the educational process.

The interior spaces have fall ceilings with heights that are around 3 m net, which is proportionate to the size of the in-between spaces inside the faculty.

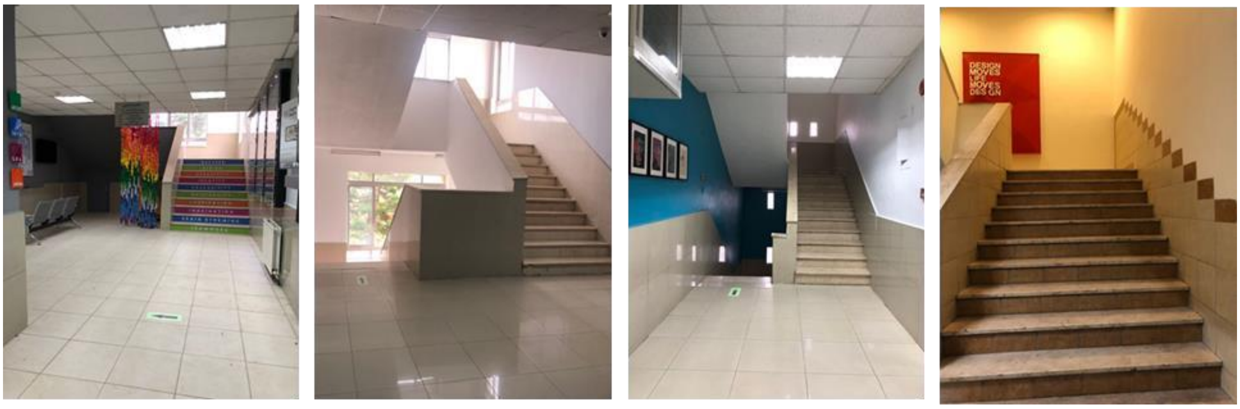
Figure 88.

The foyers inside the faculty of Petra Private University (the researcher).

The building's staircases are considered sufficient; there are five staircases leading to the faculty, one of which is next to the main entrance of the faculty, which is the main staircase, and the others are located in different locations of the building. The middle stair could be used as a vital in-between space, as they somehow connected to the outside through the wide windows, which is located in the main foyer of the old section of the building.

Figure 89.

The staircases within the faculty of Petra Private University (the researcher).



Two elevators come in second place behind the stairs as a mean of providing vertical access to the building's upper stories. One of them is located in the old section, and the other is in the new section of the building, which is used most frequently by all the users to access the upper levels. This helps them reach their destination in less time and effort and provides ease of vertical movement for the disabled between classrooms and other spaces within the faculty.

Figure 90.

The two different elevator in the building in the Petra Private University (the researcher).

The foyers and hallways of the faculty provide a variety of furniture types that meet user needs. They are also suitable in terms of size for both individual and group use.

Figure 91.

The variety of furniture provided in the foyers of the Petra Private University (the researcher).

In the corridors and foyers, we may discover movable seats, couches, and some tables with stools. The spaces must have highly comfortable equipment and chairs so that architectural and design students may work on individual and group projects there during their leisure time.

Figure 92.

Different kind of furniture in the Petra Private University (the researcher).

When it comes to acoustics and noise, the flooring is made of ceramics and regular tiles, neither of which produce noise when people are gathered. In order to reduce noise brought on by user crowding, the faculty's in-between spaces, where a variety of activities are conducted, are adequately split from the classrooms.

The in-between spaces for the faculty were designed with consideration for both the efficiency of natural ventilation and the possibilities for airflow that might contribute to maintaining the faculty at an appropriate temperature, by providing the optimal size and orientation of windows, in addition to the central heating that keeps the thermal comfort within the building.

Figure 93.

Natural ventilation provided in the in-between spaces in the Petra Private University (the researcher).

There are various types of display panels in the foyers and corridors of the faculty to display projects in addition to the artworks that are fixed to the walls, including one that is in the form of acrylic panels fixed to the wall, other boards for presenting the student projects, and other boards for the announcements. Other kinds of display units used for the models are found in the corridors.

Figure 94.

Various types of display panels in the foyers of the Petra Private University (the researcher).

There are other jury presentation boards that might be observed in the studios and on the walls of the classrooms. The faculty's in-between spaces provide enough space to exhibit student projects, as well as their artistic and scientific creations and creative achievements.

The in-between spaces within the faculty are suitable for social activities among architecture and design students.

Figure 95.

Various types of display panels in the foyers of the Petra Private University (the researcher).

The faculty's in-between spaces have effective signs that identify classrooms and other interior spaces and are compatible with their design. Furthermore, the indicative signs are clear in recognizing the circulation throughout the faculty's various in-between spaces.

Figure 96.

Indicative signs in various in-between spaces within Petra Private University (the researcher).

The in-between spaces within the faculty lack any natural elements inside the building, such as ornamental plants. It is important to increase and integrate the natural elements into all of the faculty's interior spaces, which enhance aesthetic and psychological impacts.

The foyers and halls of the faculty contain student lockers that accommodate their requirement to store their belongings and the architectural tools.

Figure 97.

Student lockers in the faculty foyers of Petra Private University (the researcher).

Applied Science Private University

Summation of the Overall Design:

The faculty building was constructed in a modern design that complements the other buildings on campus utilizing local Jordanian stone and reflecting glass.

The faculty building has an externally linked portion that provides the studios and spaces for presenting student works. The building is comprised of four floors, which have been divided into different disciplines, including graphic design, digital media design, and interior design.

The faculty building is situated at the east end of the university, with a clear entry that integrates with the surroundings of other university buildings and green spaces in front of the building planted with various trees. The facades are composed of Jordanian white stone with glass, which allows natural light to transition within the building. Nothing special can be found to indicate the identity of the Faculty of Architecture from other university faculties in terms of design.

Figure 98.

The in-between spaces in Applied Science Private University (the researcher).

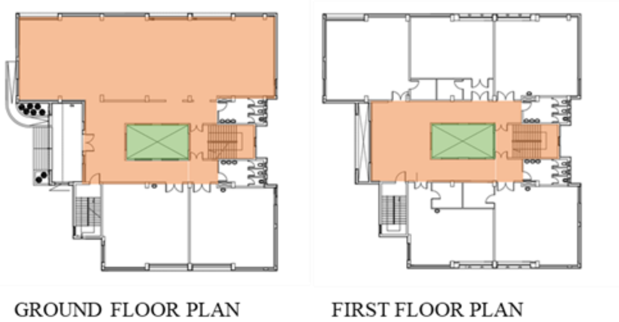


Figure 99.

Green spaces in front of the building in Applied Science Private University (the researcher).

The building's center has a tiny courtyard covered with a skylight that is surrounded by interior corridors on each story and looks down onto the underground level, where this in-between space is utilized as a part of a space for students to work, read, and study during their leisure time. This courtyard's presence contributes to the faculty's dynamic social space by enhancing the visual connectedness between all areas in a horizontal and vertical flow; also, it helps to bring natural lighting into the building.

Figure 100.

The central courtyard covered with a skylight in Applied Science Private University (the researcher).

The other foyers in the building connect the juxtaposition spaces visually and physically, allowing for wide interaction with the outside environment via the glass and fostering a lively atmosphere within the faculty. It represents the space within the college where students congregate, talk, and wait for their lectures, also another corridor is covered with a pyramid skylight located in the exterior part of the building, which enhances the in-between spaces.

The main horizontal entry and egress to studios and classrooms are through the building's corridors. The corridors between classrooms and other spaces are adequate and have an appropriate size.

The faculty used two kinds of corridors: single-loaded corridors, which have doors on one side, and double-loaded corridors, which are located on both sides of a passage within the building, and the various spaces are accessed off both sides of the corridor. It was designed with convenient access to various destinations and facilities and planned with the mobility of people inside the area during times of crowding in consideration.

Some of the corridors have doors on one side and windows on the other, which encourage and enhance the sense of environmental vision for students and faculty members.

There are two entrances to the building. The size of the main entrance hall within the faculty is considered small in relation to the number of users, where the back entrance leads to the external part of the building.

Figure 101.

The main entrance of the building in Applied Science Private University (the researcher).

The foyers are characterized by high reconfiguration, where the possibility to adjust the arrangement and format of the gathering areas (for group or individual work) is provided to implement activities and diverse educational requirements that are demanded by the educational process.

The interior spaces have fall ceilings with heights that are around 3 m net, which is proportionate to the size of the in-between spaces inside the faculty.

Figure 102.

Foyers within the faculty in Applied Science Private University (the researcher).

There are two staircases leading to the faculty, which are considered sufficient, one of which is next to the main entrance of the faculty, and the other is located behind the courtyard, it's somewhat isolated and hidden and has no vital use except for the vertical movement within the faculty.

There is one elevator for vertical movement within the faculty. This helps the users reach their destination in less time and effort and provides ease of vertical movement for the disabled between classrooms and other spaces within the faculty.

Figure 103.

Staircases and the elevator in the faculty in Applied Science Private University (the researcher).

The foyers and hallways of the faculty provide a variety of furniture types that meet user needs. They are also suitable in terms of size for both individual and group use.

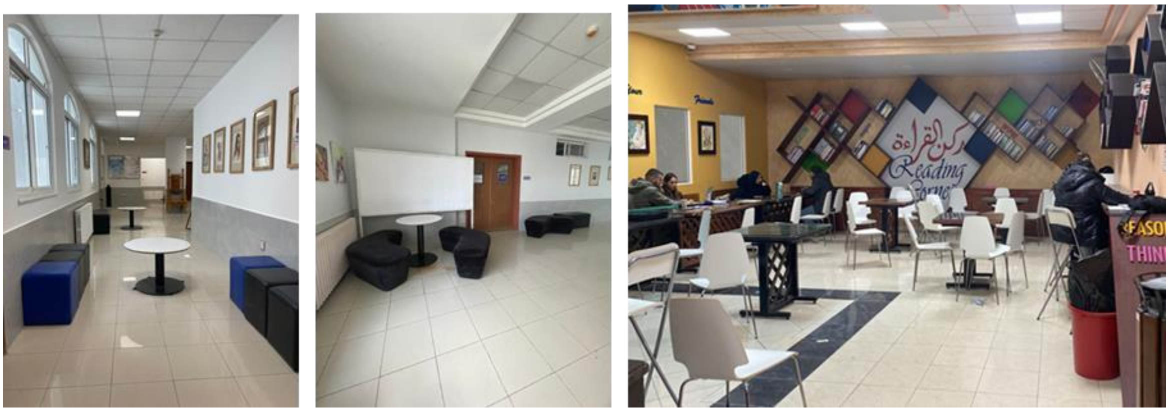
Figure 104.

Variety of furniture types within the foyers (the researcher).

In the corridors and foyers, we may discover movable seats, couches, and some tables with stools. The spaces must have highly comfortable equipment and chairs so that architectural and design students may work on individual and group projects there during their leisure time.

Figure 105.

Different movable seats, couches in the foyers in Applied Science Private University (the researcher).



When it comes to acoustics and noise, the flooring is made of ceramics tiles, neither of which produce noise when people are gathered.

In order to reduce noise brought on by user crowding, the faculty's in-between spaces, where a variety of activities is conducted, are adequately split from the classrooms.

The in-between spaces for the faculty were designed with consideration for both the efficiency of natural ventilation and the possibilities for airflow that might contribute to maintaining the faculty at an appropriate temperature, by providing the optimal size and orientation of windows, in addition to the central heating that keeps the thermal comfort within the building.

Figure 106.

Optimal size and orientation of windows within the faculty in Applied Science Private University (the researcher).

There are no display panels in the foyers and corridors of the faculty to display projects, except the artworks that are fixed to the walls, also there are acrylic panels fixed to the wall that related to the official information about the faculty and other boards for the announcements.

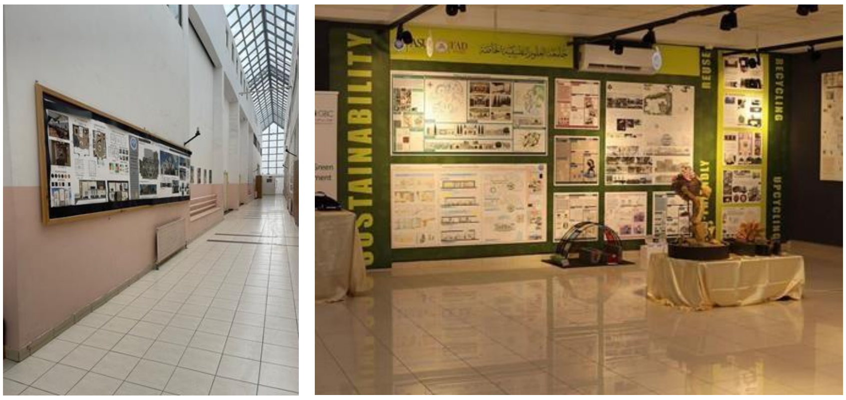
Figure 107.

Different artwork displayed in the in-between spaces (the researcher).

Other kinds of display panels used for the student's works are found in the corridor of the external part of the faculty, in addition to the gallery on the ground floor that has a large space to exhibit student projects, as well as their artistic and creative achievements.There are other jury presentation boards that might be observed in the studios and on the walls of the classrooms.

Figure 108.

Display panels in the corridor and foyer in Applied Science Private University (the researcher).



The faculty's in-between spaces provide enough space to exhibit student projects, as well as their artistic and scientific creations and creative achievements. The in-between spaces within the faculty are suitable for social activities among architecture and design students.

The faculty's in-between spaces have some signs that identify classrooms and other interior spaces and are compatible with their design, but it's not enough. Furthermore, the indicative signs are not clear enough to recognize the circulation throughout the faculty's various in-between spaces.

Figure 109.

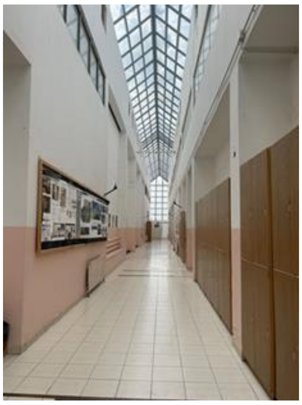
Indicative signs in the in-between spaces (the researcher).

The in-between spaces within the faculty lack any natural elements inside the building, such as ornamental plants. It is important to increase and integrate the natural elements into all of the faculty's interior spaces, which enhance aesthetic and psychological impacts.

The corridor of the external part of the faculty contain student lockers that accommodate their requirement to store their belongings and the architectural tools.

Figure 110.

Student lockers in the external part of the faculty (the researcher).



Summation comparison of 11 dimensions by the observation

Table 10.

Summation comparison of 11 dimensions that the researcher used to analysis the case studies according to the observation and walk-through.

#	Design Features	UJ	JUST	HU	AAU	UOP	ASU
1	physical features and visual appearance	√	√	√	√	√	√
2	size & Design of in-between spaces	√	√	√	√	√	√
3	Circulation & Movement Space Zoning	√	X	√	X	√	X
4	Ergonomics & Furnishing	X	X	X	X	√	X
5	Lighting	√	√	√	√	√	√
6	Colors & Finishing	X	√	√	X	√	X
7	Acoustics	√	√	√	√	√	√
8	Heating, Ventilation & Air Conditioning	√	√	√	√	√	√
9	Visual Communication & Instructional Tools	√	√	√	√	√	√
10	Social& Cultural Spaces	√	√	√	√	√	√
11	Accessories	X	√	X	√	X	X

While the qualitative study (observation and walk-through) was conducted in the fields and specifications that it evaluated with the questionnaire, compare the results of the questionnaire with it, and obtain data that the questionnaire could not provide, such as photos taken using specialized imaging devices to enhance the discussion of the results of the study. The physical educational environment of the universities was documented after reviewing the results of the questionnaire directly through pictures, and it was arranged according to the same fields of the questionnaire.

Findings from the questionnaire.

Analysis of the quantitative study data (questionnaire), which was based on the responses of the study sample in detail was conducted by calculating the arithmetic means, standard deviations, ratios, and frequencies of the study sample's responses on " The measure of the reality of the in-between space design within the art and architecture faculties in Jordanian universities according to the perception of faculty members and students based on well-being requirements", to determine the level of the physical educational environment (Low, Moderate, and High) according to the domains and their specifications and to obtain the results of these questions based on the questionnaire as follows:

The table below shows the means and standard deviations of the study sample responses that measure of the reality of the in-between space design within the art and architecture faculties in Jordanian universities, and their arrangement according to the perception of faculty members and students based on well-being requirements.

Table 11.

Descriptive statistics for the views of the sample on the eleven dimensions of the design features.

#	Rank	(Dimensions) Design Features	Mean	Std. Deviation	level
1	1	physical features and visual appearance	3.38	0.90	⇨
2	2	size & Design of in-between spaces	3.33	0.75	⇨
3	7	Circulation & Movement Space Zoning	2.28	1.26	⬇
4	10	Ergonomics & Furnishing	2.12	1.24	⬇
5	1	Lighting	3.38	0.75	⇨
6	8	Colors & Finishing	2.25	1.05	⬇
7	6	Acoustics	3.18	0.89	
8	3	Heating, Ventilation & Air Conditioning	3.27	0.89	⇨
9	4	Visual Communication & Instructional Tools	3.26	0.88	
10	5	Social& Cultural Spaces	3.24	0.89	⇨
11	9	Accessories	2.22	1.23	⬇
		Total	2.90	0.98	⇨

The table 11 indicates that the general average of the total score of the scale of the reality of the in-between space design within the art and architecture faculties in Jordanian universities according to the perception of faculty members and students based on well-being requirements was moderate with an arithmetic Mean of (2.90), a standard deviation of (0.98), and the level of the total domains are within the average levels according to the quality standards that were used in this study.

The domains of physical features and visual appearance and lighting came in the first rank with a Mean of 3.38 and a moderate level, and the domain of ergonomics and furnishing came in the last rank with a Mean of 2.12 and a low level. It was found from this that there are seven domains with a moderate degree of quality, which are: physical features and visual appearance; lighting; size and design of in-between spaces; heating, ventilation, and air conditioning, visual Communication & Instructional Tools, Social& Cultural Spaces, and Acoustics, while four domains with low quality are: Circulation & Movement Space Zoning, Colors & Finishing, Accessories, and Ergonomics & Furnishing.

The following is a chart showing the arithmetic means and standard deviations of the study sample responses that measure of the reality of the in-between space design within the art and architecture faculties in Jordanian universities according to the perception of faculty members and students based on well-being requirements.

Figure 111 .

Analysis of the responses according to the questionnaire.

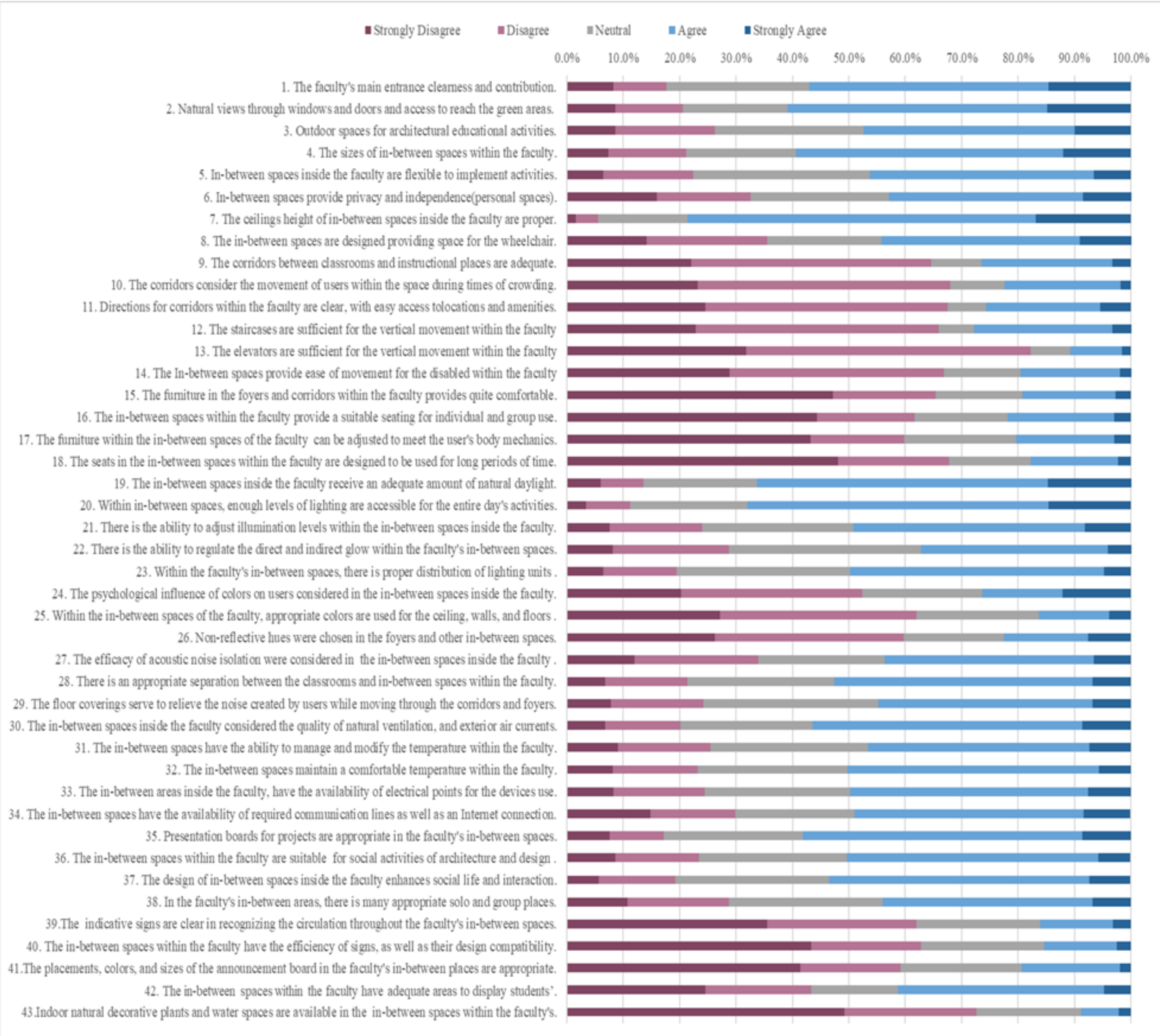
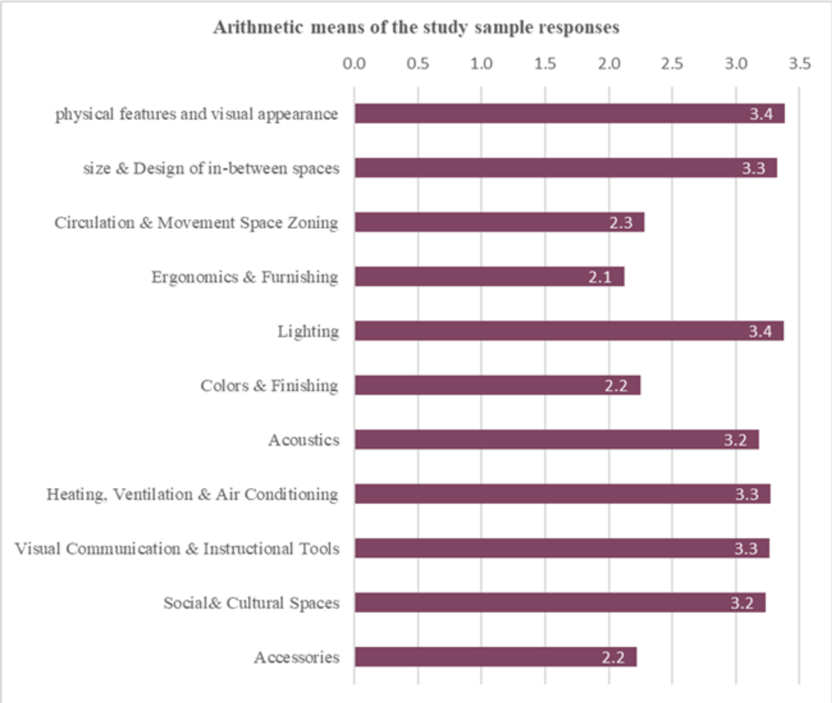


Figure 112.

Descriptive statistics for the views of the sample on the eleven dimensions of the design features.



Below is the detailed analysis of the arithmetic means, standard deviations, and percentages of the study sample responses according to dimensions (design features) that have a weak level. This is to reveal the design features that need to be reconsidered and developed according to the requirements of well-being.

Table 12.

Arithmetic means and standard deviations of the study sample responses for the (Circulation and Movement Space Zoning) dimension with their levels.

No.	Design features	Mean	Std. Deviation	Level	Identical Well-Being Requirement
1.	The corridors between classrooms and instructional places are adequate.	2.33	1.20	↓	Functional and Ergonomic requirements
2.	The corridors were designed with considering the movement of users within the space during times of crowding.	2.34	1.33	→	Functional and Ergonomic requirements
3.	Directions for corridors within the faculty are clear, and there is easy access to other locations and amenities.	2.25	1.24	↓	Functional and Ergonomic requirements
4.	The staircases are sufficient and have an adequate design for the vertical movement within the faculty	2.21	1.22	↓	Functional and Ergonomic requirements
5.	The elevators are sufficient and have an adequate design for the vertical movement within the faculty	2.12	1.28	↓	Functional and Ergonomic requirements
6.	The In-between spaces provide ease of movement for the disabled between classrooms and other spaces within the faculty	2.43	1.29	→	Functional and Ergonomic requirements
Circulation & Movement Space Zoning		2.28	1.26	→	

Table 12 shows that the general mean for the (Circulation and Movement Space Zoning) dimension was moderate, with an arithmetic mean of (2.28), and the paragraph that states, "The in-between spaces provide ease of movement for the disabled between classrooms and other spaces within the faculty." ranked first with a mean of (2.43) at a moderate level, followed by the paragraph stating, "The corridors were designed with considering the movement of users within the space during times of crowding." came in second place with an arithmetic mean (2.34) and a moderate level, then the paragraph stating, "The corridors between classrooms and instructional places are adequate." ranked third, with an arithmetic mean of (2.33) and a low level, the paragraph stating "Directions for corridors within the faculty are clear, and there is easy access to other locations and amenities." ranked fourth with a mean of (2.25) and a low level, the paragraph stating "The staircases are sufficient and have an adequate design for the vertical movement within the faculty" ranked fourth , with a mean of (2.21) and a low level, and the paragraph stating, "The elevators are sufficient and have an adequate design for the vertical movement within the faculty." ranked sixth and last, with an arithmetic mean of (2.12) and a low level.

Table 13.

Arithmetic means and standard deviations of the study sample responses for the (Colors & Finishing) dimension with their levels.

No.	Design features	Mean	Std. Deviation	Level	Identical Well-Being Requirement
1.	The psychological influence of colors on users is considered in the design of the in-between spaces inside the faculty.	2.19	1.03	↓	Aesthetic and Psychological requirements
2.	Within the in-between spaces of the faculty, appropriate colors are used for the ceiling, walls, and floors which are coordinated with other design components such as furniture and curtains.	2.22	1.02	↓	Aesthetic and Psychological requirements
3.	Non-reflective hues were chosen in the foyers and other in-between spaces, where juries and gallery events take place, where colors have an impact on the entire lighting inside the faculty	2.34	1.09	→	Aesthetic and social requirements
Colors & Finishing		2.25	1.05	→	

Table 13 shows that the general mean for the (Colors & Finishing) dimension was moderate, with an arithmetic mean of (2.25), and the paragraph that states, " Non-reflective hues were chosen in the foyers and other in-between spaces, where juries and gallery events take place, where colors have an impact on the entire lighting inside the faculty " ranked first with a mean of (2.34) at a moderate level, followed by the paragraph stating, " Within the in-between spaces of the faculty, appropriate colors are used for the ceiling, walls, and floors which are coordinated with other design components such as furniture and curtains" came in second place with an arithmetic mean (2.22) and a low level, then the paragraph stating, " The psychological influence of colors on users is considered in the design of the in-between spaces inside the faculty" ranked third and last, with an arithmetic mean of (2.19) and a low level.

Table 14.

Arithmetic means and standard deviations of the study sample responses for the (Accessories) dimension with their levels.

No.	Design features	Mean	Std. Deviation	Level	Identical Well-Being Requirement
1.	The indicative signs are clear in recognizing the circulation throughout the faculty's various in-between spaces.	2.33	1.20	⬇	Functional and Psychological requirements
2.	The in-between spaces within the faculty have the efficiency of signs, that identify classrooms and other interior places, as well as their design compatibility	2.21	1.22	⬇	Functional and Psychological requirements
3.	The placements, colors, and sizes of the announcement board in the faculty's in-between places are appropriate.	2.25	1.24	⬇	Functional and Aesthetic requirements
4.	The in-between spaces within the faculty have adequate areas to display students' works and their scientific and artistic productions, as well as their creative achievements.	2.34	1.33	➡	Functional, Psychological and Social requirements
5.	Indoor natural decorative plants and water spaces are available in the in-between spaces within the faculty's to offer aesthetic and physiological impacts to the interior spaces.	1.97	1.14	⬇	Aesthetic and Psychological requirements
Accessories		2.22	1.23	⬇	

Table (14) shows that the general mean for the (Accessories) dimension was low level, with an arithmetic mean of (2.22) at a low level, and the paragraph that states, " The in-between spaces within the faculty have adequate areas to display students' works and their scientific and artistic productions, as well as their creative achievements" ranked first with a mean of (2.34) at a moderate level, followed by the paragraph stating, " The indicative signs are clear in recognizing the circulation throughout the faculty's various in-between spaces " came in second place with an arithmetic mean (2.33) and a low level, then the paragraph stating, " The placements, colors, and sizes of the announcement board in the faculty's in-between places are appropriate" ranked third, with an arithmetic mean of (2.25) and a low level, the paragraph stating " The in-between spaces within the faculty have the efficiency of signs, that identify classrooms and other interior places, as well as their design compatibility" ranked fourth with a mean of (2.21) and a low level, and the paragraph stating " Indoor natural decorative plants and water spaces are available in the in-between spaces within the faculty's to offer aesthetic and physiological impacts to the interior spaces" ranked fifth and last , with a mean of (1.97) and a low level.

Table 15.

Arithmetic means and standard deviations of the study sample responses for the (Ergonomics & Furnishing) dimension with their levels.

No.	Design features	Mean	Std. Deviation	Level	Identical Well-Being Requirement
1.	The furniture in the foyers and corridors within the faculty provides quite comfortable.	2.13	1.25	↓	Functional and Ergonomic requirements
2.	The in-between spaces within the faculty provide a suitable seating layout and arrangement for individual and group use.	2.26	1.30	↓	Social and Ergonomic requirements
3.	The furniture within the in-between spaces of the faculty which can be adjusted to meet the user's sitting style and body mechanics is appropriate for the human body and its requirements	1.97	1.14	↓	Ergonomic requirements
4.	The seats in the in-between spaces within the faculty are designed to be used for long periods of time.	2.12	1.28	↓	Functional and Ergonomic requirements
	Ergonomics & Furnishing	2.12	1.24	↓	

Table 15 shows that the general mean for the (Ergonomics & Furnishing) dimension was low level, with an arithmetic mean of (2.12), and the paragraph that states, " The in-between spaces within the faculty provide a suitable seating layout and arrangement for individual and group use" ranked first with a mean of (2.26) at a low level, followed by the paragraph stating, " The furniture in the foyers and corridors within the faculty provides quite comfortable." came in second place with an arithmetic mean (2.13) and a low level, then the paragraph stating, " The seats in the in-between spaces within the faculty are designed to be used for long periods of time" ranked third, with an arithmetic mean of (2.12) and a low level, the paragraph stating " The furniture within the in-between spaces of the faculty which can be adjusted to meet the user's sitting style and body mechanics is appropriate for the human body and its requirements " ranked fourth and last with a mean of (1.97) and a low level.

From the foregoing, it is clear that the lowest arithmetic mean was obtained for two paragraphs; "The furniture within the in-between spaces of the faculty which can be adjusted to meet the user's sitting style and body mechanics is appropriate for the human body and its requirements" , and "Indoor natural decorative plants and water spaces are available in the in-between spaces within the faculty's to offer aesthetic and physiological impacts to the interior spaces", where the value of the arithmetic mean is (1.97), while followed by two paragraphs "The seats in the in-between spaces within the faculty are designed to be used for long periods of time", where the mean is (2.12),and "The elevators are sufficient and have an adequate design for the vertical movement within the faculty", followed by the paragraph " The furniture in the foyers and corridors within the faculty provides quite comfortable." with a mean of (2.13), followed by "The psychological influence of colors on users is considered in the design of the in-between spaces inside the faculty" with a mean of (2.19), then two paragraphs "The in-between spaces within the faculty have the efficiency of signs, that identify classrooms and other interior places, as well as their design compatibility", and " The staircases are sufficient and have an adequate design for the vertical movement within the faculty" with the mean (2.21), then "Within the in-between spaces of the faculty, appropriate colors are used for the ceiling, walls, and floors which are coordinated with other design components such as furniture and curtains" with a mean of (2.22), Followed by the rest of the paragraphs at moderate levels, as shown in the tables above.

Statistically significant differences

Are there statistically significant differences at the level (α = 0.05) in the reality of the in-between space on the perception of users within the faculties of art and architecture in Jordanian universities, depending on the university?

To answer this question, the arithmetic means and standard deviations of the study sample's responses were calculated on the dimensions of the scale of the reality of the in-between spaces according to the perception of the faculty members and students within the faculties of art and architecture in Jordanian universities of different universities, where multiple analysis of variance (MANOVA) was used to find out the significance of the differences in the dimensions of the scale, as is explained below:

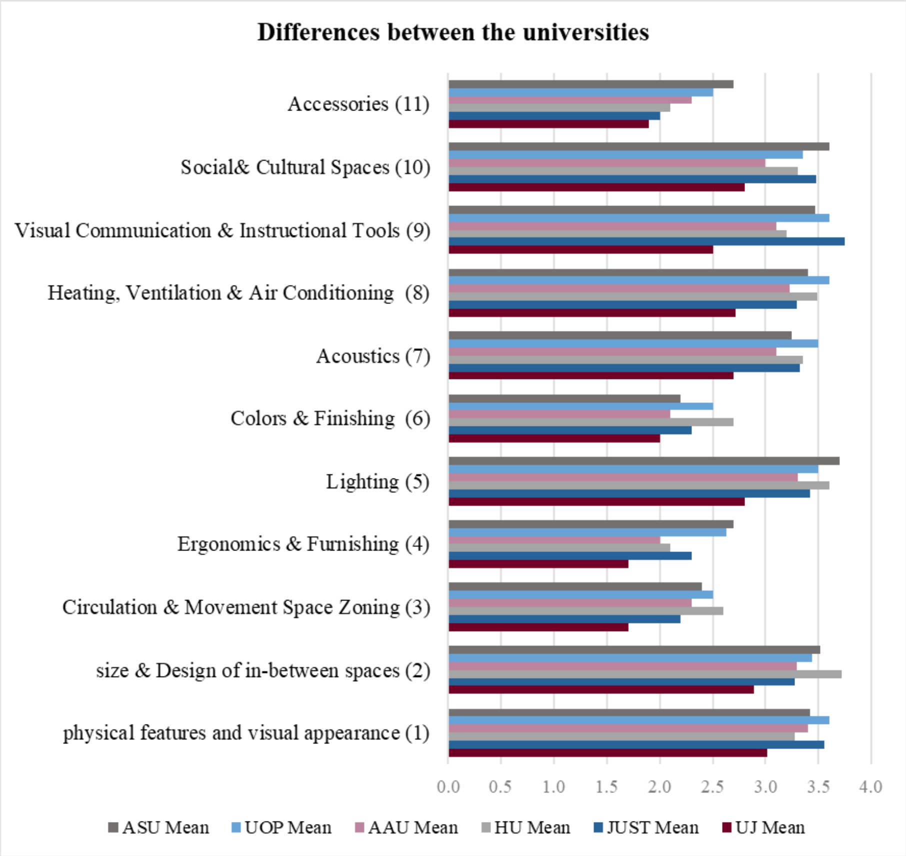
Table 16.

The Difference between the arithmetic means of the six Jordanian Universities.

University	Mean	physical features and visual appearance (1)	size & Design of in-between spaces (2)	Circulation & Movement Space Zoning (3)	Ergonomics & Furnishing (4)	Lighting (5)	Colors & Finishing (6)	Acoustics (7)	Heating, Ventilation & Air Conditioning (8)	Visual Communication & Instructional Tools (9)	Social& Cultural Spaces (10)	Accessories (11)
UJ	Mean	3.0	2.9	1.7	1.7	2.8	2.0	2.7	2.7	2.5	2.8	1.9
JUST	Mean	3.6	3.3	2.2	2.3	3.4	2.3	3.3	3.3	3.7	3.5	2.0
HU	Mean	3.3	3.7	2.6	2.1	3.6	2.7	3.4	3.5	3.2	3.3	2.1
AAU	Mean	3.4	3.3	2.3	2.0	3.3	2.1	3.1	3.2	3.1	3.0	2.3
UOP	Mean	3.6	3.4	2.5	2.6	3.5	2.5	3.5	3.6	3.6	3.3	2.5
ASU	Mean	3.4	3.5	2.4	2.7	3.7	2.2	3.2	3.4	3.5	3.6	2.7

Figure 113.

The Differences between the arithmetic means of the six Jordanian Universities.



The results in the table () and the chart above indicate that there are apparent differences in the responses of the study sample on the dimensions of the reality of the in-between space according to the perception of users within the faculties of art and architecture in Jordanian universities, depending on the university. To find out the significance of the differences, multiple analysis of variance (MANOVA) was performed, where the value of the Wilks' Lambda was (0.562) and the level of significance (0.000), and the differences appeared in all the dimensions.

The following results appears:

1. There are significant differences at the level (α = 0.05) in the dimension (physical features and visual appearance) between the University of Jordan on the one hand and the Universities of Technology and Petra, and the arithmetic mean of the responses of the study sample from the University of Jordan was less than the arithmetic mean of

the responses of the study sample from the rest of the universities.

2. There are significant differences at the level ($\alpha = 0.05$) in the dimension (size & Design of in-between spaces) between the University of Jordan on the one hand and the Hashemite, Petra and Applied Science Universities on the other hand, and the arithmetic mean of the responses of the study sample from the University of Jordan was less than The arithmetic mean of the responses of the study sample from the rest of the universities.

3. There are significant differences at the level ($\alpha = 0.05$) in the (Circulation & Movement Space Zoning) dimension between the University of Jordan on the one hand and the Hashemite and Petra Universities of Applied Sciences on the other, and the arithmetic mean of the responses of the study sample from the University of Jordan was less than the arithmetic mean of the responses of the study sample from the rest of the universities.

4. There are significant differences at the level ($\alpha = 0.05$) in the (Ergonomics & Furnishing) dimension between the University of Jordan on the one hand and the Universities of Technology, Petra, and Applied Sciences on the other, and the arithmetic mean of the responses of the study sample from the University of Jordan was less than the arithmetic mean of the responses of the study sample from the rest of the universities. There were differences between Al-Ahliyya Amman University on the one hand, and the University of Petra and Applied Sciences on the other, and the arithmetic mean of the responses of the study sample from Al-Ahliyya Amman University was less than the arithmetic mean of the responses of the study sample from the University of Petra.

5. There are significant differences at the level ($\alpha = 0.05$) in the (Lighting) dimension between the University of Jordan on the one hand and all other universities on the other hand, and the arithmetic mean of the responses of the study sample from the University of Jordan was less than the arithmetic mean of the responses of the study sample from the rest of the universities.

6. There are significant differences at the level ($\alpha = 0.05$) in the (Colors & Finishing) dimension between the University of Jordan on the one hand and the Hashemite and Petra Universities on the other, and the arithmetic mean of the responses of the study

sample from the University of Jordan was less than the arithmetic mean of the responses of the study sample from the rest of the universities.

7. There are significant differences at the level of ($\alpha = 0.05$) in the (Acoustics) dimension between the University of Jordan on the one hand, and the Universities of Technology, Petra, and Applied Sciences on the other, and the arithmetic mean of the responses of the study sample from the University of Jordan was less than the arithmetic mean of the responses of the study sample from the rest of the universities.

8. There are significant differences at the level ($\alpha = 0.05$) in the (Heating, Ventilation, & Air Conditioning) dimension between the University of Jordan on the one hand and all other universities on the other hand, and the arithmetic mean of the responses of the study sample from the University of Jordan was less than the arithmetic mean of the responses of the study sample from other universities.

9. There are significant differences at the level ($\alpha = 0.05$) in the (Visual Communication & Instructional Tools) dimension between the University of Jordan on the one hand and all other universities on the other, and the arithmetic mean of the responses of the study sample from the University of Jordan was less than the arithmetic mean of the responses of the study sample from the rest of the universities. There were differences between Al-Ahliyya Amman University and the University of Technology, and the arithmetic mean of the responses of the study sample from Al-Ahliyya Amman University was less than the arithmetic mean of the responses of the study sample from the University of Technology.

10. There are significant differences at the level ($\alpha = 0.05$) in the (Social & Cultural Spaces) dimension between the University of Jordan on the one hand and the Universities of Technology, Petra, and Applied Sciences on the other, and the arithmetic mean of the responses of the study sample from the University of Jordan was less than the arithmetic mean of the responses of the study sample from the rest of the universities.

11. There are significant differences at the level of ($\alpha = 0.05$) in the (Accessories) dimension between the University of Jordan on the one hand and all other universities on the other hand, and the arithmetic mean of the responses of the study sample from the University of Jordan was less than the arithmetic mean of the responses of the study

sample from the rest of the universities.

Findings from space syntax

Space syntax is a theory and method that emerged for understanding and analyzing space configuration within the built environment. Studies on the configuration of spatial space reveal that there is a connection between the physical environment of space and the quality of life of its users. (Salgamcioglu, 2014; Dettlaff, 2014; Hillier, 2007; Hillier & Hanson, 1984). It is a morphological language based on mathematical principles, trying to describe the basic elements of spaces and comparing the spaces using some special characters based on topological data instead of the metric properties of space. which gives numerical results, graphs, and maps that analyze the space (Hillier et al., 1976; spacesyntax.com, 2013).

In their book "The Social Logic of Space," Bill Hillier and Julienne Hanson developed the analytical technique known as space syntax to describe the relationships between social forces and external influences that produce patterns (Hillier and Hanson, 1984).

Space syntax contributes to a better understanding of the interaction among design features and targeted objectives, social constraints, and formal possibilities. According to Hillier, the key concept in The Logic of Space is the concept of spatial configuration (Hillier, 2007). The approach is based on the idea that the way we move through and perceive spaces is determined by the spatial configuration of the built environment.

Space syntax has been used in a wide range of applications, including urban design, architecture, and interior design. (Hillier and Hanson, 1984; Hillier, 1996) It has been used to analyze and improve public spaces, to design more efficient and effective spaces, and to understand the social dynamics of the built environment.

One of the key insights of space syntax is that spatial configuration shapes the way we use and experience space. For example, spaces that are more visible and accessible tend to be more heavily used and have a greater social presence, while spaces that are more hidden or difficult to access may be underutilized or avoided (Hasgül, 2015).

Space syntax analysis involves creating a mathematical representation of space as a network of interconnected spaces. This network is then analyzed to identify patterns of movement, visibility, and accessibility. The resulting analysis can be used to understand how people navigate through the space, how different areas are connected or disconnected, and how the spatial configuration affects social interactions and behaviors (Penn & Turner, 2001).

The development of the tools and software platforms for space syntax analysis, including open-source software packages such as Space Syntax Toolkit and DepthmapX, these tools have made space syntax analysis more accessible to a wider range of researchers and practitioners and have facilitated the development of new applications and techniques to help architects and designers simulate the possible effects of their projects on social life. They are a sustainable tool to analyze projects on the urban, architectural, and interior space scales. (Dettlaff, 2014).

A series of spatial network analyses can be carried out using multi-platform software such as depthmapX, which allows users to perform space syntax analysis on 2D and 3D spatial data in order to comprehend social dynamics in the built environment. The software's goal is to create a map of open space elements, link them together using a relationship (such as indivisibility or overlap), and then conduct a graph analysis to produce variables that could be significant from a social or experience standpoint.

DepthmapX is a powerful tool for understanding the relationships between spatial configuration and human behavior in the built environment (Turner, 2004; Dalton & Hillier, 2007).

One of the key benefits of space syntax is its ability to reveal the hidden spatial properties of a built environment. For example, a space that appears to be open and accessible on a map may in fact be relatively isolated and difficult to access due to its position within the network. Conversely, a space that appears to be tucked away or hidden may actually be highly integrated and accessible due to its connections to other spaces. One of its useful aspects related to interior analysis is that it is used to study users' movements within space (Dettlaff, 2014).

The space syntax analysis that was used in this study is based on Visual Graph Analysis (VGA) in Depthmap X (depthmapX development team, 2017). The process of generating the analysis begins with superimposing a grid on top of navigable and visible spaces. The grid size is determined by the average natural human step and is often set to 60–75 cm (Turner et al., 2001). The numeric visibility relationship between all grid cells is counted (how many other cells are visible from each cell); this step constructs the basic VGA graph (connectivity). Where VGA reveals how simple or challenging it is to orientate and navigate through the spaces. Additionally, VGA identifies probable social interaction spots in the area. DepthmapX's analysis has a role in illuminating the spatial configuration. These can be supported using a variety of analysis methods, like a visibility factor. Certain syntactic factors, like connectedness, visibility, and circularity, convey movement plans and influence how the space is perceived. For this reason, it's crucial to understand the effectiveness of the space in addition to the accessible mobility ways along the space.

According to Hanson (1980), justified graphs have a tendency to demonstrate configurational differences quite clearly. They consist of maps that depict the space structure and the permeability between spaces, and they capture significant aspects of spatial configurations in an instantaneous, visual form. While VGA serves as a tool to examine the relationship between space and user by analyzing spatial properties, namely visibility-related properties, it is also a way to quantify the configuration of space as regular units that can then be used to identify the relationship of that space to the behavior of the humans that occupy it (Koutsolampros et al., 2019).

Visibility Graph Analysis (VGA)

Visibility Graph Analysis (VGA) is one of the main methods of analysis of intervisibility connections within architecture, urban networks, and interior spaces within the field of space syntax. It is a way to quantify the configuration of space in terms of systematic units, which can then be used to determine how that arrangement of space interacts with the actions of the people who use it (Turner et al., 2001; Koutsolampros et al., 2019).

Turner et al. (2001) developed the visibility graph analysis within a space from the theory of space syntax. It was first introduced in Turner's Depthmap software and is now extensively utilized by the multi-platform DepthmapX (Turner et al., 2001).

It is a means to quantify the configuration of space in regular units, which can then be used to identify the relationship of that space to the behavior of the humans that occupy it.

Visibility Graph Analysis (VGA) is a powerful tool used in interior design to analyze and optimize visual connectivity and sightlines within a space. By studying how different elements within a space interact visually, designers can enhance the overall functionality, aesthetics, and user experience of an interior environment. The Visibility Graph Analysis technique involves creating a graph (map) that represents the visual connections between various points within a space. This graph is constructed by connecting each point to every other visible point within the space, taking into account obstacles such as walls, furniture, or partitions. The resulting graph provides a visual representation of the relationships and sightlines within the space (Müller et al., 2006; Koutsolampros et al., 2019).

VGA helps designers determine the optimal placement of furniture, partitions, and other elements to maximize visual connectivity. By analyzing the visibility graph, designers can identify potential obstacles or dead zones and make informed decisions about the layout (Müller et al., 2006).

VGA assists in understanding the visual connections between different areas of space. It helps designers create efficient circulation paths and improve wayfinding by ensuring that important landmarks or destinations are visually accessible from key vantage points. (Sariyildiz & Soygenis, 2019).

Through Vision Analysis

Through vision analysis, a technique used in architecture and interior design to evaluate and optimize the visual connectivity and sightlines that extend from one space to another, It focuses on understanding how spaces visually connect and interact with each other, allowing designers to facilitate visual continuity, create inviting spaces that encourage exploration and engagement, and enhance the overall visual experience within a building.

Given that the users are "in the way" of moving from one position to another, "through vision" is a measurement that may be used to identify the places that are most likely to be visited (Koutsolampros et al., 2019).

The degree of through visions for a space is depicted through vision analysis. A thorough vision is the longest possible continuous view. It involves studying the visual connections between different areas within a building or space. By analyzing the sightlines, all spaces that can be seen from one point get the same value. Designers can assess the degree of openness and transparency between spaces as well as identify potential obstacles or visual disruptions that hinder the flow of visual information. where the mean depth values of the through-vision analysis vary according to the obstacle in the grid and its location. The closer the obstacle is to the root cell, the higher the through-vision’s mean depth value, and vice versa. The through-vision analysis shows the degree of through-visibility (CLAUDIA, 2022).

Integration Analysis

Integration has been identified in empirical investigations as one of the main ways that spaces may convey culture through their configurations, according to Hanson (1998). The distribution of integration fairly accurately describes the relative organization of the design.

Integration demonstrates how a plan can potentiate various ways of living through the delineation of central and separated zones.

Integration measures the average distance between every space of origin and every other space in a system. It determines the distance between the original space and all other spaces and is commonly referred to as the relative asymmetry (or relative depth) metric (Hillier & Hanson, 1984).

The space syntax analysis of this research was verified and presented with an emphasis on integration, VGA, and thorough vision analysis. The selection of these measurements attempted to understand the in-between spaces' organization and layout, identify their location, and how integrated they are with the whole space to comprehend how the users can move and interact within the space and what they can see inside the space. The maps show the paths to determine whether the qualities of the intermediate areas are suitable for the various activities. To calculate the syntactic values and comprehend the spatial links in this study, we used the DepthmapX software analysis.

After defining the current spatial functioning through observation of the users and the implementation of analyses that corroborate these observations, it was compared with the outcomes of the Space Syntax analysis by utilizing its theory and tools to reveal how the space embedded in its interior context affects the way it functions, how the building functions as a social object, how people move inside the building, how the spatial layout of the in-between spaces affects patterns of movement, how the design of the corridors and halls works as a social interactive space, etc.

In this study, the ground floor of each faculty is examined in relation to the abilities of visibility, through vision, and integration.

The observation findings revealed that some in-between spaces within the faculties receive much more traffic than others. This trait was validated through visibility graph analysis by simulating the observed users flow. According to the studies of the visibility graphs, it has been found that among the six universities, some of the in-between spaces present themselves as well-integrated and well-connected to the other spaces as the main focal point of the building.

The literature on space syntax theory suggests a strong connection between the outcome of integration and choice and the possibility of movement and presence (Bill Hillier & Hanson, 1984; B. Hillier et al., 1987; Bill Hillier & Tzortzi, 2006; Sharmin & Kamruzzaman, 2018). In this case, it is evident that these in-between spaces carry a strong potential for being socially integrated spatiality's.

The unrestricted breadth and overall scale of the crucial in-between areas within the faculties, such as the corridors, demonstrate the capability and necessity for unrestricted student movement.

The following section represents the space syntax analysis of VGA, integration, and through-vision; each set of analysis is coupled with pictures of the related in-between spaces. Some of the in-between spaces like halls, corridors, and lobbies show great intervisibility and a high degree of thorough vision, according to analyses of visibility graphs, thorough vision, and integration. This suggests that those areas are the main spots for navigation and orientation. In the analysis, the blue regions represented the most segregated places, while the red areas represented sites in the intermediate spaces that the three analyses showed to be the most integrated.

Figure 114.

The maps of space syntax analysis: through vision, (VGA), and integration of the in-between spaces within the University of Jordan (Ground floor) (by the researcher).

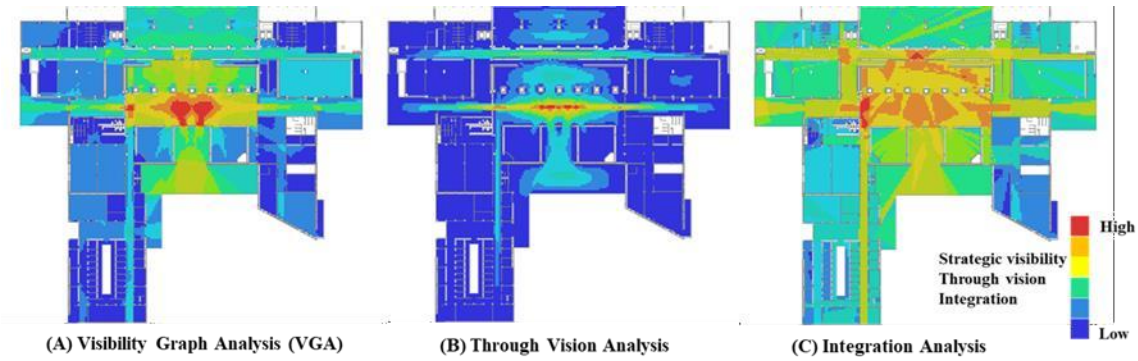


Figure 115.

The maps of space syntax analysis: through vision, (VGA), and integration of the in-between spaces within the University of Science and Technology (Ground floor) (by the researcher).

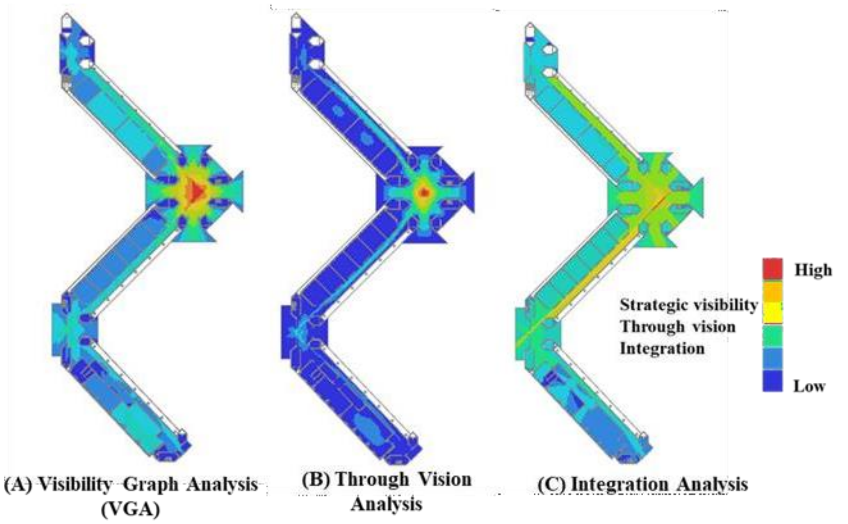


Figure 116.

The maps of space syntax analysis: through vision, (VGA), and integration of the in-between spaces within the Hashemite University (Ground floor) (by the researcher).

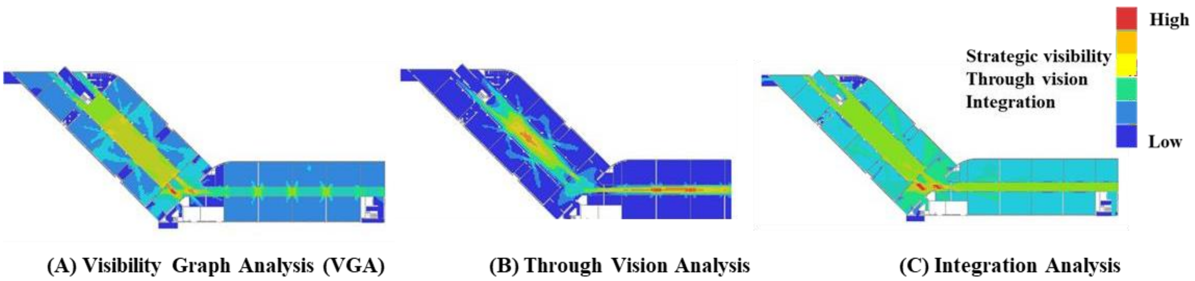
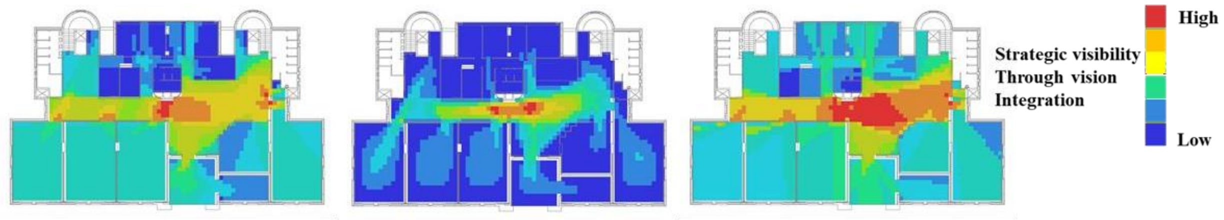


Figure 117.

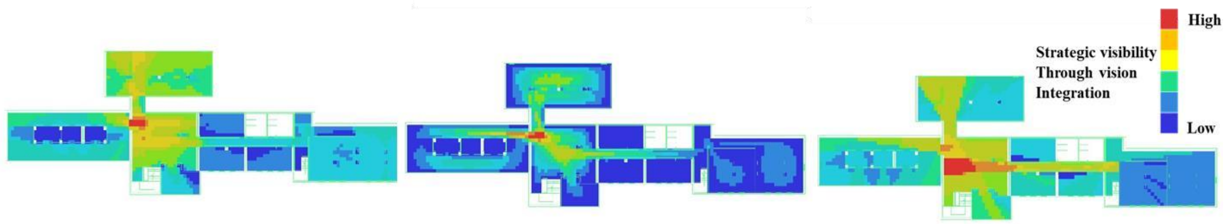
The maps of space syntax analysis: through vision, (VGA), and integration of the in-between spaces within Al-Ahliyya Amman University (Ground floor) (by the researcher).



(A) Visibility Graph Analysis (VGA) (B) Through Vision Analysis (C) Integration Analysis

Figure 118.

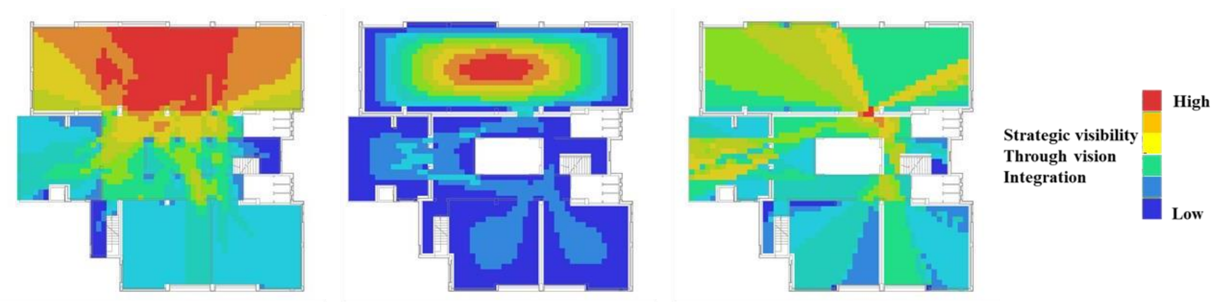
The maps of space syntax analysis: through vision, (VGA), and integration of the in-between spaces within Petra Private University (Ground floor) (by the researcher).



(A) Visibility Graph Analysis (VGA) (B) Through Vision Analysis (C) Integration Analysis

Figure 119.

The maps of space syntax analysis: through vision, (VGA), and integration of the in-between spaces within Applied Science Private University (Ground floor) (by the researcher).



(A) Visibility Graph Analysis (VGA) (B) Through Vision Analysis (C) Integration Analysis

The corridors in these examples are not mere circulation spaces; the observations show that students frequently use these spaces for informal gathering, working, and presenting their work. Another observation here is the significant importance of furniture in spaces that have high integration and through-vision. When furniture is provided in central spaces, students and faculty have the tendency to use it more often.

The outcome of the Space Syntax Analysis and related observations indicates that these spaces have significant potential to be an interactive and integral part of the design of education space. In most cases, the corridors show high degrees of connectivity, integration, and intervisibility; nevertheless, there are instances where the integration value is high but the intervisibility (through-vision) is low (see the ground floor of Applied Science Private University). These spaces might provide different opportunities for activities such as gathering and waiting spaces, as they are easy to find but not heavily visible. In other words, such spaces provide privacy while being easy to find.

Findings for research questions 5 and 6

5. Do the in-between spaces within the faculties of art and architecture need a criteria model that can promote the well-being of users?

6. What criteria can be proposed as a model for the design of in-between spaces within the faculties of art and architecture that can promote the well-being of users?

Due to its impact on the educational and learning processes, the physical educational environment of the faculties of art and architecture is an essential component of the education of architecture and art, as indicated by the sources and references examined in the second chapter. Schön (1987) describes applied design education as "reflection in action" in the studio space, which he labels "practicum."

It can be argued that seeing the reflection in action can be extended beyond the pre-defined space of the studio and into spaces in between that have the potential to sustain those activities. Consequently, it is essential to consider these spaces during the design process.

The importance of the interior features as well as the great scientific and technical progress in the field of improving the specifications of the physical environment in order to respond to the needs and requirements of users, from faculty members to students, and the importance of the interior features and their physical, sensory, and tangible impact on the physical, mental, social, and psychological well-being of the users, cannot be neglected. It had to be considered when designing or developing the design.

No one can rule out the need for comfortable furniture that is suitable for the human body, especially in spaces of gathering in which students spend the majority of their time outside the studio and classrooms at the university, as well as the colours used in the design of spaces, which have a great psychological impact on the users of the space, as well as the matter with regard to good lighting, connecting to nature, good ventilation, flexibility in delineating space, and adaptability in delineating space.

It has been noted that the spaces between the art and architecture faculties need to be developed in order to keep up with developments in this discipline. Through the perception of faculty members and students, as well as the observation supported by the Space Syntax analysis, it was determined in this study that a number of aspects of the physical environment within faculties of art and architecture must be reconsidered in order to meet the needs of the users of such spaces, thereby enhancing their well-being and productivity. In light of this, it was necessary to propose a supplementary criteria model that facilitates the enhancement of well-being throughout the design process.

The model aims to accomplish the following goals:

A. To serve as an instrument for determining the level of quality of the tangible educational environment of in-between spaces within the art and architecture faculties.
B. To become a guide for developing, enhancing, and introducing new features into the design of existing in-between spaces.
C. To assist future architects and designers in paying attention to the design of in-between spaces in general, and particularly in art and architecture faculties, so that the design of these spaces meets the needs of the user's well-being.

Model development method:

The model was developed by reviewing theoretical literature and standards for designing educational environments in general and then addressing the practical side, which surveyed the views of users from faculty members and students, and the study of the reality of the physical educational environment, revealing the aspects that need development and modernization, which occupied low, moderate, and high-quality levels, to determine standards and specifications that are in line with scientific and professional progress, and the reality of the in-between spaces environment within the faculties of art and architecture at the Jordanian universities.

Preparing the criteria model formula

Based on what the study dealt with in reviewing a set of international references, standards, and specifications for designing the interior spaces within the universities and previous studies in the second chapter, the researcher made a comparison of all the international standards with the results of this study for the reality of in-between space design to determine from them the specifications that are compatible with the majority of the faculties of art and architecture in Jordanian universities and in proportion to the objectives of the study.

This resulted in defining the dimensions of the physical educational environment in the form of fields that numbered eleven dimensions, as stated in the study tool (questionnaire). The table below shows the aforementioned dimensions. The eleven domains were built so that they were able to cover the aspects of interstitial space design in an integrated manner based on the seven requirements of well-being, which were explained in detail in this study. Each field included a set of features between three and six. That occupied importance in designing the physical educational environment for universities and was later considered a reference for designing the in-between spaces criteria model.

Table 17.

Dimensions of the vital in-between spaces design.

No.	Dimension	Well-being related requirements
1	Physical features and visual appearance	Functional / Ergonomic /social
2	Size & Design of in-between spaces	Functional / Ergonomic /Psychological
3	Circulation & Movement Space Zoning	Functional / Ergonomic
4	Ergonomics & Furnishing	Functional / Ergonomic
5	Lighting	Functional / Sensory / Psychological

6	Color & Finishing	Aesthetic / Psychological
7	Acoustics	Functional/ Sensory /Psychological
8	Heating, Ventilation & Air Conditioning	Functional / Sensory / Psychological
9	Visual Communication & Instructional Tools	Functional / Psychological / Social
10	Social& Cultural Spaces	Functional / Psychological / Social
11	Accessories	Functional / Psychological/ Social / Aesthetic

The criteria model of the in-between spaces within the faculty of art and architecture

The following is the criteria model of the in-between spaces within the faculty of art and architecture: It was based on the data of the study and on the aforementioned seven well-being requirements.

Physical features and visual appearance:

A. The main entrance of the faculty should be attentively designed to create a distinct and impressive entry point that contributes to the building's overall aesthetic appeal. It may have a magnificent façade, distinctive architectural elements, or an impressive entrance that attracts visitors and invites them inside. Near the entrance, clear signage and directional elements should be located to ensure that visitors can easily locate and access the various areas of the faculty. The landscaping and exterior elements encircling the main entrance should be meticulously designed to enhance the building's overall appearance.

B. Appropriateness of surrounding natural views with the internal environment of the faculty, as accessed by windows and entrances leading to gardens and verdant areas where connection to nature is essential to our health and quality of life as a whole. It enhances physical health, reduces stress, and improves mental health. Prioritizing this relationship enriches our lives and fosters a harmonious rapport with the natural world, which is important for our well-being and overall quality of life.

C. Extremely important is the suitability of a faculty's surrounding outdoor spaces for architectural education activities. These outdoor spaces ought to be conducive to a variety of activities. They should provide adequate space for architectural workshops, model building, and sketching exercises, etc. Ideally, these spaces should also incorporate elements that reflect sustainable design principles and enable students to interact with nature, nurturing a holistic understanding of the built environment. By providing well-designed and adaptable outdoor spaces, architectural faculties can enhance the educational experience, foster creativity, and better prepare students for actual architectural practice.

Size and design of in-between spaces:

A. Ensuring appropriate sizes of in-between spaces within the architecture faculty, proportionate to the number of users, is crucial for fostering learning and a working environment. These spaces should be designed to accommodate the anticipated volume of users while offering sufficient movement and gathering spaces that are suitable for groups and individual activities. By considering the number of students, faculty members, and staff, these spaces can be scaled appropriately to avoid overcrowding or underutilization. They can also benefit from syntax analysis for this issue. It's important to provide a balance between private spaces for focused work and larger public spaces to encourage interaction and allow for diverse learning experiences. Well-proportioned in-between spaces promote a sense of comfort, facilitate effective communication, and support the dynamic nature of architectural education, ultimately enhancing the overall well-being experience for users within the faculty and promoting their productivity.

B. The in-between spaces inside the faculty of architecture should be characterized by a high degree of flexibility and easy reconfiguration to effectively implement a wide range of activities and meet the diverse educational requirements demanded by the architectural educational process. These spaces should be designed with adaptability in mind, allowing for seamless transitions between various teaching formats, design reviews, collaborative workshops, and individual study sessions. By providing movable furniture, movable partitions, and versatile layouts, these spaces can be quickly transformed to accommodate different group sizes during the various activities. This flexibility empowers students and faculty to shape the environment to suit their specific needs, promoting creativity, collaboration, and exploration within the architectural education context and responding to the evolving demands of architectural education. Whether it's setting up gathering spaces, jury spaces, or exhibition spaces.

C. In the faculty of architecture, it is essential that the in-between spaces provide users with privacy and independence, ensuring that each student has their own personal space to complete their work. These private spaces enable students to focus and engage in individual design processes without distractions. By providing designated workstations equipped with personal desks, storage, and adequate lighting, students can have a sense of ownership over their space, promoting an environment for creativity and productivity. Ensuring privacy and independence within these in-between spaces acknowledges the importance of personal expression and allows students to work at their own pace, promoting a sense of autonomy and individual growth. This balance of privacy and independence in the faculty's in-between spaces supports the unique learning needs of art and architecture students.

D. The ceiling heights within the in-between spaces inside the faculty of art and architecture should be proportionate to the function and size of the spaces, creating an atmosphere that conveys a feeling of comfort and affinity. Adequate ceiling heights contribute to a sense of openness and spaciousness, allowing users to feel more at ease and connected to their surroundings. Higher ceilings can also facilitate natural ventilation and the penetration of natural light, creating a more pleasant and inviting environment. Striking the right balance between ceiling height and the size of the in-between spaces is essential in encouraging a harmonious atmosphere that promotes creativity, focus, and a sense of belonging within the faculty of art and architecture

E. The in-between spaces within the faculties of art and architecture should be thoughtfully designed to meet the needs of individuals with disabilities, ensuring inclusivity and accessibility. These spaces should be ample and manoeuvrable to accommodate wheelchair users, allowing for comfortable navigation and access to all areas. Additionally, it is crucial to consider the space requirements for a person accompanying someone in a wheelchair, allowing for easy movement and interaction. This may involve providing wider pathways, appropriately positioned furniture, and accessible seating options. By prioritizing the needs of individuals with disabilities, these in-between spaces create an environment that encourages equal participation, engagement, and a sense of belonging for all members of the art and architecture student body.

Circulation and movement space zoning

A. The corridors between classrooms and in-between spaces within the art and architecture faculties should be designed to be adequate in size and functionality, serving their essential purpose within the educational environment. These corridors should be carefully planned to provide efficient circulation and seamless connectivity between different areas of the faculty. Additionally, the design should take into consideration the potential need for storage items or display of student work, by providing lockers and niches for such purposes.

B. The design of corridors within the faculties of art and architecture should take into account the movement of users, especially during times of crowding. These corridors should be planned with adequate width to accommodate increased traffic and prevent congestion. The incorporation of wider sections or alcoves within the corridors allows for temporary pauses or gatherings, reducing the impact of crowding on overall movement. By considering the dynamics of user movement during busy periods, the design of these corridors promotes a safe, comfortable, and uninterrupted flow of people within the art and architecture faculties.

C. Within the faculties of art and architecture, corridors should be designed with clear directions and easy access to other locations and amenities. The corridors should provide direct pathways to important areas such as classrooms, studios, exhibition spaces, libraries, and common areas. By strategically placing these amenities along the corridors and providing visible access points, users can quickly and conveniently reach their intended destinations. This accessibility enhances the efficiency of movement within the faculty, where clear directions and easy access within the corridors contribute to a well-organized and user-friendly environment within the art and architecture faculties.

D. The staircases within the faculty of art and architecture should be designed to be sufficient and meet the requirements of vertical movement within the facility. They should be carefully planned to facilitate the expected flow of users, providing ample width and appropriate landing spaces. The design of the staircases should prioritize safety, with well-constructed steps, sturdy handrails, and appropriate illumination. Additionally, positioning staircases in visible central locations with their aesthetic design can reflect the artistic and architectural nature of the faculty, contributing to inspiring creativity by promoting the vital space, and making it a site of gathering and speaking rather than merely a tool for vertical movement. The placement of staircases should be strategic, ensuring convenient access to various levels and minimizing travel distances. By providing sufficient and well-designed staircases, the faculty promotes efficient vertical movement and facilitates a sense of connection between different spaces.

E. The elevators within the faculties of art and architecture should be designed to be sufficient and meet the vertical movement requirements along with the stairs of the faculty. They should be spacious enough to accommodate individuals with mobility aids, such as wheelchairs, and provide a comfortable and secure experience for all users. The elevator design should prioritize accessibility features, including appropriately positioned buttons, audio announcements, and distinct visual indicators for floor levels. Furthermore, the ornamental design of the elevators can align with the artistic and architectural character of the faculty, creating an inspiring and visually appealing experience. By providing sufficient and well-designed elevators, the faculty promotes accessibility, and simple vertical movement for students, faculty, and visitors within the art and architecture faculty.

F. The in-between spaces within the faculties of art and architecture should prioritize ease of movement for individuals with disabilities, ensuring seamless access between classrooms and other spaces within the facility. These spaces should be designed to be barrier-free, with wide pathways that can accommodate wheelchair users and provide ample turning radius. Additionally, the placement of furniture, fixtures, and other elements should be carefully considered to ensure unobstructed pathways and clear lines of sight.

Ergonomics and furnishing

A. The furniture in the foyers and corridors within the faculties of art and architecture should be attentively designed to provide a comfortable experience for users. The selection of furniture takes into consideration both aesthetics and ergonomics, ensuring that individuals can unwind, engage in dialogues, or take a moment to rest in these communal spaces. Comfortable seating options, such as reclining chairs or benches, are strategically located to encourage social interaction and foster a sense of community. The materials selected for the furniture prioritize durability and comfort, offering a pleasurable seating experience. Additionally, the arrangement of furniture allows for simple circulation, maintaining a balance between functionality and aesthetic attraction. By providing comfortable furniture in the foyers and corridors, the faculties create welcoming and inviting vital spaces that encourage collaboration, relaxation, and connection within the faculties.

B. The in-between spaces within the faculties of art and architecture should be designed to provide a suitable seating layout and arrangement that caters to both individual and group use. The seating options should be versatile, allowing for various seating configurations to accommodate different activities and preferences. Comfortable chairs and benches should be strategically placed to create inviting areas for individuals to work, study, or reflect. Additionally, flexible furniture arrangements, such as movable tables or modular seating, enable the spaces to be easily adapted for group discussions, collaborative projects, or presentations. The design should consider the balance between open spaces for communal interaction and more secluded areas for focused work. By providing a well-planned seating layout and arrangement, the in-between spaces in art and architecture faculties promote productivity, creativity, and engagement among students and faculty, catering to the diverse needs and preferences within the educational environment.

C. The furniture within the in-between spaces of the faculty should be designed to be adjustable and appropriate for the human body and its requirements. Ergonomics plays a crucial role in creating furniture that supports the natural posture and body mechanics of individuals. Chairs and seating options should offer adjustable features such as height, backrest, and armrests to accommodate different sitting styles and body proportions. The furniture should promote proper alignment, providing adequate lumbar support and cushioning for comfort during extended periods of sitting. Additionally, the materials used should be durable and breathable to ensure a pleasant sitting experience. By prioritizing the ergonomics of the furniture, the in-between spaces within the faculty create a comfortable and supportive environment that promotes well-being, reduces the risk of physical discomfort or injury, and enhances productivity and overall user experience.

D. The seats in the in-between spaces within the faculties of art and architecture should be designed to provide comfort and support for long periods of time. Ergonomic considerations play a crucial role in ensuring that the seats promote proper posture, reduce fatigue, and minimize discomfort during extended use. Features such as cushioning, and lumbar

E. support, contribute to a comfortable seating experience. The seats should also be sturdy and durable, capable of withstanding frequent use without compromising their structural integrity. Additionally, the design should take into account the aesthetic appeal, aligning with the artistic and architectural character of the faculty. By providing seats designed for long-term use, the in-between spaces within the faculties create an environment where students, faculty, and staff can engage in activities, study, or collaborate for extended periods while maintaining optimal comfort and productivity.

Lighting

A. The in-between spaces within the faculties of art and architecture should be designed to receive an adequate amount of natural daylight through well-placed openings such as doors and windows. Natural daylight has numerous benefits, including enhancing visual comfort, aesthetic appeal, and creating a sense of connection to the outdoors, and promoting a healthy and productive environment. Ample natural light not only reduces the reliance on artificial lighting but also contributes to energy efficiency. The design should consider the orientation and placement of openings to maximize the ingress of natural light while minimizing glare and heat gain. Additionally, the use of transparent or translucent materials for partitions or dividers can help distribute daylight to interior spaces. By prioritizing the incorporation of natural daylight, the in-between spaces inside the faculty create a vibrant, inviting atmosphere that positively impacts the well-being, and mood, creating a visually pleasing and stimulating environment that supports creativity, inspiration, and the overall educational experience.

B. Within the in-between spaces of the faculty, it is important to ensure sufficient levels of lighting, both natural and artificial, are accessible throughout the day to accommodate various activities. Additionally, artificial lighting should be strategically integrated to supplement natural light and maintain appropriate illumination levels during cloudy days or in the evenings. Lighting fixtures should be carefully selected and positioned to prevent glare, shadows, and uneven lighting distribution. A combination of ambient, task, and accent lighting can be employed to create a dynamic and adaptable lighting scheme that meets the specific needs of different activities and enhances the aesthetics of the space.

C. The in-between spaces inside the faculty should be designed with the ability to adjust illumination levels to fit various activities without the need for professional assistance. This flexibility empowers users to create a lighting environment that best suits their specific needs and preferences. Incorporating user-friendly controls, such as dimmers or adjustable lighting fixtures, allows individuals to easily modulate the brightness and ambiance of the space. This adaptability ensures that different tasks, such as studying, group discussions, or presentations, can be accommodated with appropriate lighting levels. Providing simple and intuitive controls promotes user autonomy and encourages a sense of ownership over the environment.

D. The in-between spaces within the faculty should be designed with the ability to regulate both the direct and indirect glare, ensuring optimal visual comfort for users. Glare can be a significant source of discomfort and visual impairment, hindering productivity and overall well-being. To mitigate glare, various strategies can be employed, such as the use of adjustable blinds or curtains to control direct sunlight, and the placement of diffusing materials or fixtures to minimize reflections and indirect glare. Additionally, the selection of appropriate light sources and fixtures with proper shielding can help prevent direct glare. By considering glare control in the design, the faculty promotes an atmosphere that supports concentration, visual clarity, and overall user satisfaction within the art and architecture in-between spaces.

E. Within the faculty's in-between spaces, it is important to ensure proper distribution of lighting units that take into account their influence on colors. Different lighting sources can have varying effects on the perception and appearance of colors. Therefore, it is crucial to select lighting fixtures that provide a balanced and accurate representation of colors. Properly distributed lighting units can highlight the architectural features, artworks, and materials within the space, enhancing their visual appeal and creating a harmonious environment. Additionally, the color temperature and color rendering properties of the lighting should be considered to ensure that colors are rendered accurately and vividly. By carefully considering the distribution of lighting units and their impact on colors, the in-between spaces within the faculty can promote an aesthetically pleasing and visually stimulating environment for the users.

Colour and finishing

A. It is important to consider the psychological influence of colors on users while designing in-between spaces. Colors have the power to evoke emotions, affect mood, and create psychological responses. Different colors have distinct psychological associations and can elicit various feelings and perceptions. For example, warm colors like red and orange can create a sense of energy and excitement, while cool colors like blue and green can evoke feelings of calmness and relaxation. By strategically incorporating colors that align with the desired atmosphere and purpose of the space, the in-between spaces can influence the psychological well-being of users. Additionally, the psychological impact of colors should be considered in conjunction with the activities and functions of the space. For instance, using soothing and neutral colors in areas dedicated to relaxation or concentration, and vibrant and stimulating colors in spaces meant for collaboration or creativity. By consciously considering the psychological influence of colors, the design of in-between spaces inside the faculty can create an environment that promotes positive emotions.

B. Within the in-between spaces of the faculty, careful consideration should be given to the selection of colors for the ceiling, walls, and floors. These colors are chosen to create a harmonious and coordinated aesthetic with other design components, including furniture and curtains. The colors used on the ceiling, walls, and floors are thoughtfully coordinated to enhance the overall ambiance of the space. They may be selected to create a sense of openness, warmth, or serenity, depending on the desired atmosphere and purpose of the in-between spaces. The chosen colors also take into account the natural and artificial lighting in the area, as well as the overall design concept and style of the faculty. They contribute to a cohesive and visually pleasing environment that enhances the overall user experience. By using appropriate colors that are coordinated with other design elements, the in-between spaces within the faculty create a visually appealing and harmonious setting that promotes a sense of unity and aesthetic satisfaction among users.

C. In the foyers and other in-between spaces within the faculty, where juries and gallery events take place, special consideration is given to the selection of non-reflective hues. These colors are chosen specifically for their impact on the lighting conditions within the space. Non-reflective hues are carefully chosen to minimize glare and reflections, ensuring a balanced and comfortable lighting environment. This is particularly important in areas where artwork or presentations are displayed, as excessive glare can distort colors and hinder the viewing experience. By selecting non-reflective hues for these spaces, the design aims to create an optimal lighting environment that allows for clear visibility and accurate color perception. This enhances the overall quality of jury evaluations, gallery exhibitions, and other events, as the chosen colors work harmoniously with the lighting to showcase artwork and create an immersive visual experience.

Acoustics

A. In the design of the in-between spaces within the faculty, special attention should be given to ensuring effective acoustic noise isolation. This consideration is aimed at reducing the impact of noise resulting from the congestion of users in these spaces, various measures are implemented to achieve acoustic noise isolation. This may include the use of sound-absorbing materials on walls, ceilings, and floors to minimize sound reflections and reverberations. Additionally, strategic placement of acoustic panels or barriers can help mitigate noise transmission between different areas. This allows users to have a quieter and more comfortable experience within these spaces, free from excessive background noise and distractions, which enhances the concentration, communication, and overall well-being of users within the faculty.

B. The design of in-between spaces should take into account the specific needs and requirements of each space, considering factors such as acoustics, privacy, and functionality. Physical barriers, such as walls or partitions, are strategically placed to create distinct zones while still allowing for visual connectivity and easy movement between spaces. The separation between classrooms and in-between spaces serves multiple purposes. It helps to minimize disruptions and noise transfer from one area to another, ensuring a quiet and focused learning environment within classrooms. At the same time, it allows for the flexibility and adaptability of in-between spaces, providing areas for collaboration, discussions, and creative activities. By maintaining an appropriate separation, the design fosters a balance between structured learning environments and dynamic, interactive spaces. This enhances the overall functionality and effectiveness of both classrooms and in-between areas and accommodates diverse educational activities within the faculty.

C. The faculty's choice of appropriate floor coverings is essential for reducing noise from user movement. Special consideration should be given to choosing materials that have sound-absorbing properties and can effectively minimize the impact of footsteps and other noises. Various options are available for floor coverings, including carpeting, resilient flooring, or acoustic underlays. These materials are carefully chosen based on their ability to absorb and dampen sound vibrations, reducing the transmission of noise between spaces. Additionally, the selection of floor coverings takes into account other important factors such as durability, ease of maintenance, and aesthetic appeal. The combination of these considerations ensures that the floor coverings not only serve a functional purpose but also contribute to the overall aesthetic and ambiance of the in-between spaces within the faculty.

Heating, Ventilation & Air Conditioning

A. The design of the in-between spaces within the faculty takes into consideration the quality of natural ventilation and ensures that ventilation is achieved without being disrupted by noise or exterior air currents. This is achieved through the installation of appropriate windows that are carefully selected in terms of size and orientation. The size of the windows is determined based on the desired airflow and the specific requirements of each space. They are strategically placed to allow for optimal air circulation and exchange, promoting a healthy and comfortable indoor environment. The orientation of the windows takes into account factors such as prevailing winds, solar exposure, and views while also considering the need to minimize unwanted noise from the surrounding environment. By providing well-designed windows, the in-between spaces within the faculty can benefit from natural ventilation, allowing fresh air to enter and stale air to be expelled. Additionally, the design of the windows may incorporate features such as adjustable louvers or operable sections, allowing users to control the amount of airflow and natural ventilation according to their preferences and specific needs. This flexibility ensures that the in-between spaces can adapt to varying weather conditions and user requirements throughout the year. Overall, the consideration of natural ventilation in the design of the in-between spaces helps to create a pleasant and healthy environment, promoting a sense of well-being and productivity among the users.

B. The design of the in-between spaces within the faculty includes features and systems that enable effective temperature management and minimize temperature swings. These measures aim to create a comfortable and consistent thermal environment for users. Various techniques can be employed to achieve this goal. One approach is the use of insulation materials in walls, ceilings, and floors, as mentioned before, which help reduce heat transfer and maintain a more stable indoor temperature. Proper insulation prevents excessive heat gain during hot weather and heat loss during cold weather, thereby minimizing temperature fluctuations. Another aspect is the integration of efficient HVAC (heating, ventilation, and air conditioning) systems within the in-between spaces. These systems provide precise control over temperature, allowing adjustments based on the specific requirements of each space. Furthermore, the design may incorporate shading devices such as blinds, curtains, or exterior shading structures to mitigate the impact of direct sunlight and reduce solar heat gain. These measures help to maintain a more balanced temperature within the in-between spaces and prevent overheating, especially in areas with large windows or glass facades. Implementing these strategies, the in-between spaces can effectively manage and modify the temperature, ensuring a comfortable and stable environment for the users. This contributes to a conducive atmosphere for learning, creativity, and overall well-being within the faculty.

Visual Communication & Instructional Tools

A. The in-between areas within the faculty should be designed with the availability of electrical points located throughout the in-between spaces to ensure easy access and usability and cater to the diverse needs of the users, including students and staff. The provision of an adequate number of electrical outlets ensures that users can conveniently access power sources for their devices and equipment. They should be positioned in close proximity to seating areas, workstations, and other activity zones, allowing users to connect their laptops, chargers, and other electronic devices without inconvenience. They are capable of providing sufficient electricity for tasks such as laptop usage, device charging, audiovisual equipment, and other equipment needs related to art and architecture studies. The availability of electrical points within the in-between spaces promotes convenience and flexibility for the users. It allows them to engage in their activities seamlessly without worrying about running out of battery or being restricted by the availability of power sources.

B. The in-between spaces within the faculty should be equipped with the necessary communication lines and Internet connectivity to meet the needs of the users. The provision of communication lines allows for the establishment of a reliable network infrastructure throughout the in-between spaces. This includes data cables, Ethernet ports, and other necessary components to facilitate wired connectivity. Additionally, wireless access points are strategically placed to provide Wi-Fi coverage, enabling users to connect their devices to the Internet without restrictions. Having access to a reliable and high-speed internet connection is crucial for various activities within the faculty, where it improves the overall learning and working experience within the faculty. It promotes efficient information exchange, fosters collaboration, and supports digital learning initiatives.

C. The in-between spaces within the faculty should be designed to accommodate the display of presentation boards for projects and activities. These boards offer a visually engaging and informative way to share information and ideas with the faculty community. The variety of sizes available ensures that different types of projects can be displayed, creating a visual dialogue that enriches the learning and sharing experience.

Social& Cultural Spaces

A. The in-between spaces within the faculty should be designed to cater to the social activities of architecture and design students. They provide an ideal setting for students to gather, engage in discussions, and build connections. The layout and arrangement of furniture encourage both individual and group interactions, offering various seating options to accommodate different social dynamics. The in-between spaces often feature amenities such as coffee bars, lounges, or recreational areas, enhancing the social experience and creating a welcoming environment. The availability of ample natural light, pleasing aesthetics, and visually appealing elements add to the ambiance of the in-between spaces.

B. The design of in-between spaces within the faculty should focus on enhancing social life and fostering interaction among students and faculty members. Comfortable seating arrangements, such as lounge areas, collaborative workstations, and communal tables, are placed to facilitate informal conversations and group activities. Open and accessible pathways between different areas encourage movement and chance encounters, further facilitating social interactions. Overall, the design prioritizes creating an environment that enhances social life and interaction.

C. The faculty's in-between areas offer a range of suitable spaces for both individual and group activities. For individual work or study, there are designated solo spaces that offer privacy and focus. For group activities and collaboration, there may include open collaboration zones, group workstations, or dedicated meeting rooms equipped with interactive technologies and tools. The furniture and seating arrangements within these spaces are versatile and flexible, allowing for easy reconfiguration to accommodate different group sizes and activities. Additionally, shared resources and amenities are provided to facilitate group work and social interaction. Overall, the faculty's in-between areas are thoughtfully designed to foster individual focus as well as collaborative engagement.

Accessories

A. The in-between spaces of the faculty should have plain and effective signage for simple navigation and circulation. The design and placement of directional signs should be carefully considered to ensure that they are highly visible and straightforward to comprehend. Typically, signs include concise text, symbols, and directional cues to provide accurate direction. The design of the signage incorporates appropriate font sizes, contrasting hues, and consistent visual elements to complement the interior aesthetic of the faculty.

B. The design of the faculty's in-between spaces should prioritize signage that clearly identifies classrooms, offices, and other interior spaces. The signs should be set at key locations, such as corridor intersections and entrances, to identify various destinations in a clear manner. They are designed with legible typography and appropriate font sizes for simple distance readability. Regular maintenance and revisions are performed to keep the placards accurate and current. This contributes to a seamless and intuitive user experience by facilitating the identification and access to classrooms, offices, and other interior locations within the facility.

C. The faculty's in-between spaces should be attentively designed to ensure their suitability and efficiency. The location of the bulletin boards should be determined strategically to optimize visibility and accessibility, and the colors are chosen with readability and aesthetics in mind. By contemplating the locations, colors, and sizes of the bulletin boards, the in-between spaces provide a functional and aesthetically pleasing platform for communicating with students, faculty, and staff.

D. The faculty's in-between spaces should be designed to accommodate the display of students' works, scientific and artistic creations, as well as their creative accomplishments. Dedicated exhibition areas, flexible display systems, lighting fixtures, and spotlighting are installed to increase the visual impact of these spaces, which are strategically positioned in high-visibility areas. By providing ample areas for the display of students' works and creative accomplishments, the in-between spaces serve as a platform to commemorate and demonstrate the students' talent and innovation, contributing to a vibrant and inspiring learning environment.

E. Indoor natural decorative plants and water features should be integrated into in-between spaces to enhance the aesthetic appeal and create a calming and revitalizing environment. Not only do these elements add visual appeal, but they also have positive physiological effects on interior spaces. Water features can take the form of tiny fountains, water features, or domestic ponds. In addition to enhancing the aesthetics, the presence of these elements promotes a sense of well-being, revitalization, and harmony within the interior environment, in addition to increasing the connection with nature.

CHAPTER V

Discussion

This chapter presents a discussion of the findings in the previous chapter. In order to emphasize the findings concerning the design of in-between spaces in the faculties of art and architecture in Jordanian universities reached during this study, which would support scientific research in this field.

The design features are examined regarding the eleven dimensions, which have been formulated as a supporting criteria model for the design of such spaces according to the well-being requirements.

Discussion of the survey and observation.

Physical Features and Visual Appearance

This This part of the study focuses on the requirement for contextual connection, which creates architectural and spatial identity by differentiating buildings and spaces with context-related data. It defines buildings by taking into account their location and connection to their surroundings. It involves variables such as orientation, entrances, adjacent structures, and natural surroundings. These characteristics contribute to the uniqueness and appeal of a location. By creating a relationship with the context, individuals grow a sense of bond to a place, which results in a sense of comfort and enhances place attachment, which is a significant predictor of social well-being (Brown et al., 2003; Kong et al., 2016). The nature of education in institutions of higher education affects students' preferences and thus influences their behaviour to use them appropriately (Scott-Webber et al., 2020). In this way, space facilitates the emergence of new possibilities.

As mentioned in the findings, the responses of the participants in the questionnaire show that this dimension of the study has obtained a moderate mean rate and has won the majority's satisfaction. The answers were more satisfied with regard to the first question related to the clarity of the main entrance to the building and its contribution to distinguishing the appearance of the building from the outside, while the third question related to the suitability of the external environment of the faculty for carrying out various educational activities received the least satisfaction from the responses. This dimension got the highest degree of satisfaction, according to both faculty members and students.

Size and Design of In-Between Spaces

This dimension of the research is concerned with functional, ergonomic, and psychological needs. These features are utilized to develop spatial solutions that aid human activities. For example, functional demands in multifunctional spaces must be met by implementing an adaptable plan that allows the same space to be utilized for several purposes at different times using a flexible approach (Onay and Minucciani, 2018). The size and design of in-between spaces within the faculty play a crucial role in supporting the needs and activities of users. The size of these spaces is carefully planned and proportionate to the number of users to ensure adequate room for movement and interaction. This helps prevent overcrowding and promotes a comfortable and functional environment (Lee & Looker, 2020).

As mentioned in the findings, the responses of the participants in the questionnaire regarding this dimension of the study indicate that it has obtained a moderate mean level. It ranked third in terms of user's satisfaction with this dimension. The answers were more satisfied with regard to the fourth question, which related to the ceiling height being sufficient for the size of the in-between spaces, while the fifth question received the lowest percentage of satisfaction with regard to providing sufficient space for people with disabilities to facilitate their movement through the wheelchair and the person accompanying him in the space.

Lighting

On an emotional level, daylight and sunlight provide a sensation of well-being. We may create certain feelings such as relaxation, activity, warmth, and coolness by using lighting patterns with varying degrees of illumination (Collier et al., 2023). Light has a physiological effect on humans; for example, natural light may aid in the recovery of sick people and the performance of students. Our bodies are designed to be sensitive to environmental light levels and characteristics. The quantity and kind of light influence the release of two chemicals, melatonin and serotonin. These hormones regulate our circadian rhythms, which are the natural cycles that govern our sleeping and waking routines (Blume et al., 2019). Artificial illumination, on the other hand, is heavily influenced by the tastes and activities of people, so electric lighting should be versatile and adjustable. (Onay & Minucciani, 2018; Parker & Wall, 1998; Silvester & Konstantinou, 2010). By addressing the factors of natural daylight, lighting levels, adjustability, glare control, and colour influence, the in-between spaces inside the faculty create an optimal lighting environment that promotes visual comfort, functionality, and a visually pleasing atmosphere for all users (Franco, 2019).As mentioned in the findings, the responses of the participants regarding this dimension of the study indicate that it has obtained a moderate mean level. It is in second place in terms of user's satisfaction with this dimension. The answers were more satisfied with regard to the second question, which related to the sufficient amount of both natural and artificial light for the duration of the day's activities, while the fourth question received the lowest percentage of satisfaction with regard to the ability of users to control direct and indirect light (glare).

Acoustics

By considering acoustic noise isolation, the appropriate separation between spaces, and the use of noise-reducing floor coverings, the design of the in-between spaces inside the faculty aims to create a calm and conducive environment for users, allowing for focused learning, effective communication, and a pleasant overall experience.(Martino, 2021).Noise management is an important part of planning living environments since it can interfere with activities, communication, relaxation, and concentration. The presence of favourable noises and the lack of unwanted ones can be used to assess the acoustic environment's quality. This is a sensory need that significantly improves overall well-being. (Onay &Minucciani,2018) As mentioned in the findings, the responses of the participants regarding this dimension of the study indicate that it has obtained a moderate mean level. It is in seventh place regarding user's satisfaction with this dimension. The answers were more satisfied with regard to the second question, which related to the separation between classrooms and in-between spaces where various activities are conducted, where it keeps quiet and prevents noise, while the first question related to the effectiveness of acoustic noise isolation in order to reduce the commotion caused by the congestion of users. received the lowest percentage of satisfaction.

Heating, Ventilation, and Air Conditioning

Thermal variables impact our bodies' function, productivity, and mood and have been related to increased health risks when exposed to temperatures 25 degrees above room temperature. Similarly, extreme cold has a direct influence on health and well-being (Näyhä, 2002). The quality of the air is affected by a variety of factors, including ventilation, humidity, and the impacts of materials (de la Hoz-Torres et al., 2023). Several studies have shown that air quality has a significant impact on academic achievement, student conduct, and workplace productivity (Annesi-Maesano et al., 2013; Jung et al., 2023; Onay & Minucciani, 2018). By considering natural ventilation and providing well-designed windows, the in-between spaces promote airflow, freshness, and a connection to the outdoors while maintaining a quiet and undisturbed atmosphere. Additionally, the management of temperature through effective HVAC systems ensures a comfortable environment for users, enhancing their overall well-being and productivity within the faculty. (Saran et al., 2020; Yang & Clements-Croome, 2020) As mentioned in the findings, the responses of the participants regarding this dimension of the study indicate that it has obtained a moderate mean level. It is in fourth place regarding user's satisfaction with this dimension. The answers were more satisfied with regard to the first question, which related to the appropriately sized and oriented windows within the faculty building considering the quality of natural ventilation and the chance of unobstructed ventilation. While the second question related to the control and modification of the temperature within the faculty to prevent temperature fluctuations, received the lowest percentage of satisfaction.

Visual Communication and Instructional Tools

By providing sufficient electrical points, communication lines, and internet connectivity, as well as appropriate presentation boards, the design of the in-between spaces promotes a technologically advanced and collaborative environment. Users can easily connect their devices, access online resources, and effectively present their work, enhancing the overall educational experience within the faculty (Teaching in Flexible Learning Spaces, n.d.).

The responses of this dimension as mentioned in the findings, are concerned with the functional, psychological, and social prerequisites of well-being. As demonstrated in the findings, the responses of the participants regarding this dimension of the study refer that it has obtained a moderate Mean level. It is in fifth place regarding users satisfied with this dimension of the study, the answers were more satisfied with regard to the third question which related to the appropriateness of presentation boards of various sizes for projects and other activities for use in the faculty's in-between spaces. While The second question related to the availability of communication lines and an Internet connection within such space received the lowest percentage of satisfaction.

Social and Cultural Spaces

This aspect of the research is concerned with the social, functional, and psychological prerequisites of well-being. Collective activities that promote the favourable impacts of getting together and sharing can boost social gatherings; in addition to adding to a livelier atmosphere, buildings should provide everyone with the chance for desirable levels of social interactions. (Minucciani& Onay, 2020; Ramu et al., 2022; Lotfyet al.,2022)

Because people live in communities, their well-being is linked to the well-being of others and the interactions between individuals and groups. Our actions that enhance social well-being are directly influenced by spatial elements, even if they may not appear to be spatial in nature. The design of our buildings and communities may promote positive social interactions. Buildings should allow everyone to connect socially at the level that is most comfortable for them by balancing public, semi-public, and private areas (Bouncken et al.,2021; Onay &Minucciani,2018; van Merriënboer et al.,2017; Robelski et al.,2019). By providing suitable spaces for social activities, enhancing social life and interaction, and offering a mix of solo and group areas, the design of the in-between spaces inside the faculty promotes a vibrant and engaging social atmosphere. It encourages students to connect with their peers, seek feedback and support from faculty members, and create a cohesive community within the field of architecture and design. (Mamaghani et al., 2015).

As indicated in the findings chapter, the responses of the participants regarding this dimension of the study refer that it has obtained a moderate Mean level. It is in sixth place regarding users satisfied with this dimension of the study, the answers were more satisfied with regard to the second question which related to the enhanced social life and interaction of students and faculty members by utilizing appropriate gathering areas. While The first question related to the suitability of in-between spaces for architecture and design students to engage in social activities.

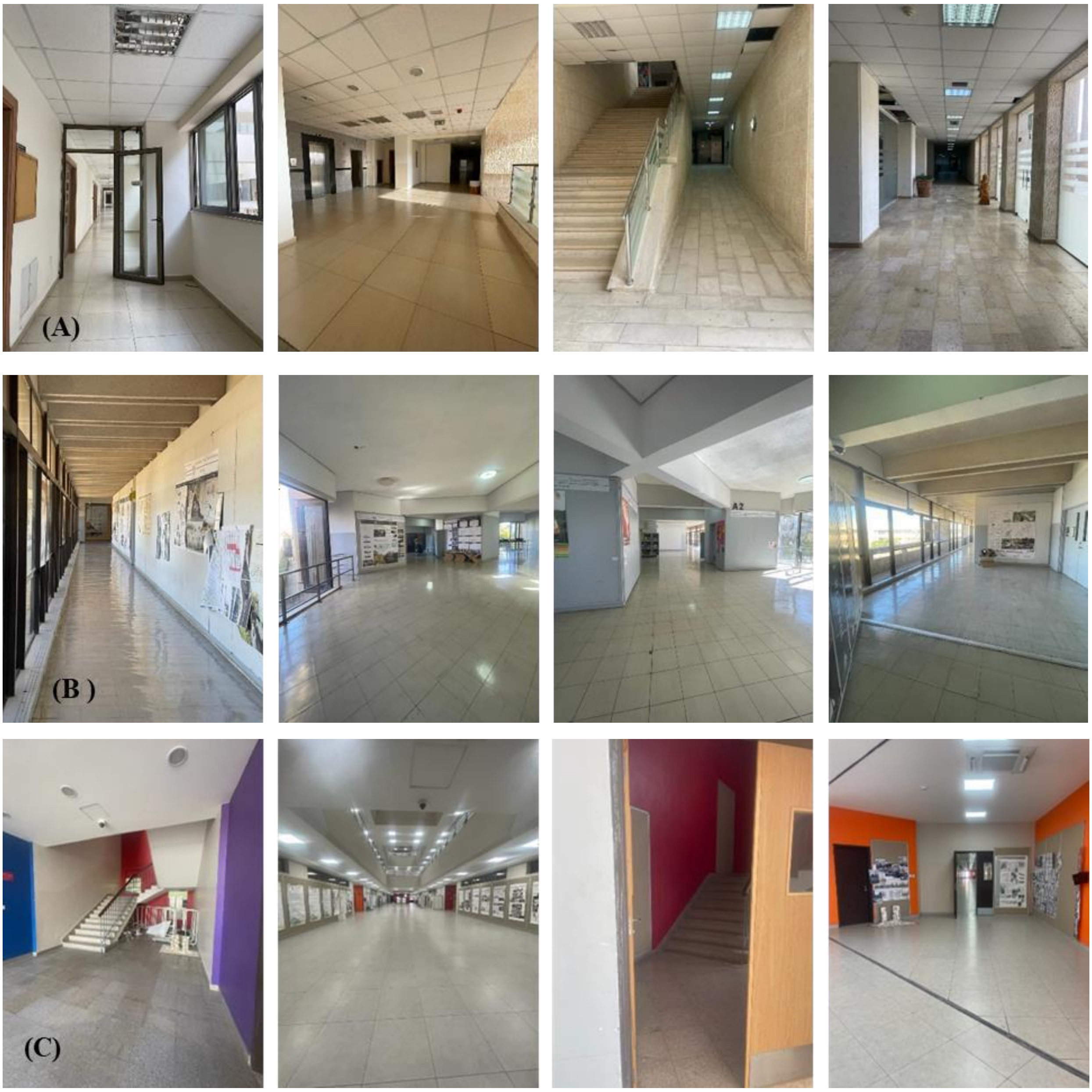
Circulation and Movement Space Zoning

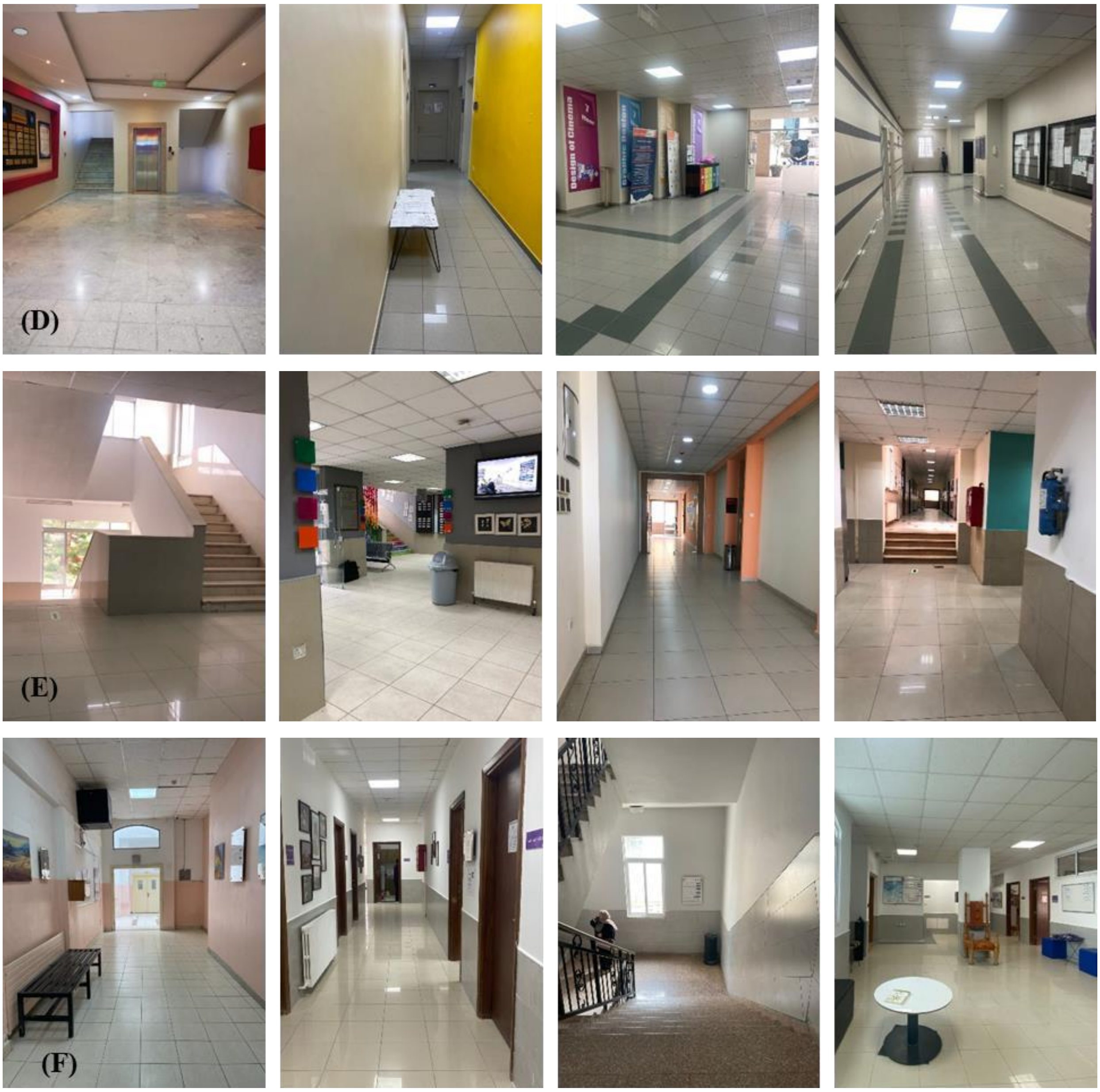
By ensuring the adequacy of the design of the corridor, providing clear directions, offering suitable staircases and elevators, and ensuring ease of movement for individuals with disabilities, the design of the in-between spaces within the faculty promotes efficient circulation, accessibility, and inclusivity. This enhances the overall functionality and user experience within the architectural and educational environment (Can & Heath, 2015; Zhang & Park, 2021). The corridors should be carefully planned to accommodate the movement of users, even during times of crowding. Consideration is given to factors such as traffic flow, space allocation, and the placement of furniture or obstacles to ensure smooth and efficient movement within the corridors (Penrod, 2022; Sailer, 2018). With regard to this dimension, the responses of the participants to the questionnaire about this dimension were clear, as explained in detail in the findings chapter, as this dimension represents one of the four dimensions that received the lowest levels of satisfaction from users. It has obtained a low mean level. It is in eighth place regarding user’s satisfaction with this dimension of the study.

The University of Jordan obtained the lowest percentage of students and faculty members' satisfaction with all questions of this dimension of the study, while it was followed by the University of Science and Technology, then the Private University of Applied Sciences, then Al-Ahliyya Amman University, followed by the University of Petra, and finally the Hashemite University, which got the highest user satisfaction rate, but it is somewhat It is a small percentage, as shown in Table 16 and Figure 112 from the previous chapter. As for the percentage of answers to questions related to this dimension, the highest percentage of satisfaction was for the fourth question related to the marking of stairs in terms of design for its function in facilitating vertical movement within the college building, followed by the percentage of the first question related to the adequacy of corridors between classrooms and places of study, and then the percentage of the third question related to ease. Access to the different spaces in the faculty as a result of the clarity of the movement corridors, then the percentage of the second question related to taking into account the movement of users during the design of the corridors, especially in times of congestion, then the sixth question related to the ease of movement of people with special needs between the different spaces of the college, and finally the fifth question got the lowest percentage of satisfaction for users with regard to the availability of sufficient and appropriate elevators to facilitate vertical movement within the internal spaces. From these results, more attention should be paid to the dimension "circulation and movement space zoning" when designing the in-between spaces within the faculties of art and architecture. The figures below show the Circulation and Movement Space Zoning within the six universities.

Figure 120.

Some in-between spaces within the six Universities showing a Circulation and Movement Space Zoning: (A) University of Jordan. (B) University of Science and Technology. (C) Hashemite University (D)Al-Ahliyya Amman University. (E) Petra Private University (F) Applied Science Private University. (Source: the researchers).





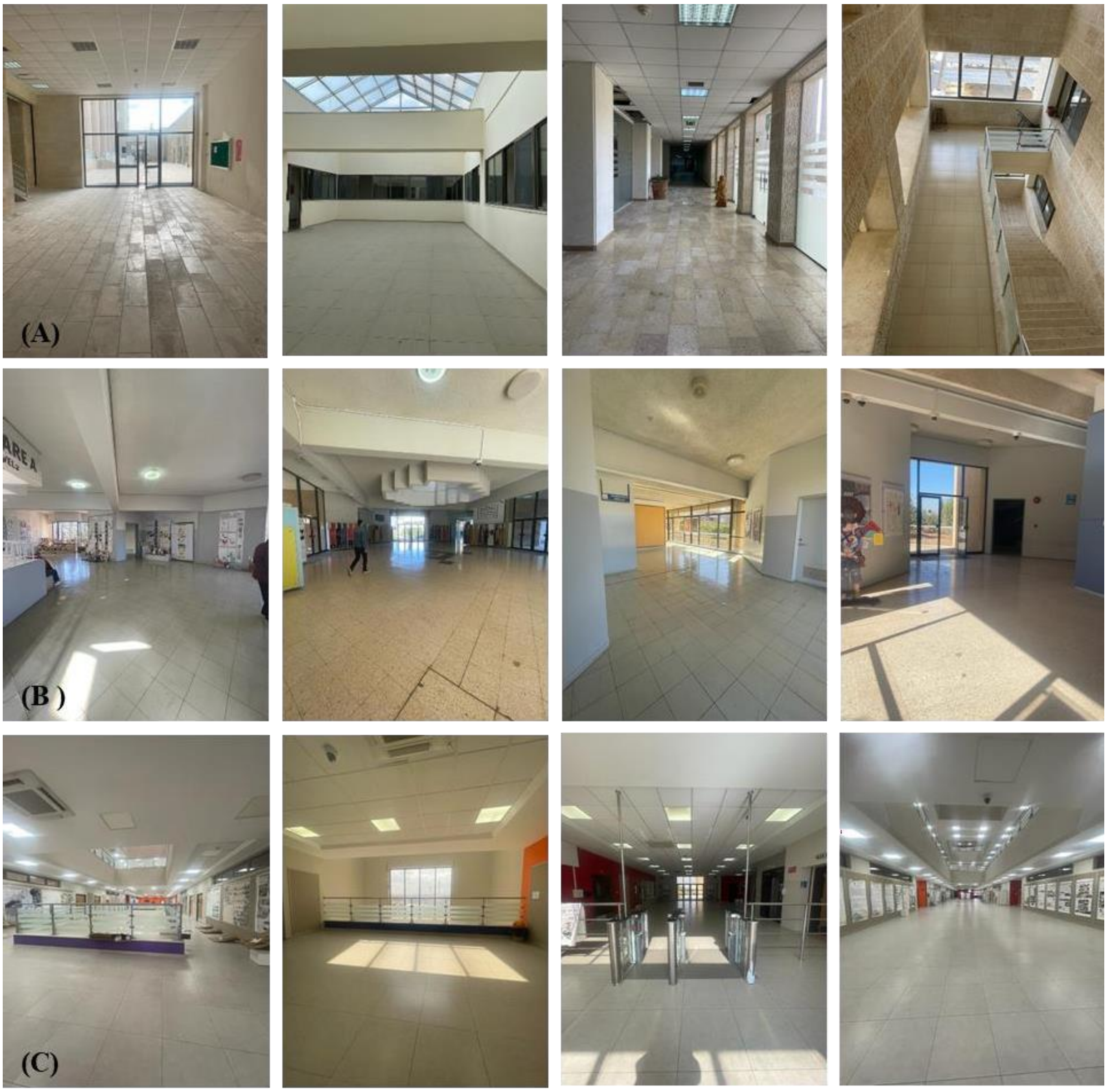
Ergonomics and Furnishing.

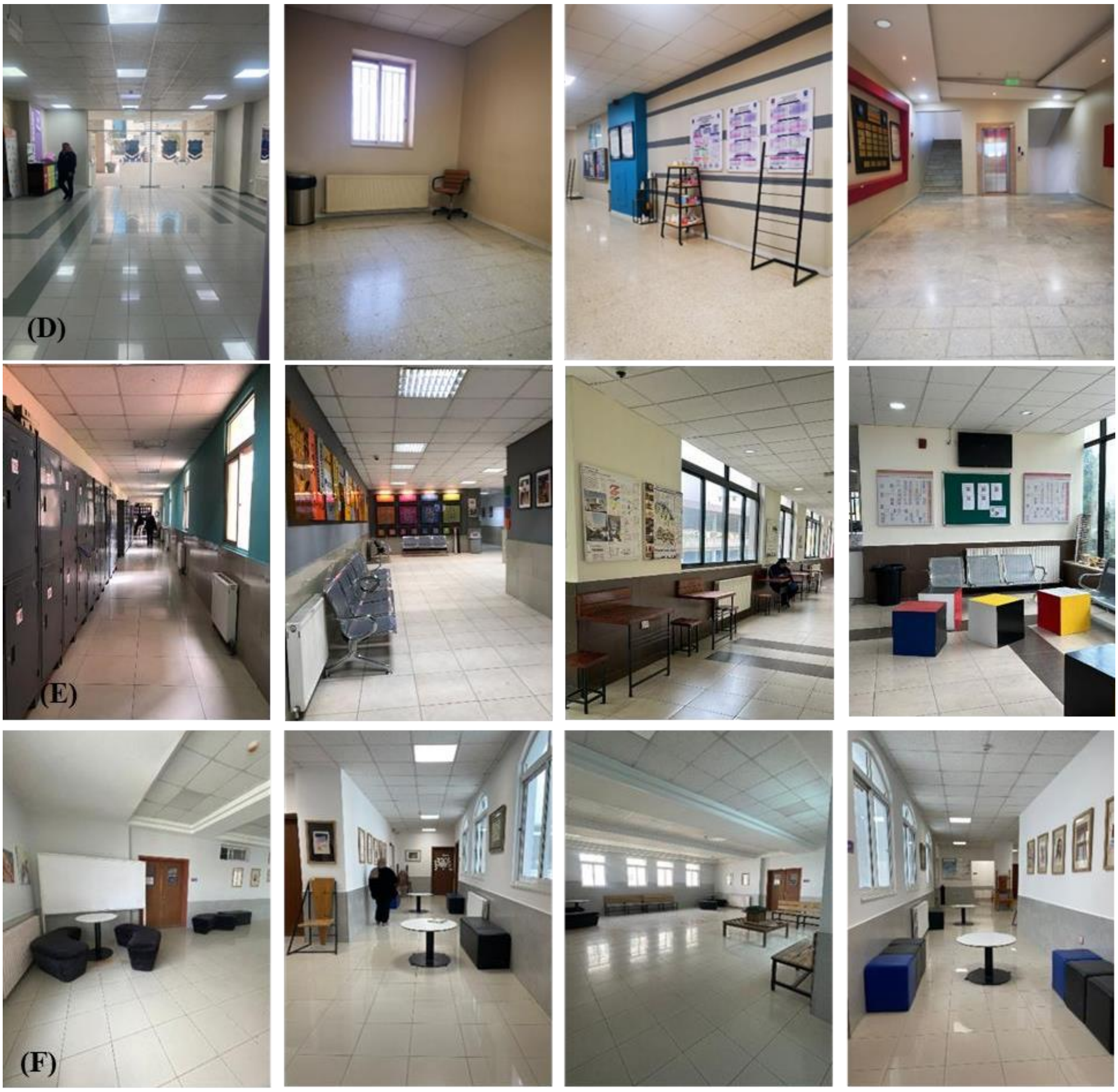
Interior design focuses on ergonomics since it tries to investigate how the environment around the human body influences both its cognitive and physical characteristics (Fuchs et al., 2020; Minucciani& Onay, 2020; Poldma, 2011). Ergonomic requirements are concerned with how people interact with their environment and how these interactions help them complete certain jobs. While cognitive ergonomics investigates brain processes and interactions between individuals and their surroundings, physical ergonomics is concerned with physical activities and focuses on human anthropometric, anatomical, biomechanical, and psychological elements (Salvendy, 2012; Stanton, 2004). According to Koningsveld et al. (2007), ergonomic standards are required in this context; it is critical to consider the compatibility of all equipment and its efficacy in carrying out human activities while keeping health and safety in mind.

With regard to this dimension, faculty and students were the most dissatisfied with it, giving it the lowest satisfaction rating. As was explained in detail in the findings chapter, this dimension represents one of the four dimensions that received the lowest levels of satisfaction from users. It has obtained a low mean level. It is in the last place regarding users satisfaction with this dimension of the study. The University of Jordan obtained the lowest percentage of students and faculty members' satisfaction with all questions of this dimension of the study, while it was followed by Ahliyya Amman University, then the Hashemite University, then the University of Science and Technology, followed by the Applied Science Private University, and finally the Petra Private University, which got the highest user satisfaction rate, but it is somewhat of a small percentage as shown in table 16 and figure 112 from the previous chapter. As for the percentage of answers to questions related to this dimension, the highest percentage of satisfaction was for the second question related to the seating layout and configuration for individual and group use. within the in-between spaces of the faculty, followed by the percentage of the third question related to how the furniture in the in-between spaces adapts to the body mechanics and is adapted to the user's demands, and then the lowest percentage for the first question related to how the furniture used in the in-between spaces is comfortable. Similar results were reached based on the researcher's observations, which revealed that the in-between spaces lacked the required furnishings that the users needed. Although the faculty foyers and hallways are appropriate for both individual and group activities, they lack any furniture that would fulfil users' demands, with the exception of a few seats and tables placed in some places within the faculty floors. Based on these findings, it is clear that while designing in-between spaces within art and architectural faculties, greater attention should be paid to the dimension of "ergonomics and furnishing." In-between places must be well provided to allow students to communicate outside of class while waiting for lectures or discussing the projects together. The figures below for some in-between spaces showing a lack of furnishing within the six universities.

Figure 121.

Some in-between spaces within the six Universities showing a Ergonomics and Furnishing: (A) University of Jordan. (B) University of Science and Technology. (C) Hashemite University (D)Al-Ahliyya Amman University. (E) Petra Private University. (F) Applied Science Private University. (Source: the researchers).





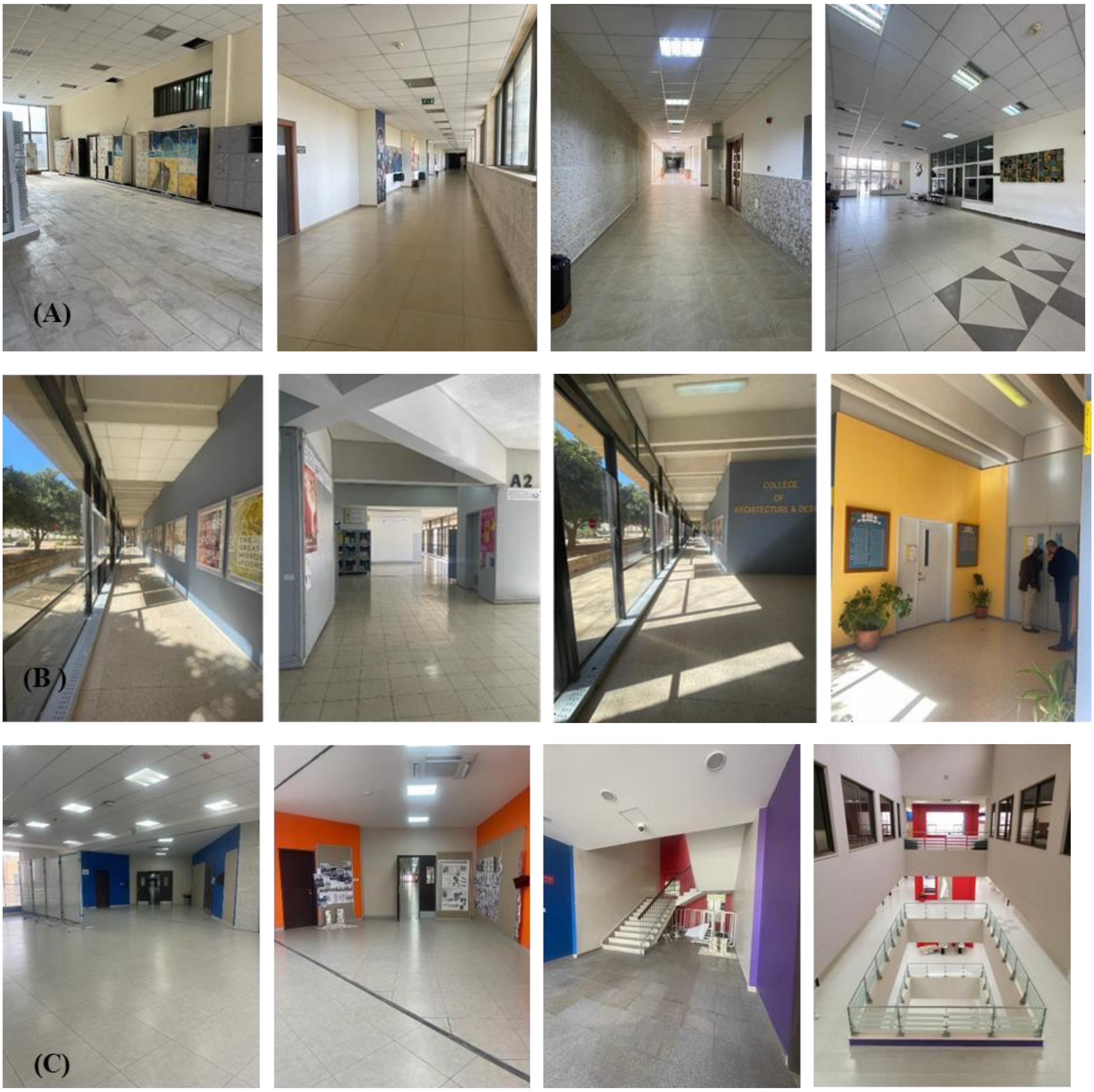
Colours and Finishing

This This aspect of the research is concerned with the aesthetic and psychological needs of well-being. Aesthetics are critical to the user's emotional fulfilment in interior architecture design. Aesthetics in interior architecture design are crucial for the user's emotional fulfilment. The visual appeal of a space impacts mood and creates a positive atmosphere. A thoughtful selection of colours, materials, and design elements evokes specific emotions. Aesthetically pleasing environments enhance user satisfaction and promote a sense of connection and well-being (Minucciani& Onay, 2020). These design qualities extend beyond functional and structural issues and are tied to the design's distinctive manner of communicating with the human senses (Pable, 2009; Mahmoud, 2017). It is linked to the human spirit and satisfaction. The shape and texture of the furniture and accessories, as well as the colour of the walls and flooring, all add to the space's visual character and impact how people perceive, feel, and behave consciously and subconsciously. Aesthetic demands influence how individuals feel depending on their surroundings, furniture, and characteristics. In order to be healthy, people require sensory stimulation similar to that found in nature, as well as an engaging and visually appealing environment. Designers employ the primary components that communicate aesthetics (form, texture, color, and light) to depict the aesthetics of a certain setting. Surfaces have various textures that range from flat to lumpy, glossy to unpolished, smooth to rough. Users' tactile recollections of comparable surfaces influence their sensitivity to textural contrast, which has a direct impact on their mental state. Color perception is one of the most powerful effects on psychological mood among spatial factors. Humans may construct an "effective environment" by leveraging on these possible architectural attributes (Mahmoud, 2017; Onay & Minucciani, 2018).

This study's dimension was one of four that earned the least satisfaction from questionnaire respondents, as explained in detail in the findings chapter. It has obtained a low mean level. It is in ninth place regarding users satisfaction with this dimension of the study.The University of Jordan obtained the lowest percentage of students and faculty members' satisfaction with all questions of this dimension of the study, while it was followed by Ahliyya Amman University, then the Applied Science Private University, then the University of Science and Technology, followed by the Petra Private University, and finally the Hashemite University, which got the highest user satisfaction rate, but it is somewhat of a small percentage as shown in table 16 and figure 112 from the previous chapter. As for the percentage of answers to questions related to this dimension, the percentage of satisfaction for the first question related to the psychological effect of colors on users is taken into account when designing the faculty's transitional spaces, followed by the percentage of satisfaction for the third question related to the suitability of the colors used in the lighting within the interstitial spaces. The highest percentage of satisfaction was for question two related to the colors of ceilings, walls, and flooring, which are coordinated with other design elements such as furniture and draperies. Similar conclusions were drawn from the researcher's observations, in which the researcher discovered that the influence of colors and finishes on the users of the space was overlooked during the design of the case study in between spaces. The in-between spaces inside universities lacked colors and finishes that have a good, exciting influence on students and users of the space since the majority of spaces are conventional in design, with the exception of some colours utilized on the walls of specific spaces. Based on these findings, it is clear that greater emphasis should be given to the dimension "colour and finishing" while designing the in-between spaces within the faculties of art and architecture. The figures below for some in-between spaces showing colours and finishing within the six universities.

Figure 122.

Some in-between spaces within the six Universities showing the Colors and Finishing dimension: (A) University of Jordan. (B) University of Science and Technology. (C) Hashemite University (D)Al-Ahliyya Amman University. (E) Petra Private University. (F) Applied Science Private University. (Source: the researchers).



Accessories

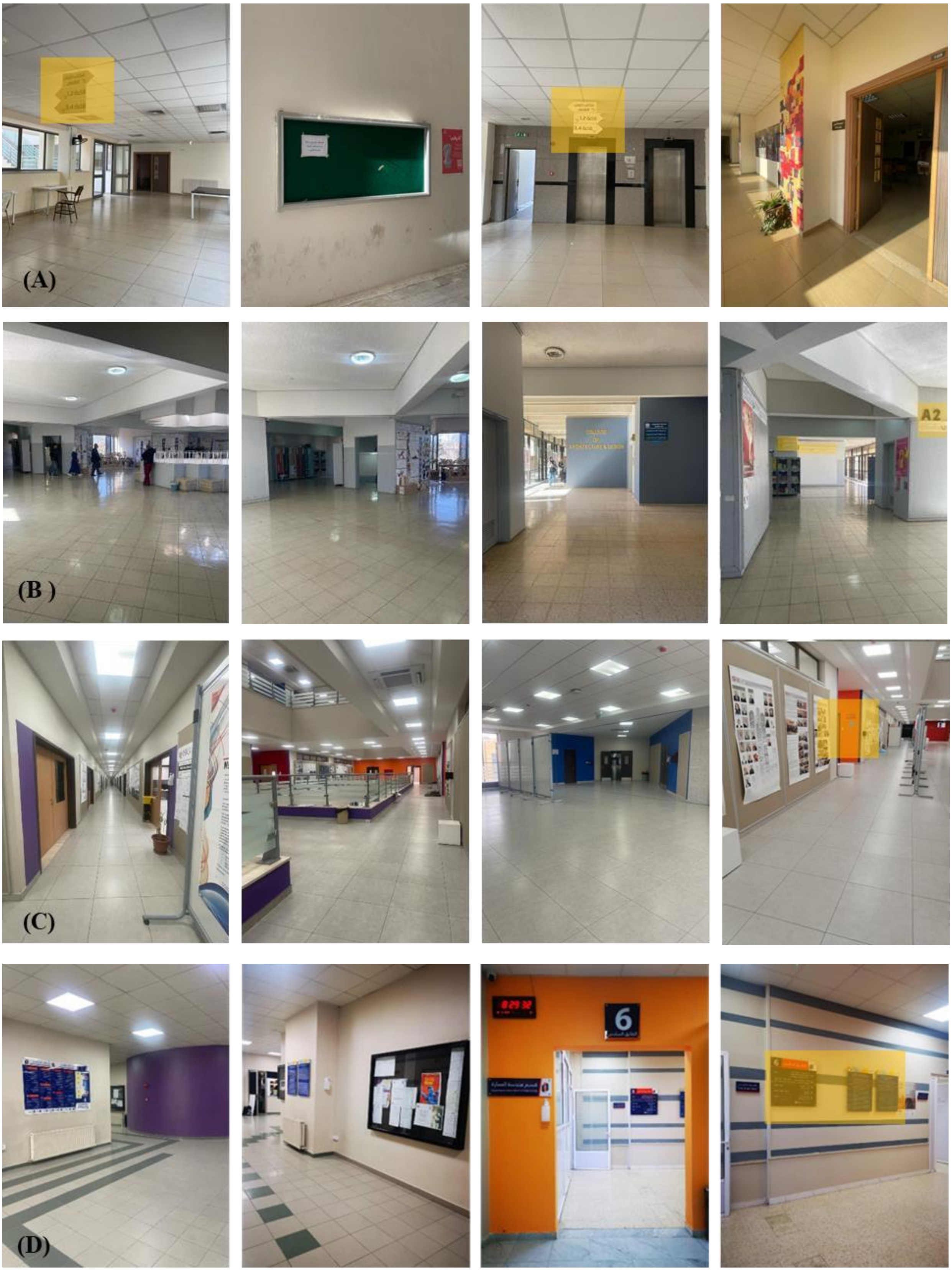
This aspect of the research is concerned with the functional, ergonomic, psychological, and aesthetic needs of well-being. It is critical to examine the organization and communication of our dynamic interaction with space and the environment, where wayfinding entails using signs, paths, and environmental information to help people locate destinations. It is critical to use spatial and environmental information to move to a destination in the built environment and enjoy a place without feeling lost. Architectural surroundings provide a variety of indicators that assist users in navigating unfamiliar spaces, such as signage, which can be perplexing if inconsistent (Alansari, 2022; Gibson, 2009). Contact with nature should be taken into account in studies on well-being and space. Workplace natural environmental components improve worker motivation and performance (Amabile, 1993; Hafeez et al., 2019). According to Onay and Minucciani (2018), being in contact with nature improves one's quality of life and provides one with a stronger sense of place. Providing ample areas to showcase students' works, scientific and artistic productions, and creative achievements allows for the celebration of student accomplishments and fosters a sense of pride and inspiration within the community (de Borba et al., 2019).

With regard to this dimension, the responses of the participants to the questionnaire about this dimension were clear, as explained in detail in the findings chapter, as this dimension represents one of the four dimensions that received the lowest levels of satisfaction from users. It has obtained a low mean level. It is in tenth place regarding user satisfaction with this dimension of the study. The University of Jordan obtained the lowest percentage of students and faculty members' satisfaction with all questions of this dimension of the study, while it was followed by the University of Science and Technology, then the Hashemite University, then Al-Ahliyya Amman University, followed by the University of Petra, and finally the Applied Science Private University, which got the highest user satisfaction rate, but it is somewhat of a moderate percentage, as shown in Table 16 and Figure 112 from the previous chapter. As for the percentage of answers to questions related to this dimension, the highest percentage of satisfaction was for the fourth question related to adequate spaces to present students' works and their project and artistic productions, as well as their creative achievements, followed by the percentage of the third question related to the placement, hues, and dimensions of the bulletin boards in the faculty's transitional spaces are appropriate, then the percentage of the first question related to functional and aesthetically compatible of the signs, then the second question related to the compatibility of the signs with the design of in-between spaces, and finally the fifth question got the lowest percentage of satisfaction for users with regard to the provide aesthetic and physiological benefits to the interior spaces, through the indoor decorative plants, and water features. From these results, more attention should be paid to the dimension of accessories when designing the in-between spaces within the faculties of art and architecture, especially to connect the spaces with nature by providing them with natural features. The figures below for some in-between spaces show accessories (signs, natural elements, announcement board, etc.) within the six universities.

Figure 123.

Some in-between spaces within the six Universities showing the Accessories dimension: (A) University of Jordan. (B) University of Science and Technology. (C) Hashemite University

(D) Al-Ahliyya Amman University. (E) Petra Private University. (F) Applied Science Private University. (Source: the researchers).



In-between spaces and spatial configuration

The configuration aspect of the spatial interior layout was analysed using Space Syntax. The spatial configuration of interior spaces has been shown to be associated with the well-being and performance of interior spaces (Brunia et al. 2016). The Space Syntax literature is grounded in two presuppositions, the first is the idea that space is not a passive background to human activities, rather it is an intrinsic interactive part of it (Hillier & Hanson 1984; Karimi 2012). Accordingly, the arrangement and spatial characteristics of spaces are highly influential on how people use and interact with spaces. From this perspective, it is not only space that influences how people use it, but the way people use it over time influences the design (Hillier 2007; Karimi 2012). Spaces need to be considered a function based on their potential for movement and interaction. The second is the idea that spaces cannot be understood as individual entities and must be seen in their association and connection with each other. Accordingly, all spaces in a network (system) influence one another (van Nes 2021; Yamu et al. 2021). The combination of these two well-tested theories brings forth concepts such as the "theory of natural movement" (Hillier et al. 1993) indicating the configurational dimensions of spaces play a significant role in the rate at which people are present and move through spaces.

Accordingly, the results of space syntax analysis were cross-referenced with other analyses for each case and with the relevant body of literature. In particular, the activities, movements, and interactions that resulted from observation and mapping were used to interpret the results of space syntax analysis within the context of the case studies. The following paragraphs explore the critical interrelatedness between the configurational aspects of the interior layout of educational spaces and the activities contained within them.

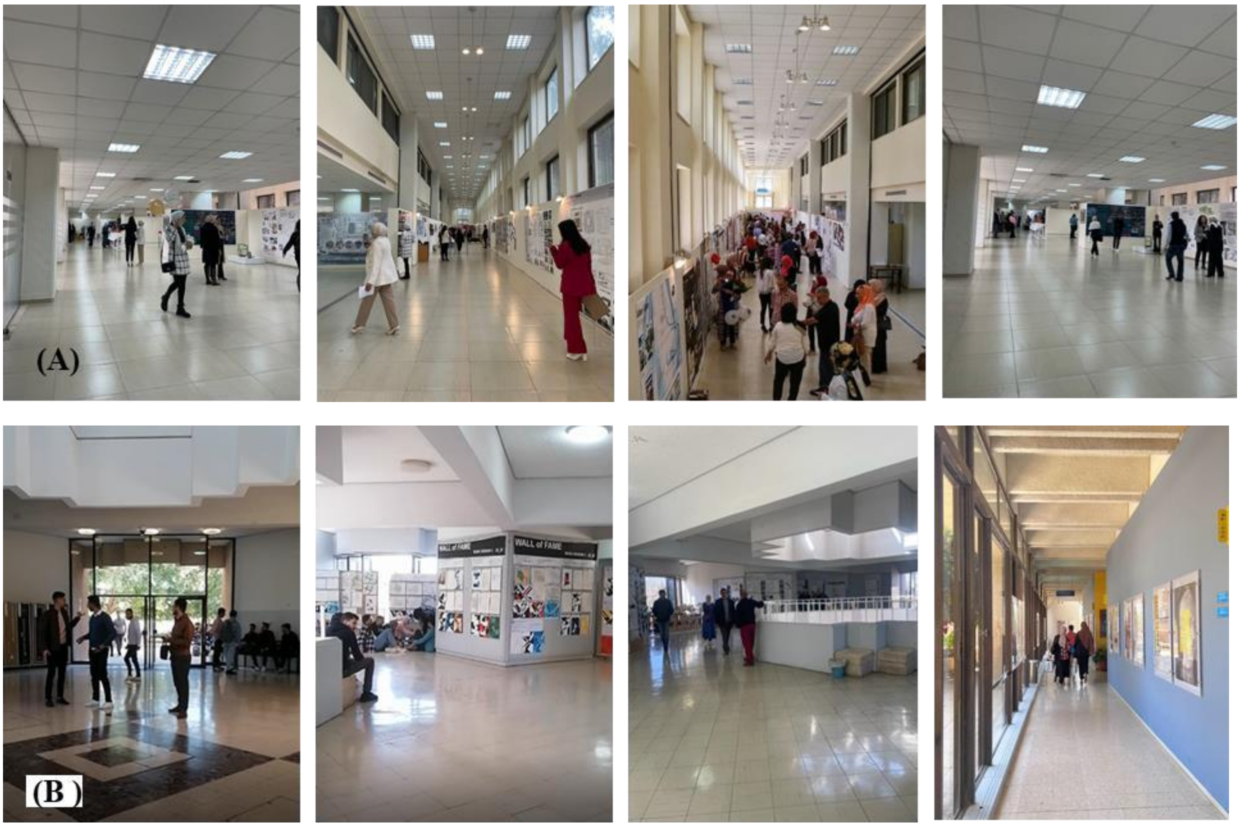
The visibility graph analysis was employed in this dissertation to explore the spatial potential of in-between spaces. Accordingly, the analysis of connectivity (VGA), integration, and choice (through-vision) were performed using Depthmap X (depthmapX development team 2017). From the perspective of in-between spaces, this can be approached based on these perspectives and based on the nature of architectural education. As the analysis shows in-between spaces are among the highest in terms of visual connection, integration, and choice (through vision). The in-between spaces are designed for connection, circulation, or supportive spatial elements. They are not often considered in the architectural program as the main functions/activities. Therefore, not enough attention is paid to their full potential and capacity. In this case, the nature of architecture education brings these potentials to the fore. Design education calls for interactive presentations, interactive project works, exhibitions, juries, and peer learning. While the main functions such as studios, classrooms, and labs might not be always available to the students due to lectures and scheduled educational activities, the in-between spaces have the capacity to carry some of these functionality. This is particularly important due to the emphasis that design education puts on peer learning and active engagement with the space and with other learners (Gray 2013; McClean & Hourigan 2013; Qureshi 2020). Accordingly, considering the high level of spatial potential that is evident by the Space Syntax analysis, the in-between spaces have shown to be significant elements of the spatial layout.

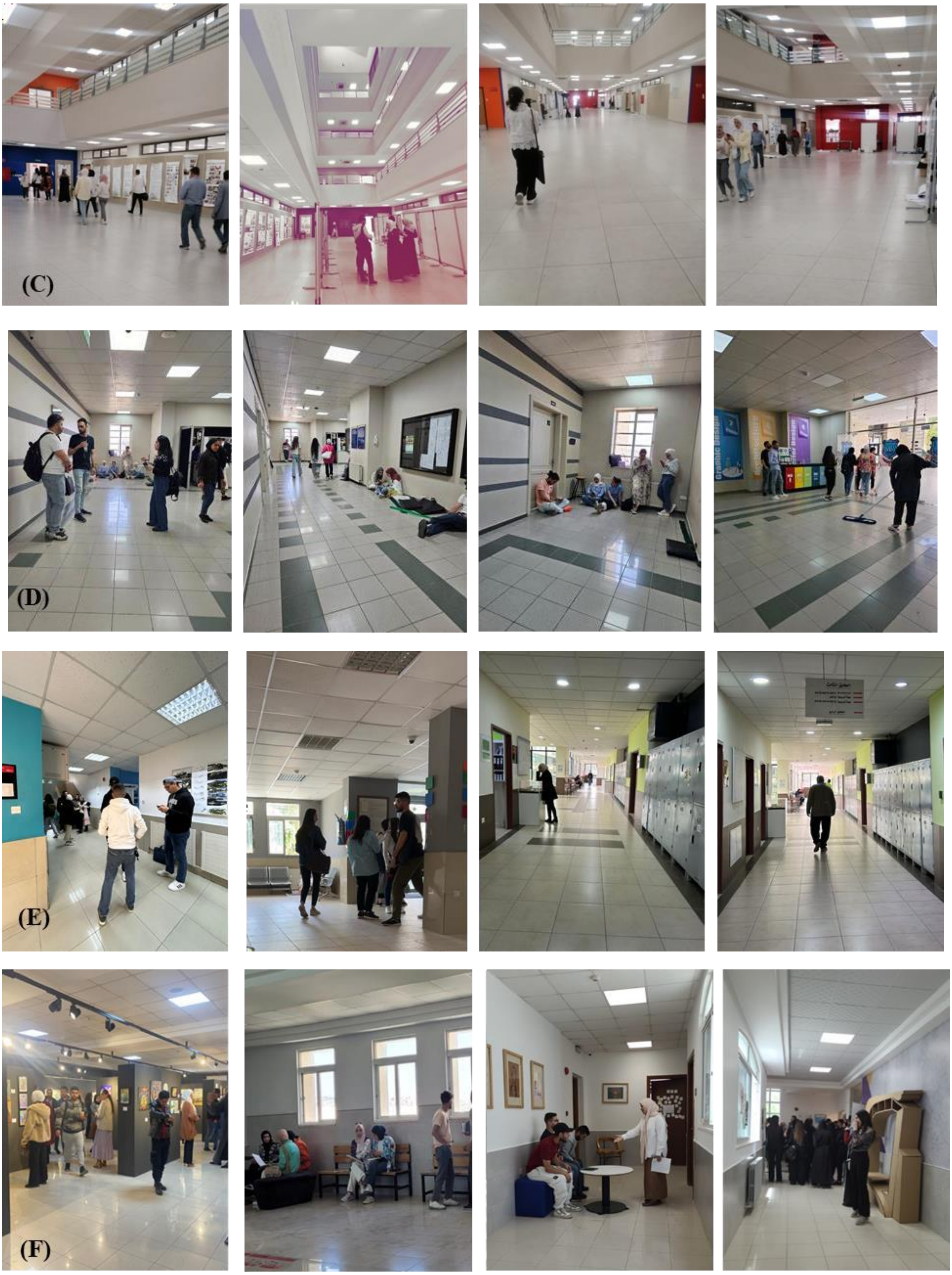
The higher degree of integration in some of these spaces indicates that there is a higher probability of students gathering and meeting as the natural movements occur in the space. Here, spaces with high integration value are shown to be central elements providing accidental meetups and interactions. Moreover, considering the strong importance of vertical communication between design studios in its pedagogical approach (Dutton 1987), –meaning interaction between upper-year and lower-year students– such central spaces provide the opportunity for students of different semesters or even different disciplines of design to interact and communicate. Accordingly, if such spaces provide opportunities for sitting, working, and interacting, they can significantly improve the pedagogical dimensions of design education.

The analysis of through-vision shows some of these in-between spaces to be visually in-between other main functions. The additional visibility that these spaces provide can be utilized in creating exhibitions and presentation activities. It is evident that the increase in through-visibility can increase the chances of something being seen by more users of the building. This, in turn, increases the possibility of inter-disciplinary and multi-disciplinary interactions that are essential in successful higher education, and particularly in design education (Ashby & Exter 2019).

Figure 124.

Examples of in-between spaces with a high degree of through vision, (VGA), and integration at the University of Jordan within the six Universities: (A) University of Jordan. (B) University of Science and Technology. (C) Hashemite University (D)Al-Ahliyya Amman University. (E) Petra Private University. (F) Applied Science Private University. (Source: the researchers). (by the researcher).





It could be argued that the flexibility of these spaces and the fact that often no official activity is assigned to them, coupled with their high level of visibility, integration, and through-vision provides an unprecedented opportunity for forming meaningful experiences. The design education for Schön (1987) design education occurs through the process of “reflection in action” in the studio space which he calls “practicum”. It can be argued that seeing the reflection in action can be extended beyond the pre-defined space of the studio and into in-between spaces that have the potential to carry those activities. Therefore, paying attention to these spaces during the design process is essential.

Variety is another aspect that must be considered alongside flexibility for such spaces. It is evident from the analysis that not all in-between spaces are central or highly visible. It is important to note that less central spaces might serve specific purposes for more quiet and calm activities. Accordingly, in-between spaces with lower integration or through-vision still might have critical utility for activities such as group work, or, in some cases, for students who seek refuge from the busy environment of faculty for thinking or relaxation.

Another characteristic that might be associated with integral in-between spaces in a layout is the sense of attachment which is an essential aspect of well-being and identity (Rioux et al. 2017; Terrazas-Carrillo et al. 2014). In this regard, the opportunity to take part in the creation of space can be highly influential in developing a sense of identity. Spaces in the layout that are highly central (integration) and visible, when the opportunity is provided, can become a canvas on which students leave their own mark and a platform through which many informal aspects of design education can emerge. This is in line with the two aforementioned presuppositions of space syntax, in this case, in-between spaces are not background to design education, they are active and interactive aspects of it. Just as the design of these educational buildings contains and shapes the educational narrative of students, giving them the possibility to take part in creating their own spaces elevates their relationship with each other and with the program. Second, spaces cannot be analysed and decoded in isolation, this is particularly true regarding in-between spaces. Although the analysis here shows their configurational significance, they must be considered within the larger context of the spatial network of the building. Their relationship with studio spaces and faculty must be enhanced and highlighted for interactive activities to take place.

It must be noted that the space syntax measure cannot provide a full picture on their own, for this reason, in this study, they have been employed alongside other survey items and observations. This has allowed the study to provide a more comprehensive image of in-between spaces that is multi-dimensional. In-between spaces without proper lighting and ventilation might not be productive educational spaces regardless of their configurational integration or visibility. A similar argument can be made regarding the furniture and fixture of these spaces, providing workable spaces and furniture that can facilitate suitable interactive activities for these spaces is critical in making them more usable and integral parts of the educational spatial environment.

CHAPTER VI
Conclusion and Recommendations

This chapter presents conclusions based on the research findings according to the objectives of the research and gives recommendations accordingly.

Conclusion

In-between spaces within the faculties of art and architecture significantly influence the well-being and productivity of users through their design features, so it is essential to consider the requirements for the well-being of students and faculty members while designing the educational environment, especially the in-between spaces, to fulfill the users' needs, activities, and behaviors, knowing that the interactive performance of such spaces can enhance their efficiency and create an interactive environment that contributes to a vibrant and supportive learning environment that encourages students and their faculty members to be creative and increase their productivity. Recognizing their importance, incorporating these spaces into the design and planning of art and architecture faculties can enhance the overall educational experience and the personal and professional growth of students and faculty members alike. Based on the reality of the faculties of art and architecture in Jordanian universities and the needs of the users of these faculties of faculty members and students, which are considered to some extent different from the needs of other disciplines, the need for teamwork and discussion of opinions and ideas regarding architectural designs and methods of presenting students' work, etc. The in-between spaces and determining their importance and the increasing need to pay attention to designing them in an optimal way were examined by looking at much literature regarding the specifications of designing the physical educational environment in the faculties of art and architecture. In addition, the well-being requirements were used as a supportive tool to investigate the vitality of such spaces. The study required that the proposed criteria model express the need for the physical environment of the art and architecture faculties to develop and change in accordance with the needs of its users. This was met by following a mixed-methods approach, which was used in this study and has the advantage of facilitating a better comprehension of the in-between spaces within art and architecture faculties, which include observation, survey, and space syntax methods. The qualitative analysis was conducted after the standards of design in art and architecture faculties were presented in the chapter on the literature review. On the basis of observation by walk-throughs and a literature review, the current architectural and interior design features of the in-between spaces in art and architecture faculties are determined in accordance with the requirements for users' well-being. The study used a quantitative method using a questionnaire to evaluate the reality of the in-between space design within the art and architecture faculties in Jordanian universities according to the perception of faculty members and students based on well-being requirements. The survey was used to collect data, including 11 dimensions and 7 fundamental requirements of well-being that are incorporated into them. Then the questionnaire was analyzed, and its results were compared with the observation results to find out the design dimensions that need development and attention by designers in order to obtain more vital in-between spaces.

This study employed a limited sample size of six art and architecture faculties from Jordan. However, the findings of this study can be extensively applied to various institutions of higher education, particularly art and architecture faculties. Accordingly, the proposed criteria model was structured to include the eleven dimensions that formed the main dimensions of this study, which were dealt with in detail in the fourth and fifth chapters of the study, each of which includes a set of design features that cover the physical environment based on well-being requirements, and these dimensions are as follows: "Physical features and visual appearance; size and design of in-between spaces; circulation and movement space zoning; ergonomics and furnishing; lighting; colors and finishing; acoustics; heating, ventilation, and air conditioning; visual communication and instructional tools; social and cultural spaces; and accessories are the eleven dimensions that comprise the study's evaluation scale." The following conclusions have been reached regarding the in-between spaces within the faculties of art and architecture in Jordan and how to transform them into vital spaces that enhance the well-being and productivity of their users: The four dimensions that require more attention during the design process were reached based on the needs of each of the students and faculty members in the faculties of art and architecture.

According to the study's dimensions, it was discovered that four dimensions (circulation and movement, ergonomics and furnishings, colors and finishing, and accessories), particularly the furniture, natural elements, and signage, were overlooked during the design of these spaces, and they must be taken into account in order to create an interactive environment that enhances the educational process and thus increases productivity. In addition, some features may be present in the design of the in-between spaces, but they are not implemented in a manner that meets the needs of both faculty and students.

The in-between spaces should be designed not only according to international standards to adjust necessary activities such as users' movement within the space horizontally and vertically and transition from one space to another, but also in consideration of users' needs as it is an essential space for many social activities that could be a vital space to interact and connect and for activities that require social interactions, such as working, discussing, resting, waiting, or viewing, which allows students and faculty to engage in activities that require social interactions if it has the proper design.

In addition to other physical features of interior spaces, the configurational dimensions of the spatial layout of educational spaces were analyzed using Space Syntax. The method is used to explore spatial possibilities based on the spatial and visual relationships among spaces. The addition of space syntax analysis to the methodology aimed at providing a more comprehensive design-based reading of the case studies is one of the nuances of this study.

These analyses were conducted in three parts. First, visibility graph analysis was used to explore the visual connectivity of interior spaces. In this step, the interior layout of the buildings was superimposed on a human-scale grid, counting the number of cells visible from all other cells. Second, the integration value was measured, representing closeness and centrality. The integration measurement was employed to read the most optimal destinations in the grid; accordingly, spaces with the highest integration were considered spaces with a higher probability of interaction. Third, through-vision was calculated, representing in-betweenness in terms of visibility (intervisibility). These analyses were cross-referenced with the detailed observations of the case studies. The outcome suggests in-between spaces are among the highest-scoring across all three space syntax variables. The additional observations demonstrate that both students and faculty are utilizing and frequenting these areas.

The special requirements and settings of design and architecture education are significant contributors to the active nature of in-between spaces in these cases. Accordingly, it was shown that the in-between spaces have a strong spatial potential for being interactive spaces. In this regard, some characteristics of architecture education come to the fore. First, the strong emphasis on informal peer learning can be facilitated when in-between spaces have the capacity to provide spatial possibilities for such activities.

Spaces with high integration values are more legible and more likely to be utilized by more students; thus, if designed properly, they have the potential to improve informal peer learning. In this regard, other physical characteristics of design play a significant role. In-between spaces with adequate lighting, ventilation, and particularly adequate furniture were shown to provide the setting for student gatherings.

Second, the very nature of design education is grounded on the ideas of learning by doing and reflection in action; accordingly, spaces that allow for the possibility of work (doing) and spaces that provide the possibility of seeing others' work and being seen by others (reflection) are highly critical in designing productive educational spaces. Thus, it is critical to revisit the nature, intent, and purpose of these in-between spaces for the future development of better design strategies.

Accordingly, it can be argued that flexibility is a key characteristic that can improve the content of in-between spaces. Nevertheless, the variety of spaces is observed via space syntax analysis. There are some in-between spaces that are high in integration but low in through-vision; these are central spaces without extended visual connection and can be suitable for functions that need to be easy to find but require some degree of visual seclusion. There are in-between spaces that are high in through-vision but low on integration; these spaces can be ideal for student gatherings, group meetings, and working.

The observations show that these spaces can be very useful when proper furniture is provided and physical conditions are favorable. Another type of space that was identified via Space Syntax was the low integration and low visibility in-between spaces. It is critical to note that students of design have different characters and preferences; thus, having spaces that feel more private without getting in the way of movement and/or lines of sight is essential for inclusivity. It can be argued that if these spaces meet the requiems for comfort, they can provide students who are seeking refuge from the business of the studio, or those who are more introverted and need a place of peace and quiet, a safe haven.

Lastly, the in-between spaces should be designed not only according to international standards to adjust necessary activities such as users' movement within the space horizontally and vertically and transition from one space to another, but also in consideration of users' needs as it is an essential space for many social activities that could be a vital space if it has an adequate design. Furthermore, a well-designed social space can also promote a sense of community and belonging among students and faculty members, which can lead to increased collaboration and productivity. Additionally, it can serve as a space for organizing events and activities that enhance the overall educational experience by being spaces to interact and connect, and for activities that require social interactions, such as working, discussing, resting, waiting, or viewing, which allows students and faculty to engage in activities that require social interactions.

Recommendations

The findings suggest that both flexibility and diversity in in-between spaces are necessary for a productive educational environment. As the classroom is more formal, the informal part of education is more likely to take place in the in-between spaces. Based on the findings and discussion of the study and in line with the development in the field of the interior design of the physical educational environment, the study concluded with a set of recommendations, which are as follows:

Design recommendations

In-between spaces in educational spaces must be flexible in a way that allows the students to feel that they can have an impact or that they have a space of representation. In this regard, space syntax analysis can help identify optimum locations and apace sizes for in-between spaces. What is more, diversity is an essential factor in in-between spaces; they provide different types of opportunities for a variety of activities that are informal and casual. These activities have different types and require different types of spaces. The typologies of these in-between spaces can be explored in the design stage, and different amenities can be proposed for each type. Therefore, the study suggests reconsidering the dimensions and aspects of the design of the in-between spaces, especially in the arts and architecture faculties, according to the well-being requirements of engineers and designers as follows:

1. Reconsidering the currently available furniture and replacing it with furniture that is compatible with the mechanisms of the human body and the specifications of the suggested model within a moderate economic cost Additionally, using a flexible furniture arrangement, such as movable tables or modular seating, enables the spaces to be easily adapted for group discussions and interactive activities.

2. Reconsider the types of seating and the distribution of them within the in-between spaces, and think about the types that take into account the interaction and communication between the users.

3. Reconsidering the types of presentation boards that are available within the spaces and providing various types and sizes to accommodate different requirements and activities

4. Reconsidering the color schemes of such spaces in line with the results of their impact

on the educational process

5. Reconsidering a stimulating and relaxing atmosphere by enhancing the aesthetic aspects of the educational environment by providing the spaces with natural elements such as plants and water spaces to give an atmosphere of familiarity and comfort

6. To reconsider the visual signage system within the in-between spaces and provide the space with signage strategically placed at key decision points, intersections, and entrances to provide clear directions and indicate the path to various destinations.

General Recommendations:

It is important for researchers to study each space of the physical educational environment of the universities independently to develop their educational environment.

1. Future research can include the examination of exterior in-between spaces, where this research focuses on the typology of in-between spaces and investigates just the interior in-between spaces without including the exterior transitional spaces such as balconies or connection bridges.

2. The study recommends that the suggested model of the vital in-between spaces be adopted in public and private accreditation standards for public and private universities to develop the performance of these institutions and improve their work. when designing new faculties or developing existing buildings.

3. This study concentrated on art and architecture students due to their frequent use of in-between spaces, while future research could include students from other disciplines and age groups to improve their understanding of the function of in-between spaces in promoting well-being in the educational environment.

4. Lastly, according to the breadth of well-being as a concept, additional research is required to examine it from various angles in detail according to the requirements of well-being. Consequently, future research must focus more on the relationship between educational spaces and well-being in various contexts.

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Appendices

Appendix A

Structure of the questionnaire (dimensions, questions, and requirements).

The Reality of the In-between Space Design Within the Art and Architecture Faculties in Jordanian Universities According to The Perception of Faculty Members and Students Based on Well-being Requirements

Dear Participant,

The researcher is preparing this survey as a part of her Ph.D. thesis, with the aim of evaluating the well-being experience and its effect on the perception of users within the in-between spaces (entrance halls & lobbies, foyers, courtyards, corridors, staircases), in the art and architecture faculties that are used for a variety of activities, and to identify which criteria of well-being design are the most important for the users that have to be considered while designing the physical environment.

The data collected will be analyzed, and then used to propose a criteria model for the design physical environment of in-between spaces within the Faculties of Art and Architecture that can optimize users' well-being experiences and enhances their productivity.

If you consent to participate in this research effort, you will be asked kindly to complete a survey about your well-being experience in the faculty of architecture. The result may help to develop a design criteria model for in-between spaces within art and architecture faculties. It is hoped that the information gained in this study will benefit architects and designers by examining facts regarding the design of such places. to promote the physical environments on these faculties

Your participation will take approximately (20) minutes to complete and answer the questions, you will rely on your own experiences and memories within in-between spaces. You may stop the survey at any time that you do not want to answer, or that makes you uncomfortable.

Please note that your participation in the study is voluntary and completely confidential, whether you agree to participate or not will have no impact on your grades for any courses you are/were taking. Your identity will not be revealed in any case to third parties. The data collected during the course of this study will be used for academic research purposes only and may be presented at national/international academic meetings and/or publications. You may quit participating in this study at any time by contacting us. If you opt-out of the study, your data will be deleted from our database and will not be included in any further steps of the study. In case you have any questions or concerns, please contact us using the information below.

Best Regards,

<u>In-between Spaces mean: entrance halls & lobbies, foyers, courtyards, corridors, staircases.</u>

Prof. Dr. Zeynep ONUR

Dean of Architecture Faculty, Near East University

Tel: 0090 5418778823

E-mail: zeynep.onur@neu.edu.tr

Investigator: Afaq Al- Ramahi

PHD. Student, Interior Architecture Department, Near East University

Tel: 0090 5338265560

E-mail: afaqramahi@gmail.com

The Effect of In-between Spaces On the Physical Educational Environment in the Faculties of Architecture

In the following section there are general questions, please answer it before the main part of this questionnaire

1. **Gender:**

   ☐ Male ☐ Female

2. **Age:**

   ☐18-25 ☐ 26-35 ☐ 36-50 ☐50+

3. **University:**

   ☐ NEU ☐ GAU ☐EUL ☐ ARUCAD ☐FIU ☐BIU

4. **Please select your highest level of education attained**

   ☐ undergraduate student (Bachelor)

   ☐ Graduate student (Master level)

   ☐ Post-graduate student (Doctoral level)

   ☐ faculty member

5. **Your design background?**

   ☐ Architecture ☐ Interior architecture

   ☐ Graphic design ☐ Art

6. **Position**

   ☐ Domestic (citizen) ☐ International (foreigner)

7. **How long do you stay at the faculty daily?**

   ☐ less than 2 hours ☐ 2-4 hours ☐ 4-8 hours

8. **your visits to the faculty weekly**

   ☐ 1 Day ☐ 2-3 Days ☐ 3-5 Days

9. **Which of the following, if any, describes your ordinary activities at the faculty's in-between spaces*? (you can choose more than one)?**

   ***In-between Spaces mean: entrance halls & lobbies, foyers, courtyards, corridors, staircases**

   ☐ waiting ☐ walking ☐ Communicate and chat with others (gathering).

   ☐ Reading ☐ Studying ☐ Sitting and Watching

   ☐ Other:

10. **If you don't have any classes or work, where do you spend the most of your free time?**

    ☐ entrance halls

    ☐ foyers & lobbies

    ☐ corridors

    ☐ courtyards

    ☐ Other:

In the following section please mark one choice that corresponds to your experience regarding the presented topic.

Physical features and visual appearance

Sequence	**Design features**	**Strongly agree**	**Agree**	**Neutral**	**Disagree**	**strongly agree**	**Identical Well-Being Requirement**
1.	The faculty's main entrance is clear and contributes to the building's outstanding appearance.						Connection to context
2.	Appropriateness of surrounding natural views with the faculty's internal environment through the windows and doors access that reach the gardens and green areas						Connection to context and nature

3.	Appropriateness of the faculty's surrounding outdoor spaces for architectural educational activities						Connection to context

Size & Design of in-between spaces

Sequence	**Design features**	**Strongly agree**	**Agree**	**Neutral**	**Disagree**	**strongly agree**	**Identical Well-Being Requirement**
1.	The sizes of in-between spaces within the faculty are proportional to the number of users						Functional and Ergonomic requirements
2.	The in-between spaces inside the faculty are characterized by high flexibility (reconfiguration) * to implement activities and diverse educational requirements that demanded by the educational process						Functional and Social requirements
3.	The faculty's in-between spaces give the users privacy and independence (e.g. each student has his private place to complete his work)personal space						Psychological requirements
4.	The ceiling heights are proportionate to the size of in-between spaces inside the faculty that convey a feeling of comfort and affinity to the place						Functional, Ergonomic and Psychological requirements
5.	The in-between spaces are designed to meet the needs of the disabled (Providing space for the wheelchair and the person accompanying him in the space)						Functional and Ergonomic requirements

* If the possibility to adjust the arrangement and the format of the gathering areas is provided (group or individual works)

Circulation & Movement Space Zoning

Sequence	Design features	Strongly agree	Agree	Neutral	Disagree	strongly agree	Identical Well-Being Requirement
1.	The corridors between classrooms and instructional places are adequate.						Functional and Ergonomic requirements
2.	The corridors were designed with considering the movement of users within the space during times of crowding.						Functional and Ergonomic requirements
3.	Directions for corridors within the faculty are clear, and there is easy access to other locations and amenities.						Functional and Ergonomic requirements
4.	The staircases are sufficient and have an adequate design for the vertical movement within the faculty						Functional and Ergonomic requirements
5.	The elevators are sufficient and have an adequate design for the vertical movement within the faculty						Functional and Ergonomic requirements
6.	The In-between spaces provide ease of movement for the disabled between classrooms and other spaces within the faculty						Functional and Ergonomic requirements

Ergonomics & Furnishing

Sequence	Design features	Strongly agree	Agree	Neutral	Disagree	strongly agree	Identical Well-Being Requirement
1.	The furniture in the foyers and corridors within the faculty provides quite comfortable.						Functional and Ergonomic requirements
2.	The in-between spaces within the faculty provide a suitable seating						Social

	layout and arrangement for individual and group use.						and Ergonomic requirements
3.	The furniture within the in-between spaces of the faculty which can be adjusted to meet the user's sitting style and body mechanics is appropriate for the human body and its requirements						Ergonomic requirements
4.	The seats in the in-between spaces within the faculty are designed to be used for long periods of time.						Functional and Ergonomic requirements

Lighting

Sequence	**Design features**	**Strongly agree**	**Agree**	**Neutral**	**Disagree**	**strongly agree**	**Identical Well-Being Requirement**
1.	The in-between spaces inside the faculty receive an adequate amount of natural daylight through the openings**(doors and windows).						Sensory and Psychological requirements
2.	Within in-between spaces, enough levels of lighting* (natural and artificial) are accessible for the entire day's activities.						Functional and Sensory requirements
3.	There is the ability to adjust illumination levels to fit activities within the in-between spaces inside the faculty without the assistance of professionals.						Functional and Psychological requirements
4.	There is the ability to regulate the direct and indirect glow (Glare ***) within the faculty's in-between spaces.						Functional and Psychological requirements
5.	Within the faculty's in-between spaces, there is proper distribution of lighting units considering their influence on colors.						Functional and Sensory requirements

* lighting includes both natural and artificial lighting.

**Openings include doors, windows, and skylights.

*** Glare is a dazzling or luster emitted from the light units and their reflection on surfaces, which produces total or partial restriction of vision.

Color & Finishing

Sequence	**Design features**	**Strongly agree**	**Agree**	**Neutral**	**Disagree**	**strongly agree**	**Identical Well-Being Requirement**
1.	The psychological influence of colors on users is considered in the design of the in-between spaces inside the faculty.						Aesthetic and Psychological requirements
2.	Within the in-between spaces of the faculty, appropriate colors are used for the ceiling, walls, and floors which are coordinated with other design components such as furniture and curtains.						Aesthetic and Psychological requirements
3.	Non-reflective hues were chosen in the foyers and other in-between spaces, where juries and gallery events take place, where colors have an impact on the entire lighting inside the faculty						Aesthetic and social requirements

Acoustics

Sequence	**Design features**	**Strongly agree**	**Agree**	**Neutral**	**Disagree**	**strongly agree**	**Identical Well-Being Requirement**
1.	The efficacy of acoustic noise isolation were considered in the design of the in-between spaces inside the faculty to decrease noise resulting from the congestion of users.						Sensory and Functional requirements
2.	There is an appropriate separation between the classrooms and in-						Functional requirements

	between spaces within the faculty, where diverse activities are conducted.						
3.	The floor coverings serve to relieve the noise created by users while moving through the corridors and foyers.						Sensory and Functional requirements

Heating, Ventilation & Air Conditioning

Sequence	**Design features**	**Strongly agree**	**Agree**	**Neutral**	**Disagree**	**strongly agree**	**Identical Well-Being Requireme nt**
1.	The in-between spaces inside the faculty considered the quality of natural ventilation, and the possibility of ventilation without being disturbed, noise, and exterior air currents, by providing appropriate windows in terms of size and orientation.						Sensory and Functional requirements
2.	The in-between spaces have the ability to manage and modify the temperature within the faculty, through aids in the prevention of temperature swings.						Sensory and Psychological requirements
3.	The in-between spaces maintain a comfortable temperature within the faculty.						Sensory and Functional requirements

Visual Communication & Instructional Tools

Sequence	**Design features**	**Strongly agree**	**Agree**	**Neutral**	**Disagree**	**strongly agree**	**Identical Well-Being Requiremen t**
1.	The in-between areas inside the faculty, have availability of electrical						Functional, Psychological

	points (sources) for the devices used for various activities by the users (students and staff) .						and Social requirements
2.	The in-between spaces inside the faculty have the availability of required communication lines as well as an Internet connection.						Functional, Psychological and Social requirements
3.	Presentation boards for projects and other activities of various sizes are acceptable and appropriate for use in the faculty's in-between spaces.						Functional, Psychological and Social requirements

Social& Cultural Spaces

Sequence	**Design features**	**Strongly agree**	**Agree**	**Neutral**	**Disagree**	**strongly agree**	**Identical Well-Being Requirement**
1.	The in-between spaces within the faculty are suitable and perfect for social activities of architecture and design students'.						Social and Functional requirements
2.	The design of in-between spaces inside the faculty enhances social life and interaction among students and faculty members, through the use of appropriate gathering areas.						Social, Psychological, and Functional requirements
3.	In the faculty's in-between areas, there is many appropriate solo and group places* for students and employees.						Social, Psychological, and Functional requirements

* Such as reading spaces, quiet spaces for thought, listening spaces, inner courtyards and balconies.

Accessories

Sequence	Design features	Strongly agree	Agree	Neutral	Disagree	strongly agree	Identical Well-Being Requirement
1.	The indicative signs are clear in recognizing the circulation throughout the faculty's various in-between spaces.						Functional and Psychological requirements
2.	The in-between spaces within the faculty have the efficiency of signs, that identify classrooms and other interior places, as well as their design compatibility						Functional and Psychological requirements
3.	The placements, colors, and sizes of the announcement board in the faculty's in-between places are appropriate.						Functional and Aesthetic requirements
4.	The in-between spaces within the faculty have adequate areas to display students' works and their scientific and artistic productions, as well as their creative achievements.						Functional, Psychological and Social requirements
5.	Indoor natural decorative plants and water spaces are available in the in-between spaces within the faculty's to offer aesthetic and physiological impacts to the interior spaces.						Aesthetic and Psychological requirements

Appendix B

The Approval from Scientific Research Ethics Committee

YAKIN DOĞU ÜNİVERSİTESİ

BİLİMSEL ARAŞTIRMALAR ETİK KURULU

26.10.2022

Dear Afaq Mahfouz Moh'd Al- Ramahi

Your application titled **"The effect of in-between spaces on the physical educational environments on the Faculties of Architecture"** with the application number NEU/AS/2022/164 has been evaluated by the Scientific Research Ethics Committee and granted approval. You can start your research on the condition that you will abide by the information provided in your application form.

Prof. Dr. Aşkın KİRAZ

Rapporteur of the Scientific Research Ethics Committee

Appendix C

Permissions Regarding the use of the Questionnaire and Study of the faculties buildings
(Facilitation Letter from the Faculty of Architecture in the near east university)

YAKIN DOĞU ÜNIVERSITESİ
MİMARLIK FAKÜLTESİ

NEAR EAST UNIVERSITY
FACULTY OF ARCHITECTURE

13.10.2022

To whom it may concerns..

Our Interior Architecture Department student, Afaq Ramahi, Number 20184779, has to examine the physical spaces of the Jordanian universities listed below, and conduct a survey with the students and faculties members, regarding the subject of the thesis on Interior Spaces in the Faculties of Architecture. Approval report was obtained from the ethics committee of our university regarding the survey questions.
I request your to facilitate the student's task in obtaining the architectural plans for the buildings of the Faculties of Architecture , as well as the information related to the architectural design of the faculties to carry out these study.
Kind regards,

Prof.Dr.Zeynep Onur

Universities to Study
- University of Jordan
- Jordan University of Science & Technology
- Yarmouk University
- Hashemite University
- Al-Ahliyya Amman University
- University of Petra
- Applied Science Private University -Mutah University
- The World Islamic Sciences and Education University
- Mutah University
- Aqaba University Of Technology

YAKIN DOGU BULVARI, LEFKOSA - KKTC - TEL-FAKS: (0392) 223 6464 - 281 - www.neu.edu.tr

Appendix D

Permissions Regarding the use of the Questionnaire and Study of the faculties buildings
(Permission Letter by the Ministry of Education in Jordan)

وزارة التعليم العالي والبحث العلمي

الرقم ٣ت/١٧٢٩٥
التاريخ ٢٩ ربيع الاول ١٤٤٤
الموافق ٢٠٢٢/١٠/٢٥

الأستاذ الدكتور رئيس الجامعة الأردنية
الأستاذ الدكتور رئيس الجامعة مؤتة
الأستاذ الدكتور رئيس الجامعة الهاشمية
الأستاذ الدكتور رئيس جامعة العلوم التطبيقية الخاصة
الأستاذ الدكتور رئيس جامعة العلوم الإسلامية العالمية
الأستاذ الدكتور رئيس جامعة اليرموك
الأستاذ الدكتور رئيس جامعة العلوم والتكنولوجيا الأردنية
الأستاذ الدكتور رئيس جامعة عمان الاهلية الخاصة
الأستاذ الدكتور رئيس جامعة البترا
الأستاذ الدكتور رئيس جامعة العقبة للتكنولوجيا

الموضوع: تسهيل مهمة الطالبة
(افاق محفوظ محمد الرمحي)

تحية طيبة، وبعد،

أرفق طياً صورة عن كتاب الاستدعاء المقدم من الطالبة "افاق محفوظ محمد الرمحي" تاريخ ٢٠٢٢/١٠/٢٤ ومرفقه كتاب جامعة Near East University Faculty of Architecture، المتضمن طلب تسهيل مهمة الطالبة "افاق" في جامعتكم، وذلك لتوزيع استبانه الدراسة استكمالاً للحصول على درجة الدكتوراه.

أرجو التكرم بالإطلاع.

وتفضلوا بقبول فائق الاحترام

ع/وزير التعليم العالي والبحث العلمي

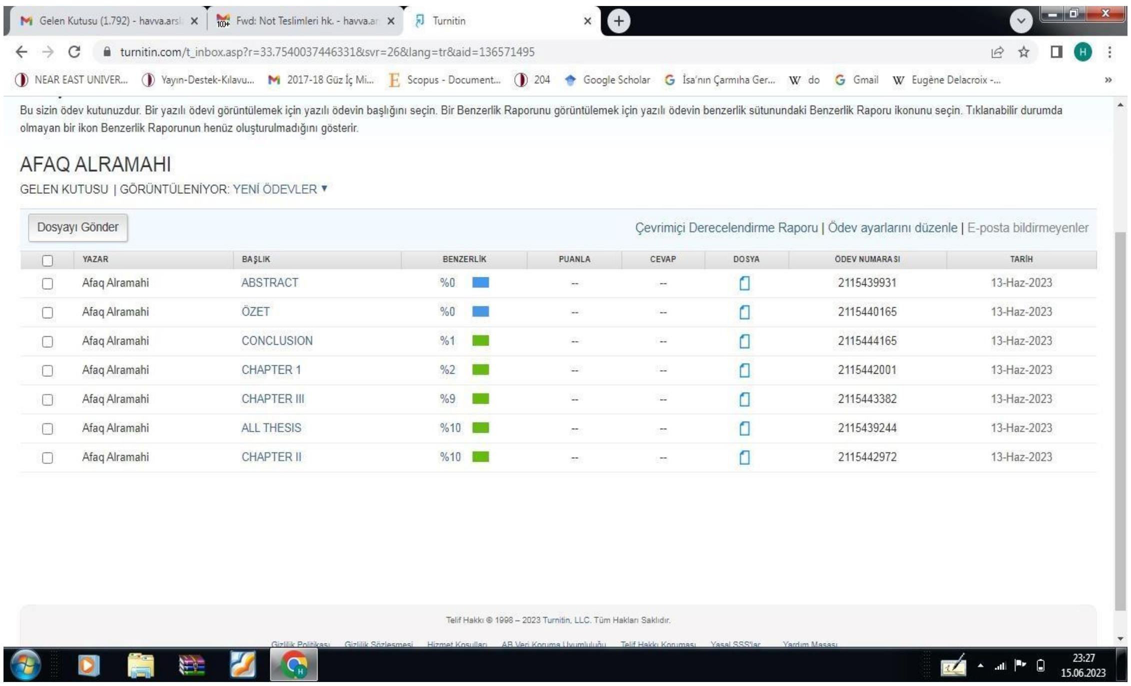
الأستاذ الدكتور مأمون محمد الديبعي
الأمين العام

نسخة الى:
- رق شؤون مؤسسات التعليم العالي (مع المرفق)

المملكة الأردنية الهاشمية

Appendix X

Turnitin Similarity Report



Bu sizin ödev kutunuzdur. Bir yazılı ödevi görüntülemek için yazılı ödevin başlığını seçin. Bir Benzerlik Raporunu görüntülemek için yazılı ödevin benzerlik sütunundaki Benzerlik Raporu ikonunu seçin. Tıklanabilir durumda olmayan bir ikon Benzerlik Raporunun henüz oluşturulmadığını gösterir.

AFAQ ALRAMAHI

GELEN KUTUSU | GÖRÜNTÜLENİYOR: YENİ ÖDEVLER ▾

Dosyayı Gönder

Çevrimiçi Derecelendirme Raporu | Ödev ayarlarını düzenle | E-posta bildirmeyenler

YAZAR	BAŞLIK	BENZERLİK	PUANLA	CEVAP	DOSYA	ÖDEV NUMARASI	TARİH
Afaq Alramahi	ABSTRACT	%0	--	--		2115439931	13-Haz-2023
Afaq Alramahi	ÖZET	%0	--	--		2115440165	13-Haz-2023
Afaq Alramahi	CONCLUSION	%1	--	--		2115444165	13-Haz-2023
Afaq Alramahi	CHAPTER 1	%2	--	--		2115442001	13-Haz-2023
Afaq Alramahi	CHAPTER III	%9	--	--		2115443382	13-Haz-2023
Afaq Alramahi	ALL THESIS	%10	--	--		2115439244	13-Haz-2023
Afaq Alramahi	CHAPTER II	%10	--	--		2115442972	13-Haz-2023

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CV

Afaq Mahfouz

Mohammad Ramahi

Architect & Interior Designer

INFO

-Marital status: single.
-Nationality: Jordanian.
-Place of birth: Amman, Jordan.
-Date of birth: August, 20th, 1985

Objective

An ambitious architect and designer who has a master's degree in interior design and a bachelor's degree in both architecture and interior design and is now continuing as a Ph.D. candidate in Interior Architecture. My passion and cultural background influenced and inspired me during my academic and practical journey.

I believe that the learning journey is never limited to just an academic education. I am trying to develop my talents and experiences by continuing through working on various things in my field, which creates accomplishments in my life and makes me familiar with different kinds of projects in architecture and interior design.

Skills

Revit ●●○○ SketchUp ●●●○
Autocad ●●●● 3DSMAx ●●●○
Lumion ●●●○ TwinMotion ●●○○
Photoshop ●●●○ Vray ●●●○
Microsoft Office proficient ●●●●

Employment History

July, 2011 to Sep, till now Freelancer interior designer for many projects until now.

March 13th 2017to August, 30th 2018 Lecturer at Middle East University, Architecture & Design (interior design) Department.

Feb ,11th 2016 to March, 12th 2017 Lecturer at luminous education, al Quds college, Architecture & Design (interior design) Department

August, 15th 2013 to June, 15th 2017 Teacher at many private schools as art teacherFeb, 23. 2011 to March, 12th 2012 Assistant &laboratories Supervisor at al- ahliyya Amman university, Architecture & Design (interior design) Department.

Languages

Arabic ●●●●
English ●●●○
Turkish ●○○○

Education

PHD(HONS), Interior Design, Near East University
From 2018-until now, with an average of (4/4), Excellent

BA(HONS), Architecture, Near East University from 2019-to 2021, with an average of (4/4), Excellent.

MA(HONS), Interior Design, Islamic Science University from 2012 to 2015, with an average of (94.3), Excellent.Thesis title: Behavioral Decorum of interior and exteriorSpaces in Islamic Architecture.

BA(HONS), Interior Design, al- ahliyya Amman universityfrom 2008 to 2011, with an average of (94.5), Excellent.

BA, actuarial sciences, university of Jordan / From 2003 to 2007.

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