

Psychological Relationships Between Heritage Buildings and their Occupants: A Theoretical Exploration

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Abstract

Traditional buildings repurposed for contemporary functions constitute an important economic asset, particularly when they are interconnected with the community and its daily life, either through utilization or frequent visitation. In this context, the opinions of the occupants are important as they spend extended periods of time within a heritage building. It influences their psychological relationships with the structures. This issue has gained recent attention in pursuit of enhancing human quality of life.

Hence, this research explores the psychological relationship between a heritage building and the people utilizing it. The paper employs a three-dimensional conceptual framework encompassing the dimensions of person, place, and psychological process as components of the relationship between people and their surroundings. The paper examines relevant literature and architectural heritage examples to derive a theoretical framework of indicators that shape the relationship between a heritage building and its occupants. It is argued that this framework will serve as a useful tool for stakeholders in guiding decisions regarding the utilization of heritage buildings, fostering occupants' satisfaction, their relationship with these structures, and the sustainability of this relationship.

The research findings show the effectiveness of indicators such as memory and recollections, ideological life, conditioned or dependent relationships, individual attitudes and experiences, time spent and the duration of stay, and personal expectations in the person's dimension. In the place dimension, indicators such as narratives, place as a commodity, identity, environmental quality, design characteristics of the place, and social interaction were found to be influential. Research concludes that the aforementioned indicators effectively contribute to understanding the psychological relationship between the occupants and a heritage building.

Keywords: Heritage buildings, Adaptive reuse, Environmental Psychology, Quality of life, Personal dimensions, Place dimensions.

Introduction

Over the past decades, numerous studies within the field of environmental psychology have attempted to describe the bond between a place and its occupants. Planners and developers often include the concept of 'sense of place' as a desirable goal in developing plans to improve individuals' quality of life within a community (Lopez, 2009; Ruoxi, 2016; Hu M. et al., 2018). Similarly, geographers utilize the same concept, to explain various individually attributed and socially constructed meanings (Cresswell, 2009, 2014). Furthermore, Erfani (2022) has revealed that a sense of place encompasses other concepts such as place identity, place satisfaction, place attachment, and place dependence, while Ramkissoon et al. (2012) have approached it in terms of place attachment, place satisfaction, and place dependency. Moreover, Patterson and Williams (2005) explain the relationship in terms of place dependence, place satisfaction, and pro-environmental behaviour. Thus, it becomes clear that a relationship between a place and its occupants, initiated by sense of place, exists at multiple levels, describing a psychological process that involves a variety of emotions. This give rise, according to the aforementioned studies, to the qualitative behaviour of an individual towards a place.

While the above-mentioned literature was concerned with an open range of scales of places, this research focuses specifically on places of heritage buildings, particularly those repurposed for contemporary functions, or continuing their original functions being associated with the community and its daily life in the city. These buildings constitute a significant portion of the built stock in the cities with historical depth, and their importance increases as they embody significant meanings and values, including aesthetic, architectural, historical, archaeological, economic, social, political, and symbolic values. They represent cultural and social phenomena within a specific time period, making the relationship of occupants with these buildings involve deeper and more complex factors that influence its formation and, consequently, affect individuals' attitudes and behaviours towards these buildings.

Thus, the aim of this research is to understand the factors that influence the relationship between a heritage building and its occupants, and enlighten the decisions of stockholders towards enhancing this relationship and its sustainability. The research objective is to provide a theoretical framework that describes this relationship and devise indicators.

Literature Review

There is a body of research that has confirmed the existence of emotional, and thus psychological, connections between historical environments and individuals. The recognition of this psychological relationship influences practices of preservation, intervention, and the aim of incorporating these places into public benefit and improving human quality of life (Rezaei et al., 2018; Wells, 2020; Gantois, 2021). Kepczynska et al. (2015) indicate that built heritage acts as a generative force for feelings of belongingness, and this sense of attachment to heritage buildings leads to a better quality of life as individuals connect with their environment through feelings of safety and satisfaction. Moreover, Rosilawati et al. (2020) have discussed the concept of 'macro cultural psychology' resulting from participation in activities that create cultural products, forming a new distinctive collective identity that supports cultural psychological development.

Similarly, Wulandari (2015) has emphasized people's tendency to look to the past, whether for nostalgia or as reference points. Therefore, the absence of any form of cultural heritage can lead to a less healthy society.

Regarding the factors affecting the nature and strength of the relationship between individuals and historical places, research has generally focused on a specific category of visitors to the historical buildings such as tourists or visitors for cultural and recreational purposes. These studies have investigated factors influencing satisfaction and interest in these visits, such as the use of technology (Crozier, 2012; Alles, 2014; Hussein & Al Ali, 2022), personal engagement with narrative or understanding authenticity, aesthetic values, and international outstanding value (Ramkissoon, 2015; Nian et al., 2019; Wells, 2020).

However, not much attention has been paid to the users of historic buildings and places for extended periods due to work or residence, nor to exploring the psychological factors

influencing their relationship with these environments. For instance, Cheuk (2020) and Sektani et al. (2021) have shown that repeated and prolonged interactions within a specific environment positively impact comfort and satisfaction. Hence, individuals develop emotional connections to a place after long-term interactions, whether it is a heritage or contemporary site. They argue that psychological attachment to heritage buildings leads to a sense of pride, and factors that strengthen this relationship include personal experiences, memories, the time spent in the place, and awareness of its historical significance. Furthermore, Wei, et al. (2021), have addressed the importance of defining the cultural significance of a building and establishing a cognitive background about it to foster empathy and a sense of value among its users. These studies have focused on factors related to the users of cultural environments.

On another hand, there are studies that have focused on the physical aspects of heritage buildings or sites. Osmanlılar (2012) has highlighted the role of changes in the physical elements, such as interior design interventions, in altering the sensory and psychological impact on occupants of re-purposed buildings. Cheuk (2020) has emphasized the significance of maintenance and attention to the physical condition of heritage buildings to gain satisfaction. Furthermore, Chai et al. (2022) have investigated the impact of four factors on the satisfaction of occupants of a re-purposed heritage building used as a school. These factors include interior design, quality of the indoor environment, quality of services, and the clarity of the heritage building's authenticity.

Based on the preceding overview, it is clear that there is a lack of a good understanding of the factors that can strengthen or weaken the psychological relationship between occupants and heritage buildings. Hence, this research aims to contribute to the knowledge on this issue recognizing the importance of the occupants' wellbeing during their extended stay within heritage buildings.

Research Methodology

To understand the levels of the person- place relationships, Scannell and Gifford (2010) have proposed a triadic model that consists of dimensions of the individuals, the place, and the psychological process dimension, which results in psychological attitudes. This research adopts this model as a conceptual framework to examine further published literature that has dealt with the relevant concepts influencing the relationship between people and places. Architectural heritage examples illustrated in studies are also brought and analyzed where necessary to provide evidence and support the theoretical discussion.

Hence, after clarifying Scannell and Gifford's triadic conceptual model, the research moves to the exploration of the theoretical discourse of the factors, reclassified and grouped into analytical categories within the two components of person and place. The third component: the psychological process is the basis for framing the conclusions

Theoretical Exploration

The Triadic Relationship between the Occupant and the Building

Research shows that the connection between a person and a particular place involves emotional aspects (Cuba & Hummon, 1993; Fullilove, 1996; Giuliani, 2003). In this regard, Scannell and Gifford (2010) has employed the triadic framework to understand the connections that generate a sense of place. They aimed to study the level of "communication between the individual, the place, and the process" and reveal that individuals feel a connection with certain places, which can be any type of place, at any time, and for any reason. This connection, in the person component, can be based on individual meanings, such as personal experiences, or collective meanings, such as cultural or religious significance, or a combination of both. The place component, according to Scannell and Gifford (2010), pertains to everything related to the place, and this includes physical aspects, meaning the characteristics of the place, in addition to social aspects such as the activities of people. The third component, which is the process component defines the effect, cognition and behavior by the person towards the place and *vice versa*. These are presented in the Fig. 1 below.

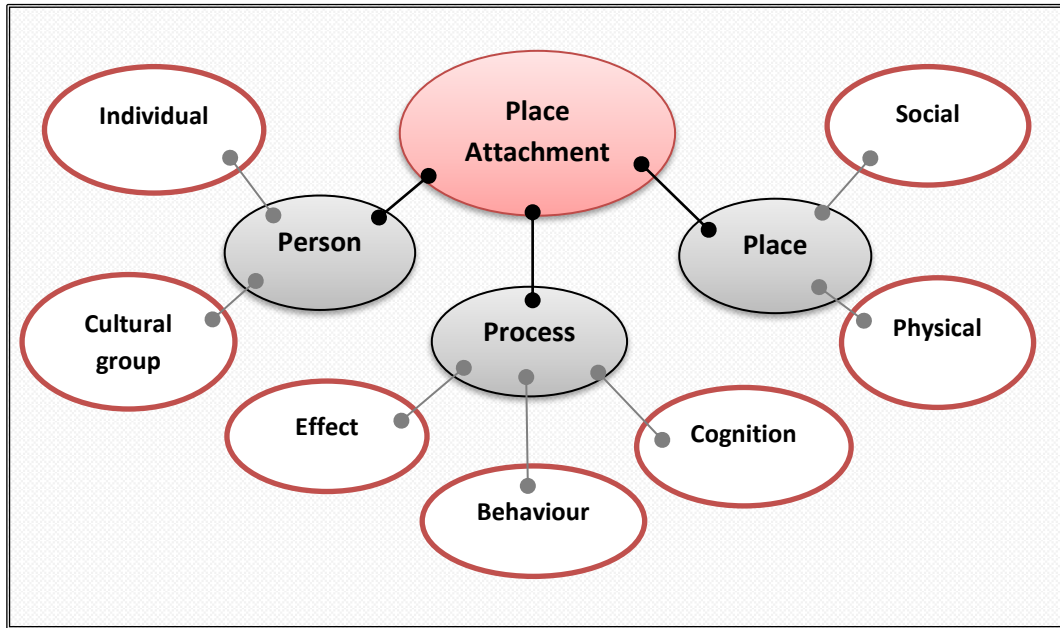


Fig. 1: The person-process-place framework of place attachment
Source: Scannell & Gifford, 2010a

A. The person component

There are a range of factors that influence the extent of a person's connection to a place, which can either have a negative or positive impact on the relationship and its strength. These factors are sometimes intertwined, such as the interplay between the concepts of time, memory, recollections, and biography. They are also occasionally similar in description but differ in terminology, such as personal expectation congruence or self-aspect congruence. Some studies such as Ng (2020), Sektani, et al. (2021), and Gantois (2021), focus on a single factor while others emphasize multiple factors as in Hashem (2013). In this research, these factors were reclassified and grouped into analytical categories, as follows:

A.1. Biographical

These are factors related to the concepts of memory, recollection and biography. Individuals directly perceive stimuli or things they have previously encountered, which they have stored in their memory as part of their past experiences. It is a factor associated with the person rather than the perceived object, connected to personal experiences and expectations (Gomez et al., 2021). These memories can be familial, relating to the place of one's birth or current residence, evolving over time. This factor is characterized by a strong sense and is the most enduring, increasing with prolonged residence, particularly stronger in communities where individuals spend a longer time, with the place becoming an integral part of personal history. Thus, biographical relationships require time to evolve and are considered realistic connections (Lehman, 2009).

Regarding heritage buildings, it can be argued that time emerges as an important factor, since the longer a building exists, the more it provides opportunities for generations of community members to gain memories with the building. Additionally, the building itself may be linked to historical events, further enhancing the potential for a connection between the building and its occupants.

For example, memories can manifest in tangible physical elements, as seen in the Martyr Monument in Baghdad—a commemorative structure honouring Iraqi martyrs. In this memorial, the names of the martyrs are engraved on the walls, thus the monument establishes a profound emotional bond with the families of the fallen (Fig. 2). People tend to connect themselves to heritage places they visit, especially when this visit has personal significance (Fig.

3). Many people engraved their names on the brick walls of the ruins of the historical city of Babylon, since the 19th century.



Fig. 2: The Martyr's Monument in Iraq, which represents a collective memory for the families of the martyrs

Source:

<https://architectuul.com/architecture/al-shaheed-monument>



Fig. 3: A Wall in the northern palace in Babylon with engravings of visitors' names

Source:

<https://www.facebook.com/photo?fbid=606116321518540&set=pcb.606116654851840>

A.2. Ideological

Ideology encompasses a set of ideas, beliefs, values, and opinions that an individual holds, which exhibit a recurring pattern consciously or unconsciously, influencing the person. It can also involve a collection of emotions that an individual strongly holds (Mako et al., 2014). These beliefs can take the form of religious or political teachings and contrast with affective relationships, which occur spontaneously and are not chosen, as they rely on the values and conscious beliefs continuously present in society regarding how people relate to physical places (Cross, 2001).

For instance, it can be observed that attachment to buildings of religious or political significance is common in societies. Often, these buildings have a significant historical depth, categorized as heritage and even historical. Examples include attachment to shrines, places of worship in various religions associated with religious rituals of the community (Fig. 4). People visiting or serving these buildings develop strong attachment to the place which imply revisiting and long stay. Same could be said for imbuing symbolism into political gathering places such as the Tahrir Square and the Monument of Liberty in Baghdad. Both are considered modern heritage sites that have witnessed public political demonstrations in 2020 which lasted more than one year, resulting in deep attachment of those demonstrators to the place (Fig. 5).



Fig. 4: Religious shrine of imam Hussein, in Iraq, expresses a religious ideology that implied strong bond with Shi'it Muslims all over the world

Source :

<https://imamhussain.org/arabic/28295>



Fig. 5: Monument of Liberty-a modernist heritage in Baghdad- expresses a political ideology, which gained people's attachment after the demonstrations of 2020

Source :

[https://en.wikipedia.org/wiki/Freedom_Monument_\(Baghdad\)](https://en.wikipedia.org/wiki/Freedom_Monument_(Baghdad))

A.3. Dependent Relationships

This type of relationship is referred to as a dependent relationship (Dameria et al., 2020), and is sometimes called a 'functional attachment'. It refers to the ability of the place to meet the individual's needs and goals or the extent to which the physical characteristics of the place provide suitable resources for the individual's preferred activities (Scannell and Gifford, 2014). This relationship is constrained by limited choice or dependence on another person or an economic opportunity. The distinctive feature of this relationship is the aspect of choice. Usually, these relationships result from either a lack of choice or strict limitations on choice. For example, children or teenagers who rely on their parents and do not have a choice regarding the place they live in, such as their parents' residence becomes the only available option. People may consciously decide to move from one place to another, but this new place is usually not their first choice, as it comes after several other choices. This type of relationship is considered the least common and may force individuals to work or study in a specific place due to the absence of alternative options or proximity to work or the nature of the job (Cross, 2001).

It is expected that such a factor does not evoke an emotional attachment between the place and the occupant until the element of time comes into play, resulting in a sense of compatibility with the place. Regarding heritage buildings, the influence of this factor is evident in reused buildings, where individuals find themselves joining them due to work, study, or even living in a heritage environment close to work or study. Cheuk (2020) has shown that repeated exposure to a heritage environment increases attachment to it, as mentioned. It indicates that repeated exposure reduces the negative impact (such as fear) generated by a new stimulus. As a result, the positive effect that arises with increased familiarity and reduced uncertainty increases, as the impact of exposure becomes more pronounced for new or unfamiliar things compared to the familiar ones.

A.4. Individual Orientations and Personal Experiences

It is evident that an individual's culture, attitudes, and inclinations have a significant impact on their connection to the surrounding environment, various stimuli, and their interaction with the external world issues (Khodair, 2010; Dwijendra, 2019). Moreover, personal experiences are considered one of the most important individual factors, and these experiences are derived from an individual's interaction with the different aspects of their physical environment (Gomez et al., 2021). Furthermore, personal experiences can be obtained through an individual's educational background or through their experiences gained in a specific environment (Lam, 1992). For example, studies indicate that individuals with cognitive backgrounds in historical, artistic, or engineering aspects tend to exhibit greater empathy towards heritage buildings.

Sektani et al. (2021) have addressed the concept of understanding perceptions and experiences of built heritage and its impact on individual and societal well-being. Indeed, local perceptions of built heritage directly influence preservation and heritage-led interventions. They have explored the local perceptions of built heritage in Erbil by assessing the responses of 414 participants using a survey questionnaire aimed at determining how built heritage is perceived by different sample groups while exploring local perceptions. Significant differences have been found between the perceptions of architects and non-architects regarding well-being. The results have indicated that heritage buildings do not contribute to the well-being of non-architects as much as they do to the well-being of architects, and significant differences in perceptions have been observed between the two groups.

A.5. Time: Duration of Stay in a Place

Time is the most closely related predictor of one's sense of belonging and attachment to a place, representing the amount of time an individual spends in a place. Feelings of attachment to a place usually do not develop instantly (although this is possible), but the duration of stay reinforces positive emotions due to accumulated interactions and memories over months or years, leading to a sense of continuity for the occupant (Hashem, 2013).

However, individuals with minimal or no attachment, such as tourists, have a superficial sense of place where positive feelings revolve around aesthetics or entertainment (Zhang et al., 2023).

In the long term, lasting and stable connections with a place are formed, and time contributes to the development of social networks. Its passage helps shape the identity of both the place and the individual, increasing sense of place. Individuals who spend extended periods in the same place develop feelings of belonging (Sektani et al., 2021).

This factor pertains to the individuals residing in heritage environments for extended periods. Research indicates that due to their distinct identity, heritage environments foster a stronger connection with their occupants over time. Cheuk (2020) has delved into the impact of duration of stay and has provided abundant evidence to show that long-term interactions with a place engender emotional bonds. Long-term residents often attribute personal significance to a place by associating life events with it, cultivating a sense of continuity and self-identity. The length of one's stay fosters familiarity with the surrounding environment, thereby intensifying the connection to a specific place.

A.6. Personal Expectations

Typically, individuals perceive and see what they anticipate, as it is a result of their reception from the physical environment. Moreover, the expectation of a series of different events is usually based on what is received. This process is essential in the perception process because it serves as a connection with the surrounding environment. These expectations should be clear and organized as they have an impact on an individual's choice of redirecting emotions and, consequently, influencing the creation of general behaviour and control over one's surroundings (Lam, 1992).

Regarding heritage environments, buildings are prepared in a manner that matches its positive reputation within the local community or worldwide. For example, in prestigious universities known for their reputation and historic heritage buildings such as the Oxford University in the United Kingdom, the expectations that individuals build about this environment align with their actual experiences when visiting or spending extended periods of time there. The university declares in its website the vision it holds for the buildings as follows:

“The University’s buildings and estate are not only necessary for our academic work; they also contribute to Oxford’s reputation as a city of learning, heritage and culture. They form a vital part of the rich architecture of the city and provide a beautiful environment for visitors and Oxford residents, as well as University staff and students”.¹

B. The place component

The place component focuses on the characteristics and attributes associated with a place or the physical environment, including spatial dimensions, social aspects, physical features, and symbolic elements. These aspects have been discussed with regard to no specific places in studies such as Cross (2001) and Scannell and Gifford (2010). However, this research stresses that such characteristics can be significantly extended, influenced and improved when preparing a heritage building for use. Unlike individual personal factors that vary and are not easily managed, these factors are controllable, making them more observable in architectural examples of renovated heritage buildings worldwide. These factors can be classified as follows:

B.1. Narrative

This category encompasses stories, histories, or narratives of a specific place, including the building's history, stories of its inhabitants, political, national, ethical, religious stories, local traditions, or fictional narratives. Many communities have evolved with stories about places,

¹ <https://www.ox.ac.uk/about/building-our-future/vision>

revealing the history of the location and the relationship of those who inhabit it. Each type of narrative or storytelling plays a different role in different cultural contexts and our relationship with various environments (Coates, 2012; León, 2016; Wells, 2020).

Heritage environments and buildings are particularly suitable for activating this factor. Stories of various kinds emerge and accumulate over time as the building ages, passing down through generations, and becoming part of the collective memory. An example is the Taj Mahal, a magnificent white marble mausoleum located in India. Built by Emperor Shah Jahan of the Mughal Empire (1630-1648) to house the remains of his third wife, Mumtaz Mahal, Taj Mahal became a UNESCO World Heritage site in 1983 (Fig. 6).



Fig. 6: The Taj Mahal shrine, which expresses the narrative value of the building

Source : <https://www.curiosity-escapes.com/facing-the-taj-mahal/>

B.2. Commodified

Place as a commodity is based on choice and preference, where individuals select a place based on a list of desired characteristics and lifestyle preferences, comparing actual places to ideal places. The distinct feature of this type of relationship is the reliance on choice and the ability to select a place with the best possible combination of desired features (such as environmental quality, job nature, location, building condition, and other attributes). These relationships are not related to personal history but are the result of dissatisfaction with one community and the pursuit of a more desired place. This relationship is based on the alignment of place features with the individual's perception of an ideal place (Cross, 2001).

B.3. Identity

Identity is a fundamental dimension of connection to a place. Identity of a place is defined as "an individual's perception, beliefs, images, or ideas that the self is invested in a specific environmental context" (Stedman and Jorgensen, 2001). Environments with distinctive features often enhance higher levels of place identity among individuals. In the literature of environmental psychology, researchers have noted that continuous exposure to a specific place generates a sense of identity for that place, leading to positive environmental behaviours. The type of identity is derived from the features that the place possesses, which can include material, functional, cultural, and architectural characteristics. Place identity is often associated with levels of attachment, satisfaction, and belonging to the place, where identity mediates between these levels and the supportive behaviours of the occupants (Ramkissoon, 2016). It represents personal experiences created by specific circumstances, in which individuals participate in constructing a sense of place (Erfani, 2022). Therefore, identity becomes a crucial element of a place, to the extent that occupants may begin defining themselves in terms of that place, unable to express themselves or define who they are without considering their surrounding context (Stedman, 2002).

In the context of heritage buildings, identity is an expressive attribute of the heritage structure or a set of qualities that reflect its essential truth, derived from its individuality, spirit, and historical roots. It represents the unchanging characteristic of the environment across different situations. Identity is categorized based on the features available in the environment, including material, functional, architectural, cultural, iconic, and natural characteristics.

In recent years, there has been a growing interest in Middle Eastern regions such as Saudi Arabia, Egypt, and Iraq in designing contemporary buildings and houses that incorporate architectural elements known as ‘Shanasheel’(Fig.7) or ‘Mashrabiya’ (Fig.8). Architectural professionals, have skilfully blended modern features with architectural heritage, particularly by incorporating Shanasheel elements. The Union of Iraqi Industries building in Khallani Square serves as an exemplary manifestation of this fusion of modernity and Shanasheel elements² (Fig.8). The popularity of these elements underscores the attachment of the communities to them, necessitating their preservation and consideration in heritage buildings where they are present. This principle applies to other architectural elements as well, regardless of the location, which hold significance to the identity of any community.

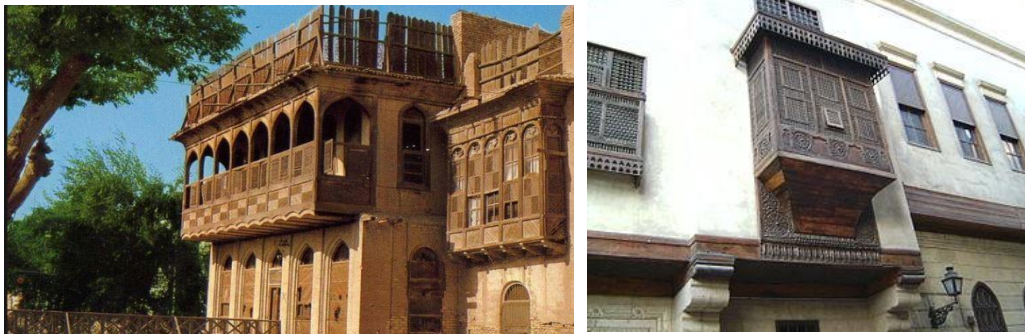


Fig. 7: Shanasheel Al-Basra, one of the characteristics of the houses of the old part of the city of Basra, 1954 AD.

Source: <https://www.wikiwand.com/en/Mashrabiya>

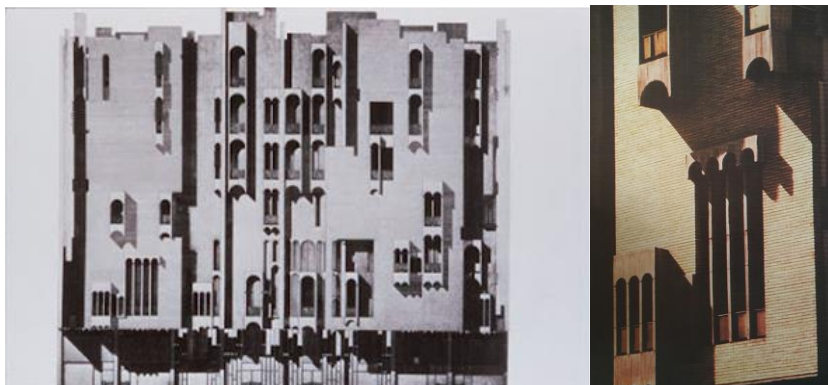


Fig. 8: The Iraqi Federation of Industries Al-Khullani Square Icon

Source:

<https://iraqshistory.blogspot.com/2020/12/iraqi-federation-of-industries-and-its.html>

<https://www.alfaisalmag.com/?p=18700>

B.4. Environmental Quality

According to Alhorr et al. (2016), the quality of the indoor environment is a factor that significantly affects mental health and comfort. It encompasses the quality of interior spaces, aesthetics, comfort, and functionality, all of which indicate the efficiency of people's living and comfort experiences within indoor spaces, as interpreted through their psychological and physiological responses to places. Achieving high-quality indoor environments necessitates integrated design efforts or comprehensive additions in the case of building reuse. Designers can accomplish this by incorporating green design concepts, as building users require flexible and efficient tools for environmental control, such as temperature, humidity, ventilation, lighting, and indoor air quality (Hamdy, 2017).

² <https://iraqshistory.blogspot.com/2020/12/iraqi-federation-of-industries-and-its.html>
<https://www.alfaisalmag.com/?p=18700>

For occupants to fully utilize their potential, thermal comfort standards must be considered as one of the most crucial criteria in designing or redesigning a building, as it directly affects individuals' acceptance of the surrounding environment, both physically and psychologically (Alhorr et al., 2016). In addition, Buildings should be designed to contain and resist noise while ensuring sound insulation, as occupants cannot have complete control over it. Failing to address this issue leads to adverse physical and psychological effects that impact the level of building acceptance (Lee et al., 2012).

Alhorr et al. (2016) also show that the concept of visual comfort determines the lighting conditions and the overall view surrounding the building, which serves as a view for occupants from the inside. Architectural design should ensure the integration of both natural and artificial lighting, including the study of windows, daylighting areas, the quantity and distribution of glass, the study of daylight, its intensity, and the technique of providing suitable artificial lighting. Therefore, the concept of visual comfort is crucial for the well-being of building occupants and consequently affects their satisfaction with the surrounding environment.

To enhance environmental quality during renovation processes, services that facilitate the lives of the occupants are provided. These services aim to increase the functional efficiency of the building, which becomes increasingly necessary with the continuous technological advancements worldwide that were not previously part of the design. Examples of such services include elevators, escalators, communication networks, seating areas, facilities for individuals with special needs, and other services that improve the lives of the occupants. A notable example is the Lyon Opera House in France, where the building was renovated according to sustainable concepts (Fig. 9, 10, 11, 12 and 13).



Fig. 9: Old opera house.

Source:

https://www.wikiwand.com/en/Op%C3%A9ra_Nouvel



Fig. 10: New Opera House

Source:

<https://operasandcycling.com/lyons-unmistakable-opera-house/>



Fig. 11: Opera's relationship with its urban setting

Source:

<https://operasandcycling.com/lyons-unmistakable-opera-house/>



Fig. 12 : The vertical movement system in the building, and the modern finishing materials used.

Source:

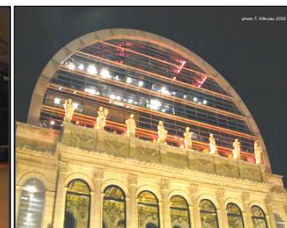
(Jean Nouvel, 2001)



Fig. 13: The shape of the new windows from the inside and outside, which control natural lighting and match it with artificial lighting

Source:

<https://www.opera-lyon.com/>



B.5. Design features of the place

Several studies (Al horr et al., 2016; Hamdy, 2017; Issa, 2022) have identified additional characteristics related to perceived spaces that contribute to achieving psychological comfort for occupants. These characteristics include:

a. **Clarity:** Physical attributes play a crucial role in achieving clarity—a concept that distinguishes an element from its surroundings and accentuates its prominence. Elements such as colour, lighting, texture, and scents contribute to clarity (Appleyard, 1969). Clarity is also defined as the extent to which a viewer can discern and describe the environment (Thierry and Gabriel, 1998). Issa (2022) suggests that clarity extends to spaces, function, materials, and texture (Issa, 2022).

b. **Flexibility:** Interior design flexibility plays a significant role in ensuring occupants' psychological comfort. It refers to the ability to modify spatial configurations, room layouts, and furniture placement based on varying needs, such as accommodating family growth in residential buildings or adapting to increased workforce in office settings. Flexibility in controlling the configuration of a home or workspace fosters satisfaction, positive emotions, and productivity among occupants (Lee et al., 2012). Feasibility and flexibility of design, enabling modifications in shape and size of interior spaces, are intricately linked to the physical and psychological comfort of occupants (Hamdy, 2017).

c. **Privacy:** Privacy in architecture refers to design choices that create a sense of security in physical spaces. It is an essential human need that should be addressed in various settings, including residences, workplaces, and educational institutions. Lack of privacy can lead to feelings of anxiety, anger, insecurity, and discomfort, resulting in negative attitudes towards the surrounding environment (Lee et al., 2012) and (Hamdy, 2017). Privacy can be achieved through both audio and visual isolation (Hamdy, 2017).

d. **Safety:** Ensuring safety, security, and adherence to healthcare standards in construction has a significant psychological impact, particularly when vulnerable age groups such as children, the elderly, and individuals with special needs are present. Inadequate architectural design can lead to accidents, affecting not only these age groups but also young individuals. Buildings perceived as safe provide considerable psychological and social benefits, serving as secure refuges from the outside world. They facilitate the development of personal and communal identities, while providing individuals with a sense of authenticity. Any disruption caused by external factors undermines this sense of security and control, reducing the psychological and social well-being of occupants. Exposure to such pressures can have both short-term and long-term effects (Al horr et al., 2016; Hamdy, 2017).

e. **Physical characteristics of the place:** Understanding the material characteristics of a place is crucial in achieving occupant satisfaction and psychological comfort. These characteristics play a significant role in constructing the mental map and comprehending spaces. Material characteristics encompass elements such as colour, size, texture, visual effects, scents, odors, marks on surfaces, quality of materials, sounds, and sensory properties associated with materials. The presence of focal points, visually diverse elements, and a sense of containment are also relevant considerations (Lynch, 1971; Saleh, 1982; Watson, 2003; Abdulkarim, 2016; Aldalal, 2016; Olaya, 2017; Skaza, 2019; Hussein, 2022).

To illustrate the above listed characteristics in a Heritage building, the St. Pancras Station in London is a notable example. This railway station was repurposed and renovated following a decision to demolish it in 1967. Due to its historical significance, it has become a prestigious heritage building. The station exemplifies clarity in terms of its original purpose, even during temporary conversions to other functions. Following its restoration, the station resumed its initial function while showcasing distinct Victorian architectural details. The station's flexibility was evident in the addition of several new platforms for high-speed trains and the incorporation of renovations to align with contemporary requirements. Furthermore, the station underwent reinforcement of modern fire systems following a fire incident in 1987

at the adjacent London King's Cross Railway Station. It was also equipped with facilities to ensure safe movement and transportation for elderly individuals and people with special needs. As a Grade I heritage building, interventions focused on preserving the Victorian style and visual diversity of the station, deliberately maintaining signs of aging on its architectural details (Fig. 14).



Fig. 14 : The main facade of St Pancras Station is Victorian in style
Source: Author

B.6. Social Interaction

Social interaction is considered a fundamental factor in creating an interactive environment among building occupants, which in turn contributes to addressing physical and psychological health (Andersen et al., 2021).

Denis Scott Brown³ noted that "architecture cannot force people to interact, but it can plan crossing points, remove barriers, and make meeting places useful and attractive."

Although architecture cannot control the outcome, it has the ability to pave the way for social interactions (Sharkey, 2012) and thus contribute to community building and influence the social and psychological aspects and behaviours of occupants, and consequently enhance positive bonds between people and the place (Cutieru,2020).

Many reused heritage buildings have succeeded in creating vibrant environments that foster social interaction. such as the Absalon Community Center ⁴ in Copenhagen, which has transformed a former church into a living room in the neighbourhood by a group of architects. The central nave of the church became a space for a wide range of activities, from yoga classes to table tennis, film screenings, theatrical performances, and musical events, while also serving as a café and dining area. The activities within the space encompass all age groups, backgrounds, and cultures, becoming a cohesive element within the community and making it a lively place (Fig. 15). It has been considered a successful building in creating an interactive environment, leading to increased connection and stronger relationships with occupants through elements such as proximity and spatial configuration for social interaction, the continuity and ease of access to spaces, the nature of activities in different environments, and the level of comfort and attractiveness provided by the places.

³ Denise Scott Brown is an American architect, born on October 3, 1931, in Zambia. Known for her clever urban designs and architecture infused with folk symbolism, she brought artifacts to the world of architecture and sought to understand the relationship between design and society.

<https://eferrit.com/%D8%B3%D9%8A%D8%B1%D8%A9-%D8%B1%D9%88%D8%A8%D8%B1%D8%AA-%D9%81%D9%86%D8%AA%D9%88%D8%B1%D9%8A%D9%88%D8%AF%D9%8A%D9%86%D9%8A%D8%B3-%D8%B3%D9%83%D9%88%D8%AA-%D8%A8%D8%B1%D8%A7%D9%88%D9%86/>

⁴ <https://arcgency.com/absalons-kirke>



Fig. 15 : The central nave of the church before and after the renovation and the addition of social activities

Source : <https://arcgency.com/absalons-kirke>

Theoretical Framework of the Heritage Building-Occupant Relationship:

Based on the previous exploration sections, adaptation can be made to Scannell and Gifford’s model and create a more detailed framework specifically addressing heritage buildings (Fig. 16). This framework provides a theoretical basis for understanding the factors involved in both dimensions of the person and the place affecting the relationship between heritage buildings and their occupants. These factors are further described as indicators in the (Table 1).

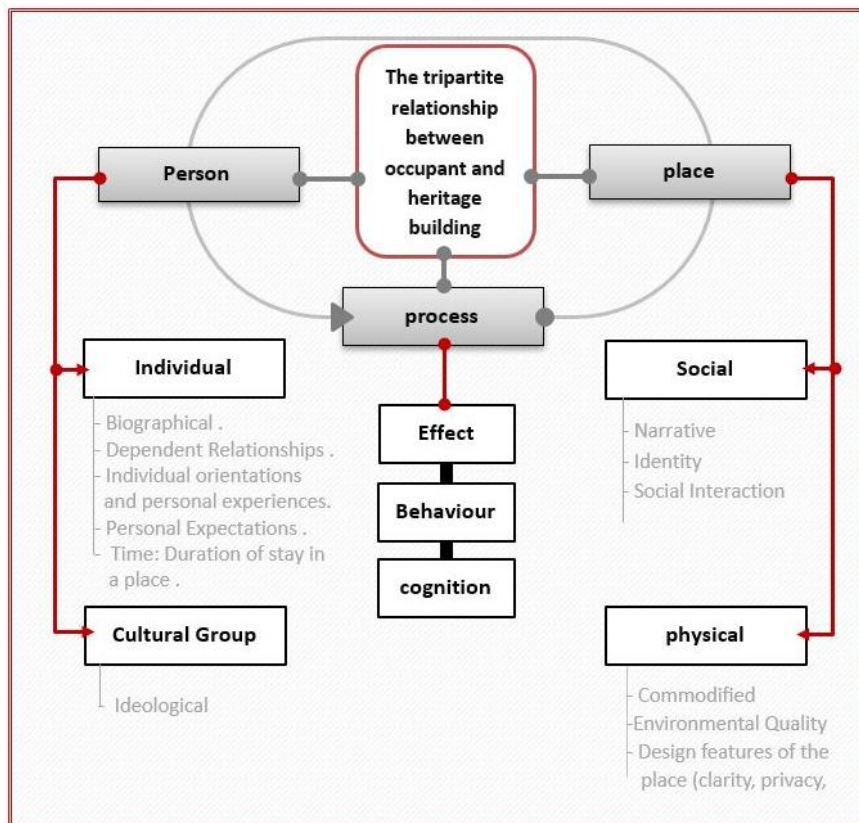


Fig. 18: The conceptual framework of the heritage building-occupant relationship

Source: Authors

Table 1: The theoretical framework
Source: Authors

Key Terms	Secondary Terms	Description
The person component		
Biographical	Visible Material Elements, such as memorial monument.	- Represented by memory, remembrance, and personal history.
	Intangible, non-material, invisible elements.	- Memories can be familial or related to birthplace, residence, or education. - Realistic connections formed, evolving over time.
Ideological	Religious Ideology	- Collection of individual or group's ideas, beliefs, values, and opinions. - Includes strong emotions like religious values.
	Political Ideology	- Connections are spontaneous and not chosen, based on prevailing conscious values and beliefs in society.
Dependent Relationships	Functional Association	- Place's capacity to fulfil individual needs and goals. - Limited relationship due to restricted choices or dependence on others or economic opportunities.
	Ease of access	- Initially non-emotional relationships may evolve into emotional ones over time and with the involvement of other factors.
Individual orientations and personal experiences	Individual orientations	- Links influenced by individual's culture, and preferences. - Links formed through personal experiences and educational background.
	Personal Experiences	- Previous experience and profession impact heritage buildings.
Time: Duration of stay in a place	The amount of time spent in a place	- Contributes to social network development. - Shapes the identity of the place and the individual. - Promotes a sense of continuity. - Enhances positive emotions through accumulated interactions and memories. - Fosters feelings of belonging, engagement, and commitment with longer stays. - Adds familiarity to the emotionally stimulating environment.
Personal Expectations	The mental image that the occupant sees aligns with their personal expectations.	- Essential process for perceiving the environment and connecting occupant with the building. - Clear and organised personal expectations influence emotional redirection. - Building's condition affects personal expectations; aligning with positive community reputation is crucial.
The place component		
Narrative	Tales & Stories took place in a certain place	Stories about specific individuals or important events that took place in a building can be captivating.
	Fairy tales and legends	Stories that do not exist but have been passed on from one generation to another and their existence is linked to the existence of the building.
	Political, patriotist and religious stories	When the place or building has political and national importance for many generations, or religious significance such as shrines and votive monuments.
	Stories based on certain customs and traditions	psychological connection with the place stems from traditions and customs transmitted from one generation to another and practiced within large societies.
Identity	Functional Feature	The activities, functions and practices that occur in the building.

	Architectural and Stylistic Features	It is characterized by aesthetic-cognitive originality, and the material values of the building including aesthetic values, the value of uniqueness, the scientific value, the architectural value, the value of scarcity, the value of construction, and the value of originality
	Cultural Features	It may be at the level of a building as well as include urban levels (region - city - neighborhood - street) and is represented by landmarks (intellectual - social - political - service - customs - traditions).
Commodified	Functional Connection	The nature of the job provided by the building, which is commensurate with the nature of the person's work.
	Ease of Access	The location and proximity of the building and ease of access by the occupant.
	Place's Desirable Features	Capacity of the place to meet the needs and provide the appropriate resources for the individual's preferred activities
Environmental Quality	The Quality of Air	Air quality significantly affects the health of individuals working within a building, which, in turn, has a direct impact on their mental well-being. This issue can be addressed by activating mechanical ventilation systems, particularly in buildings with high occupancy density.
	Thermal Comfort	It is the complete physiological and psychological sensation of comfort and satisfaction with the thermal environment. Maintaining thermal comfort reduces the effort required by the human body to stay stable.
	Audio Comfort	It is manifested through the utilisation and exploitation of various architectural and structural elements to create innovative engineering solutions and architectural treatments, particularly for buildings that have been repurposed with new functions or buildings that have increased their occupancy and require acoustic treatments.
	Visual Comfort	The utilisation of appropriate natural and artificial lighting and the general view surrounding the building affects the psychology of the occupants.
	Ease of Access Services	Refers to the services that enhance the functional efficiency of the building.
Designing Features	Clarity	The clarity of the function, the clarity of the physical elements, as well as the presence of auxiliary elements that are added to the spaces that help increase the level of clarity and identification of the building, such as identification panels.
	Flexibility	The ability to change spatial configurations (e.g. to add new spaces) or the flexibility of changing furniture locations according to different needs.
	Safety Standards	The amount of safety and security standards available in the building, such as fire systems or additional services that are added to people with special needs and other elements that increase the level of safety.
	Privacy	The presence of appropriate conditions for people to meet their requirements freely without intrusion of others, by providing appropriate spaces with the appropriate level of isolation, whether visual or auditory.
	Physical Elements	Refers to the characteristics and attributes of materials that can be observed and sensed. These attributes include features like colour, size, texture, light reflections, scents, surface patterns, the quality of the materials used, sounds, and emotional properties associated with the material.

Social Interaction	Level of proximity and the formation of spaces for social interaction among the occupants	It means the proximity between people within a single space, which is related to the method of distributing and forming spaces or the method of organising furniture pieces so that it allows the greatest possible closeness while balancing the aspect of privacy, and the more interactive and flexible the spaces help to increase the level of interaction.
	Ease of access for communal spaces	Adequate and expansive spaces that facilitate social interaction and seamlessly connect with natural outdoor environments, as well as the convenience of movement and accessibility to these spaces.
	Environments for Various Activities	The availability of attractions, which can include various activities like markets and cafes, meeting places with appealing architectural elements, entertaining events, and other attractions.
	Comfort	Access to a certain level of comfort is provided through the quality of infrastructure, in addition to amenities and services that enhance convenience and well-being.

Conclusions

This research focused on shedding light on a set of factors that influence the psychological relationship between occupants and buildings, using the three-dimensional framework proposed by Scannell and Gifford. This framework categorizes the factors into the dimensions of person, place, and psychological process. The paper aimed to build a theoretical framework regarding the components of person and place, with the goal of improving the psychological process. The following conclusions have been derived:

1. **Person:** factors that pertain to individuals on a personal level present challenges for decision-makers due to their significant variations. These factors include personal memories, dependent relationships, and time. Addressing these factors requires engaging the community to understand the effectiveness of these personal factors on the individuals within the community or users of the heritage building. On the other hand, factors that operate at a more collective level, such as ideology, provide decision-makers with clearer guidelines on preservation and sustaining the identity of a place. Additionally, factors like personal attitudes, experiences, and expectations play a crucial role in fostering emotional connections, necessitating positive decisions from designers and decision-makers in selecting appropriate interventions in heritage buildings. These interventions need to preserve their historical value while enhancing the quality of life in line with contemporary requirements.
2. **Place:** the study highlights the significant impact of narrative and identity as tools to be activated and emphasised in dealing with heritage buildings. These elements are connected to the collective memory of the community, thereby affecting the emotional aspects of a large segment of society or the society as a whole, as they relate to the building's history and identity. On the other hand, the commodity factor represents a functional, material element, but emotional connections may develop over time when the place offers the necessary features that cater to the occupant's needs, creating a suitable environment. Quality of the environment is one of the significant factors with a substantial impact on occupants, influencing their physical, psychological, and social well-being. Therefore, its effect is crucial in heritage buildings, especially with modern technological developments. Consequently, the impact may lead to reconfiguring and revitalising the building, influencing the emotional relationship. Furthermore, social interaction involves introducing activities and improvements that foster interaction within the community, contributing positively to the psychological relationship, leading to satisfaction and comfort.

3. **Sense of place:** One of the most critical aspects of the sense of place is the place itself, as the connection between the place and individuals is a social construct influenced by the nature of the physical and social environment. Heritage buildings are particularly unique, as they possess intrinsic aspects (tangible and intangible) and heritage activities, all impacted by the element of time (the buildings and existing relationships). This aspect should be given due consideration in the investigation of the three dimensions.
4. **Interventions:** Certain factors, such as memory, narrative, personal experiences, personal expectations, and identity, are closely bound to authenticity values held in heritage buildings represented by aesthetic, architectural, symbolic, and rarity values, among others. Therefore, decision-makers need to choose appropriate intervention techniques to preserve the essential characteristics of the original building, ensuring its authenticity. Introducing new interventions should not compete with authenticity, but strengthen it. International entities concerned with architectural heritage have emphasised that authenticity is a primary criterion for evaluating its economic, social, and psychological impact.

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