



## IMPACT OF EVOLUTION OF THE HUMAN ASPECT ON COURTYARD ARCHITECTURE IN SHOPPING CENTERS

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### ABSTRACT

Courtyards are an essential component of shopping centers, providing various environmental, functional, and social benefits. It is one of the most closely related spaces in the shopping centers to humans, Therefore, its architecture must reflect the evolution of the human aspect and the spiritual, psychological, and ideological needs of humans. Therefore, the research addressed the study of opinions and theories about defining the human aspect, studying its stages of evolution, and its role in achieving architectural compatibility and integration with the courtyard's surrounding environment, whether in past or present architecture. The courtyard has returned to prominence in architectural design that aims to be compatible with the human aspect. With the technology of the current era, it has been possible to reach new and advanced solutions and treatments to make the courtyard compatible with all designs of shopping centers buildings, as well as to be used in all climatic conditions. The research revealed the impact of changes in the human aspect on the evolution of architectural approaches through the ages, which was reflected clearly in the design of courtyards in shopping centers. The research concluded the clear impact of the evolutions in human aspect from the pre-birth stage to the present era on the evolution of architecture, which in turn affected the evolution of the architecture of shopping center courtyards, starting from commercial spaces in ancient times, through commercial streets and markets in the Middle Ages, to contemporary shopping center architecture.

**KEYWORDS:** Shopping centers, Human aspect, Courtyard, Islamic architecture, Humanization, and Commercial centers

### تأثير تطور البعد الإنساني على عمارة الفناء في المراكز التجارية

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### المخلص

يعتبر فناء المركز التجاري من أبرز الفراغات داخل المنظومة التجارية من حيث الأهمية فضلاً عن وظيفته الرئيسية كمنظومة حركة لشاغل الفراغ نحو فراغات المبنى الأخرى وذلك لما يحققه من مميزات بيئية واجتماعية ووظيفية، ولأن الفناء في المباني التجارية من أهم فراغات المركز التجاري ارتباطاً بالإنسان، فوجب أن تعبر عمارته عن البعد الإنساني واحتياجات الإنسان الروحية والنفسية وأفكاره ومعتقداته، لذا تطرق البحث إلى دراسة الآراء والنظريات حول تحديد ماهية البعد الإنساني ودراسة مراحل تطوره ودوره في الوصول لتحقيق التوافق والتكامل المعماري مع البيئة المحيطة للفناء في المراكز التجارية، سواء في عمارة الماضي أو الحاضر، فقد عاد الفناء مرة أخرى ليحتل الصدارة في تصميم معماري يهدف إلى التوافق مع الأبعاد الإنسانية؛ ومع تكنولوجيا العصر الحالي مما أمكن الوصول إلى حلول ومعالجات جديدة ومتطورة ليناسب الفناء مع كافة تصميمات مباني المراكز التجارية، وكذلك ليستخدم في

كافة الأجزاء المناخية، كما ظهر من خلال البحث تأثير التغيرات في البعد الإنساني على مر الأزمنة على تطور الفكر المعماري وانعكاس ذلك بصورة واضحة على عمارة الأفنية في المراكز التجارية بداية من الفراغات التجارية في العصور القديمة ومروراً بالشوارع التجارية والأسواق في العصور الوسطى وصولاً إلى عمارة المراكز التجارية المعاصرة.  
الكلمات المفتاحية : البعد الإنساني، المراكز التجارية، العمارة الإسلامية، الفناء، الأنسنة.

## 1. INTRODUCTION

Humanization of architecture refers to the human aspects of designing spaces, It aims to achieve a design that is compatible with human needs and desires, and helps people live, work, and interact in a comfortable and effective way, contributing to the promotion of the psychological, physical, and social health of individuals. The human aspect in architecture includes paying attention to human needs and desires such as movement, interaction, communication, privacy, and safety, this requires studying the different human factors such as age, gender, culture, and various needs. As for the architecture of shopping malls, the human aspect aims to design commercial spaces and interactive areas that are compatible with human needs and desires, help people shop and interact in a comfortable and effective way, and provide a positive and enjoyable shopping experience, contributing to the promotion of the psychological, physical, and social health of visitors.

The human aspect in architecture has been defined in the past in a specific way, as it has been described as: architecture that serves human purposes and life requirements through spatial and temporal means that are closely linked to the life of the community and are subject to social influences, natural factors, and climate [1]. The human aspect of architecture expresses the human being as a psychological composition and provides him with psychological and spiritual comfort, which has a positive impact on the efficiency of human beings and interests [2]. It is meeting the psychological and spiritual needs of man and requires expressing customs, traditions, and beliefs, because architecture is the truest record of the state of people, their beliefs, and their standard of living [3]. It is respecting man and human values, resulting in architecture that expresses this man, his values, and his customs [4]. **Table 1.** shows the common relationships between the previous definitions.

**Table 1. Common relationships between the previous definitions of human aspect in the past**

	Conceptual Definition	Psychological and spiritual factors	Customs and traditions	Relationship between human and place	Natural factors and climate	History of place
	Theorist					
1	A. Salama		•	•	•	•
2	A. Ra'fat	•				•
3	S. Zaytoon	•	•	•		
4	H. Fathy		•	•		

The human aspect in architecture has been defined recently as a set of data that must be taken into account in the design concept of the project, and it is in a relationship with the set of design considerations and the user's functional, symbolic, and aesthetic needs [5]. It is the interaction between man and place with all its meanings and connotations. The meaning of urban and architectural formation understanding the city with its basic requirements, human needs, and future aspirations [6]. Abdel Karim Hassan mentioned that architecture has a human aspect that goes beyond its material and physical aspect, where other cultural, social, religious, and historical factors melt together, in addition to human feelings, emotions, and spirit, to give a product that respects man and society, which is known as the human aspect [7].

To reach the operational definition of the human aspect in the courtyards of shopping malls through the previous definitions, it is necessary to study the following **Table 2.**

**Table 2. Common Relationships between the previous definitions of the human aspect recently**

Conceptual Definition		Project Idea	User Needs	Human Phenomena	Relationship Between Human and Place	Place Vitality	Place history
Authors							
1	L. Abd El Kader	•	•		•	•	
2	A. Bougafala			•			
3	D. Rashad	•	•		•		
4	R. Zouaoui			•			
5	B. Zouaoui		•	•			•
6	Y. Tarif		•	•			•
7	K. Abdel Nasser				•		•
Percentage of each element relative to the total elements		<b>11.8</b>	<b>23.5</b>	<b>23.5</b>	<b>17.6</b>	<b>5.88</b>	<b>17.6</b>

From the above definition of the human aspect in architecture, an operational definition of the human aspect of shopping centers courtyards can be defined as:

The human aspects of the design of a shopping centers courtyard that are in line with the needs of users and enhance the relationship between man and place in a way that is consistent with the history and identity of the users.

After defining the human aspect, the research aims to study the impact of its evolution on the evolution of shopping mall courtyard architecture through the longitudinal method, starting from the commercial spaces in ancient times, through commercial streets and markets in the Middle Ages, up to the architecture of contemporary shopping centers.

For several years, courtyards have received wide attention from researchers due to their significant role in various aspects, numerous researchers and theorists have been explained the idea of shopping centers as a point of attraction for people in each city, **Table 3** provides a brief overview of some previous studies that have addressed the human aspect or courtyards in shopping centers. The table compares the objectives, methodology, and main findings of each study to identify the research gap.

**Table 3. Overview of previous researches on human aspects or courtyards in shopping centers**

	Authors	objectives	methodology	main findings
1	R. Adel, N. Megahed, A.M. Hassan, M. Shaha	Aims to bridge the gaps in previous limited studies considering skycourt as a passive alternative on the vertical plane of the facades in contrast to the courtyard.	Overview and a bibliometric analysis of the evolution of the courtyard to the skycourt via VOS viewer software and the bibliometrix R package.	The research provided various concepts related to skycourt as a promising passive design strategy, which can be suitable for multi-story buildings, starting with its evolution, characteristics, configurations, benefits, and challenges.
2	L. Wanos	Provide a range of important indicators for designers and developers during the design stages to ensure satisfaction of potential shoppers.	A survey was conducted to trace and analyze the effect of the independent variables of the spatial component on the dependent variables (emotional responses, cognitive responses, and behavioral responses).	A statistically significant relationship between independent and dependent variables, that is, architectural design as a spatial component influences the internal and behavioral responses as activities participation..
3	L. Aboubakr	Achieving the general framework about designing Malls through designing an attractive public space in Mall and providing the basic design requirements for the inner	Discussing the factors that effect on the staying more in malls, then focusing on Atrium and its Design factors (Architectural aspects, form, space, Elements of Form and Space) in	Concludes that architectural and design aspects of atriums enhance the overall attractiveness and usability of malls.

		court (Atrium).	theoretical framework. While practical part of the research discusses history of Erbil Malls.	
4	R. Meziani, J. Tei Pai	Understanding the relationship between the popularity and attractiveness of commercial buildings, shopping malls and any relationship with visitor satisfaction.	Surveys were conducted in the city of Abu Dhabi and the Structural Equation Modelling (SEM) technique was used to test the hypotheses.	The top indicators affecting a mall's popularity are a good ambiance and sense of joy, good location, easy access and availability of public transportation and then the variety of brands.
5	A. Kusumowidagdo, A. Sachari, P. Widodo, 2016.	Aims to examine the significant factors of atrium design, which can provide a sense of place for shopping center visitors.	The research was conducted with the sequential exploratory method, which involved a qualitative study, followed by a quantitative study.	That the design factors considered by visitors at the Gandaria City Mall are atrium legibility, atrium decoration, event decoration, social image and interaction, and event ambience, whereas the visitors at Ciputra World considered atrium legibility, social image and interaction, atrium ambience, and atrium decoration.
6	W. Y. Hung, W. K. Chow	Present a general review of atrium buildings, including the history of their development, their performance and other design considerations.	- Review of evolution of atrium within four periods: early 19th century, late 19th century, early 20th century and Late 20th century Analytical study of atrium buildings from various countries to discuss architectural, environmental, and economic aspects of atrium buildings as well as design considerations.	Discussions revealed a general understanding of atrium building design. remind occupants' concern on places with an atrium like shopping malls, libraries and offices buildings where they go in and out daily; and to remind developers on the potential in saving energy but keeping good quality of the indoor environment.
7	A. Kusumowidagdo, A. Sachari, P. Widodo, 2013.	Aimed at finding out about the role of a public area's layout in creating a sense of place, which specifically can be described in three points. The first is to find the physical factors that develop sense of place. The second is to analyze the social factors in a sense of place. And the third is to examine the relationship between people and their environment.	The qualitative method with in depth interview in Shopping centers which used as a case study to identify the relationships between a public space's interior design that shapes its atmosphere as a mental image which creates a sense of place in a particular scale.	The relationship type that might happen is iconic, biographical, experiential, functional and dependent. These types of relationship were found by exploring three shopping centers that cover quite a wide time gap between them. The sense of place that might happen varies low involvement, moderate and rootedness. The variety of attachment type, people and culture, as well as time also plays a role in creating different sense of place.

After reviewing previous studies, the following observations can be drawn:

- Previous studies have discussed shoppers' behaviour and social aspects in the shopping center in general [14] (L. Wanos), attractiveness [16] (R. Meziani, J. Tei Pai) none of which have specifically addressed the link between the courtyard and the human aspect.
- Researches on courtyards in shopping centers has been diverse, focusing on architectural design [15](L. Abou bakr) and [17](A. Kusumowidagdo, A. Sachari, P. Widodo, 2016), and social aspects [19] (A. Kusumowidagdo, A. Sachari, P. Widodo, 2013), but it has not addressed the courtyard as an essential element of the shopping center with multiple, interconnected human aspects.

- Researches on courtyards in general has been diverse, focusing on architectural design [13] (R. Adel, N. Megahed, A.M. Hassan, M. Shahda), history of their development [18] (W. Y. Hung, W. K. Chow).
- None of the previous studies have provided the impact of the evolution of the human aspect on the architecture of courtyards in shopping centers.

This paper aims to bridge the gaps in previous studies linking the evolution of courtyard in shopping centers with evolution of the human aspect. This research presents an overview and analysis of this evolution from the initial portrayal of courtyards discovered in ancient times within markets and commercial streets to the contemporary shopping centers.

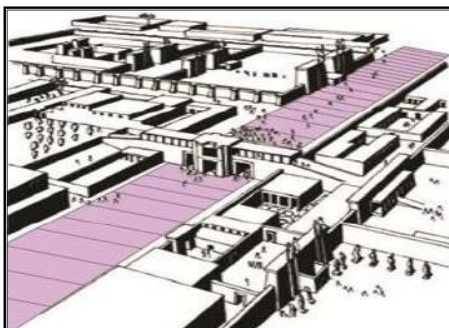
## 2. Methodology

The research conducted a longitudinal methodology, encompassing two key steps. First, it analyzed the opinions of philosophers and theorists throughout history to examine the evolving essence of the human aspect. Second, it monitored changes in the concept of the human aspect within shopping space courtyards through a comprehensive review of literature related to the human aspect and its impact on architecture. By tracing this evolution, the research investigated how these changes affected the evolution of commercial space courtyards over time, starting from the ancient Egyptian civilization and progressing through the Ayyubid, Mamluk, and Fatimid eras, right up to the modern era. As well as examining case study as an example of evolution of the human aspect of commercial spaces courtyards in the middle ages.

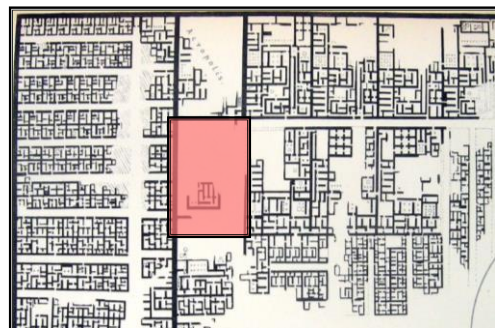
### 2.1 The Human Aspect of Commercial Spaces Courtyards in Ancient Times

Commercial spaces in ancient Egyptian civilization appeared in the form of open markets on the main roads. They were classified as linear markets, consisting of streets lined with shops. This made it easy for shoppers to reach the goods and compare the different types of the same goods available in the market. The city in ancient Egyptian civilization was divided into a main road with several branches, each of which was dedicated to a particular profession.

Commercial spaces also appeared in the central spaces of the city, where all the elements of the urban gathering were available. They served their function as a complex that achieved the greatest possible interaction between the visitors [20]. An example of this is the central space in the Tell el-Amarna settlement in 1366 BC, which consists of three main streets with branches **Fig. 1**. Another example is the central space of the Kahun city in Fayoum, which was built to house the workers who built the pyramid of Senusret **Fig. 2**.



**Fig. 1.** one of the main streets in the city of Tell el-Amarna



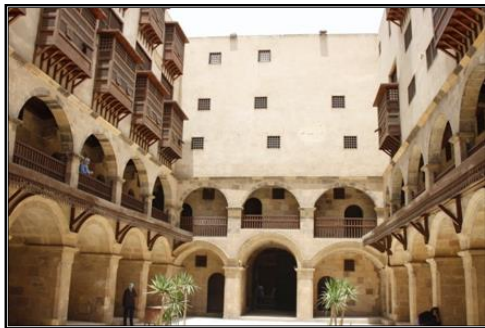
**Fig. 2.** a schematic plan of the ruins of the Kahun city in Fayoum.



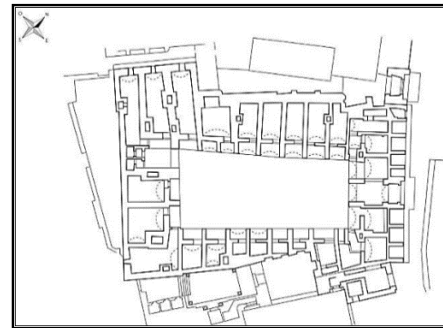
## 2.2 The Human Aspect of Commercial Spaces Courtyards in the Middle Ages

The Middle Ages was a period of great architectural evolution in the Muslim world. During this period, the courtyard became a common feature of architecture spaces. This was due to a number of factors, including the desire to create a more private and secure space for users, as well as to achieve environmental goals, such as providing shade and ventilation in hot climates [21].

Shopping spaces courtyards in this era were designed to meet the needs of the people and to create a vibrant and inviting space for commerce and social interaction. **Fig. 3** shows the Ghouriyya Agency in Cairo. The agency is a large, complex building with a central courtyard. The courtyard is surrounded by shops and other businesses, and it provides a private and secure space for shoppers to browse and shop, **Fig. 4** shows the Bazzara Agency in Cairo. The agency is a smaller building with a central courtyard. The courtyard is surrounded by shops and other businesses, and it provides a pleasant and inviting space for shoppers to gather and socialize [22].



**Fig. 3.** the courtyard of the Bazzara Agency and the facades overlooking it



**Fig. 4.** the ground floor plan of the Bazzara Agency

After that, traditional markets appeared. They are places where goods are bought and sold, and thus consumers obtain their needs. They may specialize in a particular product that distinguishes them from other markets. They take the form of a large space that may be open, such as the Souk Sur ElAzbekiya in Cairo **Fig. 5**, or covered, such as the Souk Al-Hamidiyah in Damascus **Fig. 6**. This market is a covered market with a long, narrow passageway. The market is lined with shops and other businesses, and it provides a shaded and cool space for shoppers to browse and shop.



**Fig. 5.** Souk Sur El-Azbekiya in Cairo



**Fig. 6.** Souk Al-Hamidiyah in Damascus

Thus, the courtyard in commercial spaces was one of the most important common planning elements in the ancient Islamic cities, and it was associated with its inhabitants. It is therefore considered an important entry point in the planning of commercial areas as one of the important elements to link the contemporary Islamic city with its civilizational heritage.

## 2.3 The Human Aspect of Commercial Spaces Courtyards in the Modern Era

The human aspect of commercial spaces courtyards in the modern era can be seen in the following:

### A. Post-World War I period:

**The 1920s and 1930s:** Positive attempts to solve the postwar construction crisis began by establishing principles and theories for the modern era, which included political, social, and economic considerations that had never been addressed in history [23].

The beginning of these attempts was to follow the principle of functionalism. Functionalism depended on determining the purpose of the design elements used and removing anything that was not necessary, taking into account economics and resource conservation. This led to a misunderstanding of the nature of the relationship between man and the environment.

Then, a team of architects and thinkers began to move away from functionalism, and the concept of architecture became a social responsibility and must, wherever it is found, be associated with the location, environment, and natural site coordination methods. It must also be characterized by the character and personality of the country of which it is a part, with reliance on local materials that express the environment.

Finally, a team of architects emerged who took human needs into account. Man as an individual has sciences that study him, such as biology on the one hand and psychology on the other. It became clear that design can be a cause of happiness or misery for the individual [24].

As a result, department stores appeared in this period, which were divided into parts according to the type of commodity, to be able to accommodate the large quantity of goods produced in bulk after the Industrial Revolution. They are only specialized stores that do not include any type of entertainment or social events. In other words, the courtyard was used as a type of climate treatment and design solutions only, and it was not exploited in any type of recreational or cultural activities, such as Sedenawy **Fig. 7, Fig. 8.**

Thus, we find that the nineteenth century was the beginning of the emergence of shopping centers in their current form, as the patterns that appeared in it were considered the starting point towards the closed built environment of markets.



Fig. 7. Presence of the courtyard in Sedenawy Mall



Fig. 8. Courtyard of Sedenawy Mall after the development in 2019

### B. Post-World War II period:

**The 1940s and 1950s:** Studies in the field of human and behavioral sciences have emerged that have emphasized the importance of the psychological, mental, and physical composition of man in his relationship with architecture. This led to the emergence of the "Humanist School" that called for the importance of human needs in architecture. This development in the field of human sciences and how to perceive the surrounding environment has been reflected in the architecture of shopping centers through the emergence of the "Organic School" in modern architecture [25]. One of the most important shopping centers that were established in this period was the Southdale Center in Edina, Minnesota, in the United States, which opened in 1956. The architect Victor Gruen tried to change the vision of shopping centers by designing a central courtyard that helped to blend commercial units with recreational elements, health centers, child care facilities, and other activities **Fig. 9, Fig. 10**.



**Fig. 9.** Recreational elements in the main courtyard of Southdale Center



**Fig. 10.** Complementary activities in the indoor garden in the courtyard of Southdale Center

**The 1960s and 1970s:** This period was characterized by outstanding studies by behavioral and social scientists, who presented the most important concepts related to the relationship between humans and the built environment [26].

The reflection of these ideas and concepts that focused on the importance of psychological and social aspect was reflected in post-modern architecture, which appeared in buildings of this period. **Fig. 11** shows one of the most important examples, the Yorkdale Shopping Center, which was established in 1964 in Toronto, Canada. It is a model for covered shopping centers that contain a courtyard with multiple floors of the building and a change in the shape of the commercial corridor as a way to stimulate the user and provide spaces for activities in the corridors and courtyards.

In the 1970s, the trend was to create two intersecting commercial corridors in a main courtyard to reduce the length of the corridor and to accommodate more stores, such as the Woodfield Shopping Center **Fig. 12**, which was established in 1971 [27].



**Fig. 11.** Entrance courtyard of the Yorkdale Shopping Center in Toronto, Canada



**Fig. 12.** Courtyard and corridors of the Woodfield Shopping Center in Chicago



**Late 20th Century:** The last three decades of the twentieth century were characterized by the integration of behavioral sciences with architectural sciences. This led to the emergence of the idea of linking the courtyards of shopping centers with celebrations and festivals in a single entity as a form of marketing policy to attract users, as with the courtyards of the Horton Plaza center, which was opened in 1985 in San Diego, California **Fig. 13**, and the Harborplace center in Baltimore, the largest city in the US state of Maryland **Fig. 14**, which dates back to 1980.



**Fig. 13** Open courtyard at the Horton Plaza center as a model for festival markets



**Fig. 14** a courtyard at the Harborplace center in Baltimore

### **C. The 21st century (Contemporary architecture):**

With the beginning of the 21st century, the world is living a quantitative and qualitative revolution in the fields of science and technology [28]. As a result, the concept of architecture has changed and there has been an architectural boom that has led to a great diversity in shapes and structures. Different geometric shapes, plant formations, large glass surfaces, transparent and metallic surfaces, or bright colors have been used [12].

This has led to the spread of shopping centers, which is the last contemporary stage in the evolution of commercial spaces. Its courtyards characterized by the presence of a large number of functions and activities inside it, and it contains many commercial, service, and entertainment spaces, and therefore the use of the courtyard has emerged as an essential element in this type of building [29]. The courtyard is still an important element in the design of shopping centers. It provides a space for people to relax, socialize, and enjoy a variety of activities.

### **3. Case study**

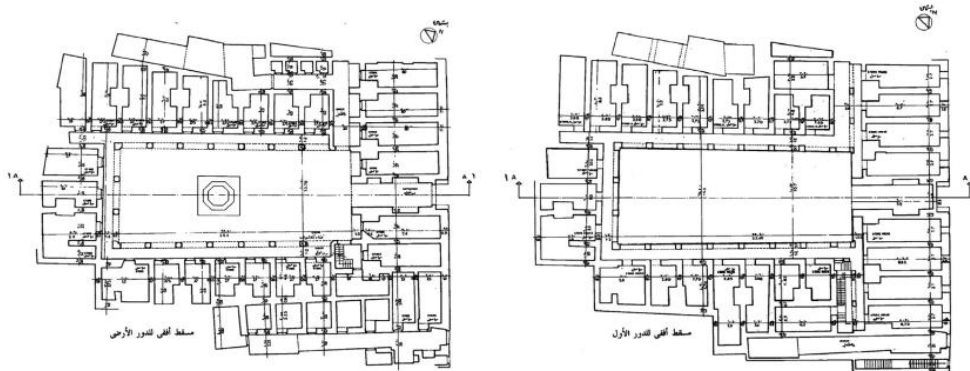
Cairo is rich with numerous commercial centers with courtyards, which have evolved over different eras to meet the changing needs of users. There are several historically renowned shopping centers, such as Simon Arzt Mall in Port Said, which was established in 1932, and Tiring Building Courtyard in the Ataba area, built in 1913, among other models that renowned in the past two centuries. However, their activities have currently ceased due to various political and economic reasons. Therefore, a case study has been selected from the middle ages, which is Wikala Al-Ghuri, established in 1503, with a distinctive courtyard that has been versatile over time.

#### **4.1 Wikala of al-Ghuri as an Example of Evolution of the human aspect of commercial spaces courtyards in the middle ages**

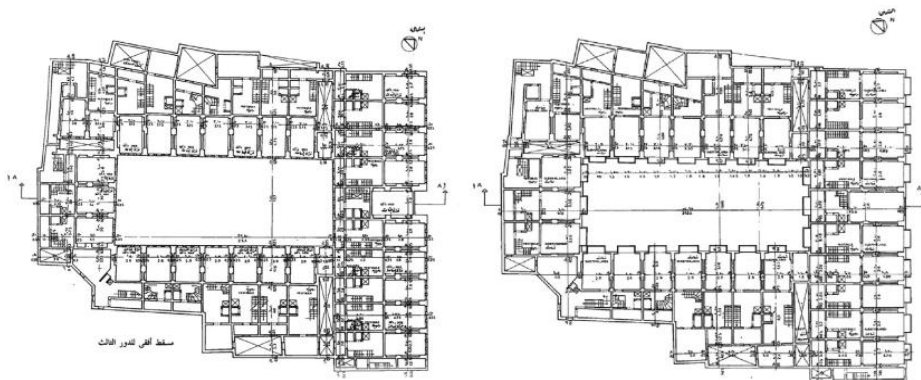
**Location:** The wikala is located in Tablita Street parallel to al-Azhar Street. It lies 100 m from the historical al-Ghuri Complex which consists of a school, a mausoleum and a sabil (water dispensary), built at the same time as the wikala, there are date back to the Mamluk period.

**Architectural design:** Wikalas served as international centers of commerce between nations, which made lodging necessary for travellers from all over the world who would spend some time in Cairo as merchants.

The Wikala of al-Ghuri stands apart from other similar structures in Cairo due to the preservation of the majority of its architectural elements. Crowned by a trilobed arch, the entrance leads to a straight passageway that opens onto the wikala's rectangular open courtyard, which has a marble fountain in the center of it. In addition to making it easier to move goods to and from the storage spaces, this structure was meant to draw in customers. There are four floors that overlook the courtyard [30]. Each of the two lower floors hold more than 20 rooms covered with stone vaulted ceilings; these were used as storage areas for the traders **Fig. 15**. The upper two floors were designed as residential units **Fig. 16**.

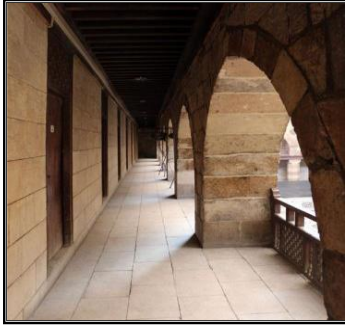


**Fig. 15** Ground floor & 1<sup>st</sup> floor plan, commercial sector

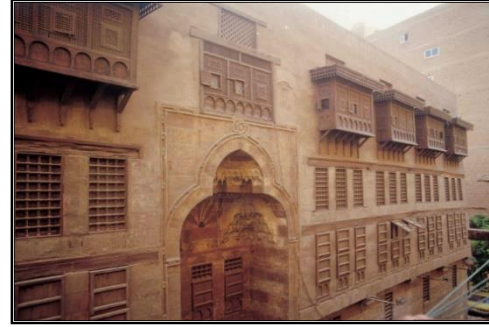


**Fig.16** 3rd & 4th floor plan, residential sector

These rooms overlook the courtyard by way of colonnades, characterised by pointed arches supported by stone piers **Fig. 17**. The facades of these units stories the courtyard by means of a splendid group of mashrabiyya. In the lower part of the mashrabiyya are two rows of windows, furnished with wooden screens that have movable covers (or flaps) opening upwards, thus allowing those who are within the rooms to see the courtyard without anyone seeing them **Fig. 18**. Thus, the design accomplished friendly contact and closer intimacy between its users from different countries, while also ensuring their privacy, as each unit was separated both vertically and horizontally from the other one.



**Fig. 17** Rooms view on the courtyard



**Fig. 18** lower part of mashrabiyya are two rows of windows, furnished with wooden screens that have movable covers

**Evolutions:** The Ghuri is a clear example of what wikalas used to be like in the past. However, due to its deterioration **Fig. 19 & Fig. 20**, and the cessation of commercial activity within it [31], it has undergone several renovations to keep up with the human aspects throughout the ages.



**Fig. 19** The condition of the eastern facade overlooking the courtyard deteriorated in 1909



**Fig. 20** The main façade before renovation

The first renovation took place in 1926. This involved rebuilding the dilapidated parts of the residential section and adding some necessary architectural elements, such as an internal wooden staircase. Another renovation was carried out in 1990 to restore other parts of the agency **Fig. 21**.



**Fig. 21** The entrance facade overlooking the courtyard shows the poor condition of the windows and mashrabiyas due to weather factors, lack of maintenance, and accumulation of debris before the renovation process in 1990

In 1995, a project was established to train craftsmen, transforming the agency into a center for traditional crafts and industries. These included khayamyia making, glass art, and mashrabiya. The courtyard was also used for hosting seminars, folk art performances, and art exhibitions

After a five-year restoration starting in 2000, wikala reopened in 2005 as both an archaeological site and the Ghori Center for Heritage Arts. Dedicated to cultural and human development in Islamic Cairo by offering;

- A variety of cultural and artistic activities on a regular basis: The center hosts "Murals" by visual artists, where they create artworks inspired by the heritage atmosphere surrounding the place.
- A well-equipped space to fulfill its cultural role: The center features a modern, equipped theater stage, dressing rooms, chairs, and a large exhibition hall with an octagonal marble fountain in the center that can accommodate around 300 spectators.
- A souvenir shop selling various items: The shop offers pictures of the place, books, and more.
- State-of-the-art sound and lighting systems: The center is equipped with modern sound and lighting systems to enhance the experience of visitors and participants.
- A variety of artistic groups: The center is home to several artistic groups that contribute to its vibrant cultural scene **Fig. 22**.



**Fig. 22** The current Courtyard after renovation and holding events and activities



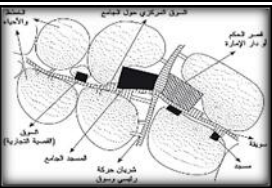

This case study of Wikalat al-Ghuri in Cairo reflects the impact of the evolution of the human aspect and over time on the evolution of courtyard architecture in commercial spaces.





#### **4. Results**

From the previous presentation, we find that the common factor between the architecture of ancient times, the architecture of Islamic times, and the architecture of the modern era is keeping up with the change in human aspect [32]. Technological development and the industrial revolution in the nineteenth century led to many developments in the nature of life in urban communities in general, and in commercial centers in particular. Therefore, the role of commercial axes or open and extended commercial markets was reduced, and the need for a safe shopping environment away from car lanes appeared [33]. Thus, the commercial activity moved away from the urban space and public life, and shopping became in closed spaces that are not connected to the external space. Thus, the commercial function moved to the inside instead of being in the external space [34]. With technological development and the emergence of new possibilities and construction methods, the ability to create new shapes and coverings for commercial spaces, courtyards, and corridors that were not possible to be done in the past has been enhanced. Also, there have emerged courtyards that are not limited to commercial activity only, but have become a community in which the user interacts and in which many events and activities are held [35]. **Table 4**. shows the impact of this evolution in the human aspect on the evolution of architecture in general, and thus the evolution of courtyards architecture in shopping centers.

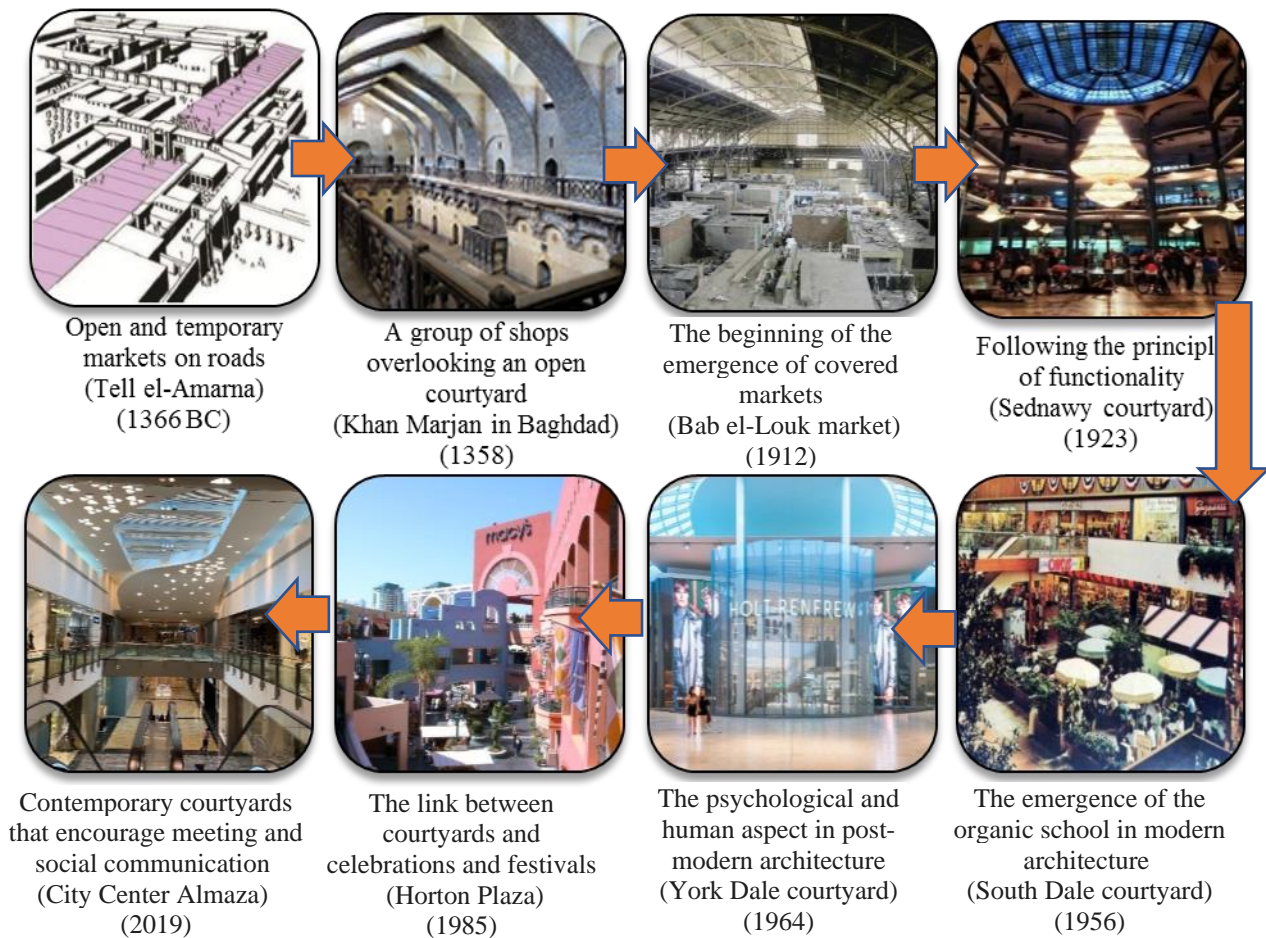


**Table 4. Evolution of Human Aspect and its Impact on the Evolution of Shopping Center Courtyards**

Time Period	Human Aspect Evolution	Architecture Evolution	Commercial Center Courtyards Evolution	Examples
<b>1- The Human Aspect of Courtyards in Commercial Spaces in Ancient Times</b>				
<b>Ancient Egypt</b>	<ul style="list-style-type: none"> <li>- Study of user interaction with space.</li> <li>- Consideration of environmental factors.</li> </ul>	Courtyards used in residential and religious buildings.	<ul style="list-style-type: none"> <li>- Open, temporary markets on major roads classified as linear markets</li> <li>- Central space inside city.</li> </ul>	 <p>Central space, Tell el-Amarna, Egypt (1366 BC)</p>
<b>2- The Human Aspect of Courtyards in Commercial Spaces in Medieval</b>				
<b>A- Islamic Capitals</b>				
<b>Ayubi and Mamluk Times</b>	<ul style="list-style-type: none"> <li>- Compatibility of the courtyard concept with the architecture of Muslim societies.</li> <li>- Achievement of auditory and visual privacy.</li> <li>- Consideration of environmental factors.</li> </ul>	<ul style="list-style-type: none"> <li>- Appearance of shops on the Nile coast.</li> <li>- Some commercial areas were established within the city.</li> <li>- Construction of khans, markets, and agencies with large courtyards.</li> </ul>	A row of shops overlooks an open courtyard in the middle, and above these shops are residential units that are rented to tenants."	 <p>Khan Marjan in Baghdad, Iraq (1358)</p>
<b>B- Traditional Markets</b>				
<b>the Fatimid Era</b>	<ul style="list-style-type: none"> <li>- Study of user interaction with space.</li> <li>- Appearance of the Arab personality in design.</li> </ul>	<ul style="list-style-type: none"> <li>- Graduation and sequencing of commercial spaces ratios.</li> <li>- Appearance of the casbah as a major traffic artery.</li> <li>- The Emergence of Covered Commercial Streets.</li> </ul>	Movement paths occupy a distinguished location in the city center, and specialized commercial streets branch out from them, with courtyards separating their parts.	 <p>Kasbah of Al-Muizz Street, Cairo, Egypt</p>
<b>3- The Human Aspect of Courtyards in Commercial Spaces in the Modern Era</b>				
<b>A- Post-World War I</b>				
<b>1920s and 1930s</b>	<ul style="list-style-type: none"> <li>- Neglect of psychological and human aspects (as a result of World War I)</li> <li>- Focus on political and economic considerations</li> </ul>	Adhering to the principle of functionality	Department stores with courtyards as a purely design solution and are not exploited in any kind of recreational or cultural activities	 <p>Courtyards of Sednawy, Cairo, Egypt, (1923)</p>
<b>B- Post-World War II</b>				

<p><b>1940s and 1950s</b></p>	<ul style="list-style-type: none"> <li>-The emergenc of the "Humanist School" which advocated the importance of human needs.</li> <li>-The emergence of a type of shoppers whose goal is entertainment, and it may be a priority over buying.</li> </ul>	<ul style="list-style-type: none"> <li>- The emergence of the "Organic School" in modern architecture.</li> <li>- Designers began to be interested in knowing the user's wishes.</li> <li>- Providing distinctive complementary activities to attract users to spend longer periods of time at the shopping mall.</li> </ul>	<p>Relying primarily on the presence of courtyards to blend commercial activities with recreational activities and decorative elements.</p>	 <p>Courtyards of South Dale Shopping Centre, Edina, Minnesota, United States, (1956)</p>
<p><b>1960s and 1970s</b></p>	<p>The emergence of concepts related to ownership, spatial space, and privacy.</p>	<p>The reflection of these ideas that focused on the importance of psychological and social aspects on some architectural ideas in post-modern architecture.</p>	<p>Covered shopping centers that contain a courtyard with multiple floors of the building.</p>	 <p>Courtyards of Dale York Centre, Toronto, Canada, (1964)</p>
<p><b>Late 20th Century</b></p>	<ul style="list-style-type: none"> <li>- Integration of behavioral sciences with architectural sciences.</li> <li>- The beginnings of the emergence of "environmental psychology".</li> </ul>	<p>The emergence of the deconstructivist trend represented by the deconstructivist school.</p>	<p>The linking of courtyards and celebrations and festivals in one entity as a type of marketing policy.</p>	 <p>Courtyards of Horton Plaza, San Diego, California, (1985)</p>
<p><b>C- Contemporary Architecture</b></p>				
<p><b>21st Century</b></p>	<ul style="list-style-type: none"> <li>- The study of human aspects as an integral part of architectural studies.</li> <li>- Knowing the requirements of users and reaching the appropriate design compatible with the surrounding environment.</li> </ul>	<ul style="list-style-type: none"> <li>- Architectural boom that led to great diversity in shapes.</li> <li>- The use of plant formations, large glass surfaces, transparent and metallic surfaces.</li> </ul>	<p>The courtyards of the 21st century that contain a comfortable atmosphere that encourages meeting and social communication in addition to their attractive and distinctive designs.</p>	 <p>Courtyards of City Center Almaza, Cairo, Egypt, (2019)</p>

From the above it has seemed obvious the clear impact of the evolutions in human aspect from the pre-birth stage to the present era on the evolution of architecture, which in turn affected the development of the architecture of shopping center courtyards. Below is a schematic diagram with pictures that illustrates this evolution **Fig. 23**.



**Fig. 23. The reflection of the evolution of the human aspect on the evolution of courtyards architecture in shopping centers**

## Conclusions

The research addressed the study of opinions and theories about defining the human aspect, studying its stages of evolution, and its role in achieving architectural compatibility and integration with the courtyard's surrounding environment, whether in past or present architecture. The research aims to identify the concept of human aspect and assess the reflection of the evolution of human aspect on the evolution of architecture and its impact on the architecture of courtyards in shopping centers. Therefore, the study used a longitudinal method to conclude the clear impact of the evolutions in human aspect from the pre-birth stage to the present era on the evolution of architecture, which in turn affected the evolution of the architecture of shopping center courtyards, starting from commercial spaces in ancient times, through commercial streets and markets in the Middle Ages, to contemporary shopping center architecture, as well as examining case study selected from the middle ages, which is Wikala Al-Ghuri, established in 1503, with a distinctive courtyard that has been versatile over time as an example of evolution of the human aspect of commercial spaces courtyards in the middle ages.

The research confirmed that technological developments over time have led to many developments in the nature of life in urban communities in general, and in shopping centers in particular. As a result, the role of commercial axes has been reduced, and the need for a safe shopping environment away from car lanes has emerged. As a result, commercial activity has moved away from the urban space and public life, and shopping has become in closed spaces

that are not linked to the external space. Thus, the commercial function has moved to the interior instead of being in the external space.

Consequently, contemporary shopping centers are the most developed forms of shopping. They contain comfortable atmospheres that encourage meeting, social communication, and shopping, in addition to their attractive and influential designs, the use of the latest technologies to provide comfort and safety, and the work to create a special atmosphere of coexistence that distinguishes each center. In addition, the design combines containment and spatial openness necessary for integration with the surrounding environment. Courtyard is also considered one of the most important elements of attraction for visitors to the shopping center, especially when providing some recreational activities and taking care of environmental aspects in the design.

So the research recommends considering the human aspect as a design principles that must be adhered to when designing courtyards in shopping centers, treating the courtyard of the shopping center as a social center where many activities and events have organized that suit the needs of all family members, considering the courtyard in the shopping center is one of the most important spaces related to humans, so its architecture must express the spiritual, psychological, and ideological needs of humans, The courtyard in a shopping center is not only an environmental and functional solution, but it is also one of the most important means of achieving human comfort in all its forms.

The research has provided a background to support further research and analysis in the impact of the evolution of the human aspect on the architecture of shopping center courtyards during a specific time period. Examine the current human aspect of shopping centers courtyards in detail and conduct an analytical study of contemporary case studies to identify shortcomings and provide solutions. A specialized studies can also be conducted on a specific aspect of this evolution to determine its detailed impact over the ages.

## REFERENCES

- [1] A. Salama, "Human Factors in Environmental Design," The Anglo Egyptian Bookshop Cairo, Egypt, 1998.
- [2] A. Raafat, "The Material Creativity in Architecture (Environment and Space)", Center for Research Inter Consult, Cairo, 1996.
- [3] S. Zaiton, "Architecture of the Twentieth Century," Center for Planning Studies, Cairo, 1982.
- [4] H. Fathi, "Architecture and Environment," Dar El Maaref, 1977.
- [5] D. Rashad and others, "Interior Design Considerations in Commercial Complexes Between the Supposed and the Actual," *Journal of Architecture and Arts*, vol.2, No. 5, p.67, 2017.
- [6] L. Abd El Kader, "A Proposal to Achieve Human Considerations as a Sustainable Design Indicator," *International Design Journal*, vol.12, No. 3, p. 22, 2022.
- [7] A. Hassan, "The Human Aspect in the Traditional Arab and Modern Contemporary Housing," *Journal of Urbanism and Urban Technologies*, vol. 2, No. 2, p. 20, 2010.
- [8] R. Zouaoui, "The Cognitive System of the Humanities in Michel Foucault," Safahat for Studies, Publishing and Distribution, Algeria, p.153, 2015.
- [9] B. Zouaoui, "The Humanities and the Horizons of Research in Their Approaches," *The Journal of the Word*, vol. 17, No. 69, p. 153, 2012.
- [10] Y. Tarif, "The Problem of the Humanities, Its Technification and the Possibility of Its Solution," Hindawi Foundation for Education and Culture, Cairo, Egypt, p. 12, 2012.
- [11] A. Bougafala, The Scientific Dimension of Social and Human Sciences: Claude Levi-Strauss as a Model," *The Journal of Blogging*, vol. 7, No. 16, p. 322, 2020.



- [12] K. Abdel Nasser, K. Nasser, "Technology and Sustainable Architecture in the Twenty-First Century," Conference on Technology and Sustainability in Urbanization, Faculty of Architecture and Planning, King Saud University, Riyadh, 466, 2010.
- [13] R. Adel, N. Mogahed, A.M. Hassan, M. Shahda, "Evolution of the courtyard to the skyscraper: a bibliometric analysis of research trends," *International Journal of Building Pathology and Adaptation*, Vol. 41, No. 6, 2023.
- [14] L. Wanos, "The role of the architectural design of shopping centers in promoting the interactive relationships of society (human and place)," Ph.D. dissertation, Dept. Arch. Design, Damascus Univ., Syria, 2019.
- [15] L. Abou bakr, "Design Elements Affecting the Using of Atriums in Shopping Malls in Erbil city," *Sulaimani Journal for Engineering Sciences*, Vol. 4, No. 5, 2017.
- [16] R. Meziani, J. Tei Pai, "A Study on the Space Layout and Configuration of Shopping Malls in Relation to Pedestrian Movement Behavior - Case of UAE," *International Review for Spatial Planning and Sustainable Development*, Vol. 5, No. 3, 2017.
- [17] A. Kusumowidagdo, A. Sachari, P. Widodo, "Visitors' perceptions on the important factors of atrium design in shopping centers: A study of Gandaria City Mall and Ciputra World in Indonesia," *Frontiers of Architectural Research*, Vol. 5, No. 1, p. 52-62, 2016.
- [18] W. Y. Hung, W. K. Chow, "A Review on Architectural Aspects of Atrium Buildings," *Architectural Science Review*, vol. 44, No. 3, p. 285-295, 2014.
- [19] A. Kusumowidagdo, A. Sachari, P. Widodo, "The setting of internal shopping centres' public spaces and their relationship to the visitors," *GSTF International Journal of Engineering Technology (JET)*, Vol.2, No.1, 2013.
- [20] A. Amgad, A. Al-Husseiny, "The Yield of Marketing Trends on the Shape of Commercial Markets," *Journal of Advanced Engineering Trends*, vol. 40, No. 1 p. 138, 2021.
- [21] N. Hassan, "Principles of Architectural Design for the Pattern of Buildings with Internal Courtyards," *Journal of King Saud University*, vol. 15, No. 2, p. 104, 2003.
- [22] Organization of the Islamic Capitals and Cities. "The Principles of Architectural Design and Urban Planning in Different Islamic Ages in the Capital Cairo," Kingdom of Saudi Arabia, 479, 1990.
- [23] S. Hawas, "The Needs of the Population and the Extent of Their Impact on Existing Housing Projects," Master's dissertation, Dept. Arch. Eng., Cairo Univ., 2014.
- [24] I. Sami, "Architecture of the Twentieth Century", Part Two, Special Edition, 488, 1963.
- [25] H. Abdul Hamid, "Psychological Language in Architecture - Introduction to Architectural Psychology," Safahat for Studies, Publishing and Distribution, Damascus, 256, 2007.
- [26] F. Andrew, "Environmental Psychology," Translated by Abdel Latif Mohamed Khalifa, and Sayed Youssef Jumaa, University of Kuwait, Kuwait, 73, 2002.
- [27] E. Salah El-Din, "Towards a Methodology for Developing Planning and Designing of Commercial Centers in Light of the Impact of Information and Communication Technology," Ph.D. dissertation, Dept. Arch. Design, Cairo Univ., 2019.
- [28] A. Haddad, "Architecture design methods according to advance human's intellect & technology," *Iraqi Journal of Architecture, Technological University*, vol. 28, No. 2, p. 107, 2014.
- [29] N. Beddington, "Shopping Centers: Retail Development, Design & Management. Butter Worth Architecture," Second Revised Edition, 1991.
- [30] M.F. Abdel-Aal, I. Maarouf, S. El-Sayary, "Wakala buildings of Mamluk era in Cairo, Egypt and how far they meet the rating criteria of LEED V4", *Alexandria Engineering Journal*, vol. 57, No. 4, P. 3793-3803, 2018.

- [31] M. Foucault, "Of Other Spaces," Jay Miskowiec, *Diacritics journal*, vol. 1, No. 2, p. 16, 1986.
- [32] D. B. Aboseif, *islamic architecture in cairo*, 3rd ed, Dar el Kutub, p. 3794-3797, 1998.
- [33] Z. Faisal, "Pedestrian Walkways: Between Theory and Practice," Ph.D. dissertation, Dept. Arch. Design, Cairo Univ., 2019.
- [34] K. W. F. Youssef, "New Typologies of Contemporary Shopping Malls in Egypt," *The Journal of Public Space*, vol. 6, No. 1, P. 95-122, 2021.
- [35] R. Saxon, "Atrium Buildings, Development and Design," Architectural press, London, 1983.