**Category: Arts and Humanities**

**ORIGINAL**

# Towards Enhancing Place Attachment in Urban Spaces of Vertical Residential Complexes (Bismayah as a Case Study)

## Hacia la mejora del apego al lugar en los espacios urbanos de los complejos residenciales verticales (Bismayah como estudio de caso)

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**ABSTRACT**

The place is a refuge for humans and human activities and interactions. Humans give value and meaning to a place through interaction with it and attachment to it. Positive feelings towards the place and its tangible appearance are place attachment, the most important dimension in the reciprocal relationship between humans and the place that urban designers must pay attention to. As a result of urban growth and the housing crisis, open spaces have lost their value and importance, especially in urban areas in vertical residential complexes. Therefore, the research paper aimed to evaluate the effect of the social and physical aspects of open spaces in vertical residential complexes on enhancing place attachment. This theoretical and practical research relies on literary and library studies and a mixed research strategy. The research used a common methodology by discussing previous literature and extracting the main vocabulary to build the conceptual framework for each. First, the social aspects are represented by demographic and psychological factors and social activities and interactions. Secondly, the material aspects are described by formal and functional characteristics. In the practical part, a field survey was conducted. The questionnaires (150 questionnaires) were distributed using a random method at the selected case study site (Bismayah Residential Complex).The results were analysed to determine the most influential factors based on their priority in enhancing attachment to a place. Thus, the research reached the most prominent indicators that contribute to developing an attachment to a place. with regard to the social aspect Indicators of length of stay, protection and safety, and social activities and interactions had the greatest impact on developing feelings of attachment to a place. This was followed, in varying proportions, by indicators of housing ownership, comfort and tranquility, and cohesion and social communication among the residents of the complex. As for the physical aspect, the indicators of enclosure and accessibility had the largest role, followed by the indicators of dependence on place and visual richness. And arriving at the indicators with the least impact on stimulating residents' feelings towards the place in the social and physical aspects, such as privacy, social homogeneity, clarity, and the human scale.

**Keywords:** Place Attachment; Place Dependence; Urban Place; Social Aspects; Physical Aspects.

**RESUMEN**

El lugar es un refugio para los seres humanos y las actividades e interacciones humanas. Los seres humanos dan valor y significado a un lugar mediante la interacción con él y el apego al mismo. Los sentimientos positivos hacia el lugar y su aspecto tangible constituyen el apego al lugar, la dimensión más importante

en la relación recíproca entre los seres humanos y el lugar a la que deben prestar atención los diseñadores urbanos. Como consecuencia del crecimiento urbano y la crisis inmobiliaria, los espacios abiertos han perdido su valor e importancia, especialmente en las zonas urbanas de complejos residenciales verticales. Por lo tanto, el objetivo de este trabajo de investigación era evaluar el efecto de los aspectos sociales y físicos de los espacios abiertos en los complejos residenciales verticales en la mejora del apego al lugar. Esta investigación teórica y práctica se basa en estudios literarios y bibliotecarios y en una estrategia de investigación mixta. La investigación utilizó una metodología común mediante la discusión de la literatura anterior y la extracción del vocabulario principal para construir el marco conceptual de cada uno. En primer lugar, los aspectos sociales están representados por los factores demográficos y psicológicos y las actividades e interacciones sociales. En segundo lugar, los aspectos materiales se describen mediante características formales y funcionales. En la parte práctica, se realizó una encuesta sobre el terreno. Los cuestionarios (150) se distribuyeron de forma aleatoria en el lugar seleccionado para el estudio (el complejo residencial de Bismayah) y los resultados se analizaron para determinar los factores más influyentes en función de su prioridad a la hora de fomentar el apego a un lugar. Así, la investigación llegó a los indicadores más destacados que contribuyen a desarrollar el apego a un lugar. En cuanto al aspecto social, los indicadores de duración de la estancia, protección y seguridad, y actividades e interacciones sociales fueron los que más influyeron en el desarrollo del sentimiento de apego a un lugar. Le siguieron, en proporciones variables, los indicadores de propiedad de la vivienda, comodidad y tranquilidad, y cohesión y comunicación social entre los residentes del complejo. En cuanto al aspecto físico, los indicadores de cerramiento y accesibilidad tuvieron el papel más importante, seguidos de los indicadores de dependencia del lugar y riqueza visual. Y llegando a los indicadores con menor impacto en la estimulación de los sentimientos de los residentes hacia el lugar en los aspectos sociales y físicos, como la privacidad, la homogeneidad social, la claridad y la escala humana.

**Palabras clave:** Apego al Lugar; Dependencia del Lugar; Lugar Urbano; Aspectos Sociales; Aspectos Físico.

## INTRODUCTION

Place attachment in architecture and urban design has become important due to the development of human societies and environmental and technological changes in people's lifestyles. This has encouraged planners and architects to study the impact of the social and physical urban environment on people's lives. After the incident and destruction of the Pruitt-Igoe residential complex, it was necessary to study the urban environment and the knowledge and importance of places for people, especially for residents, so urban designers and architects began researching the gap in the fields of urban design and its impact on these concepts and feelings towards urban places to improve and develop the quality of the urban environment. Place attachment is a tangible concept that enhances material and social sustainability in the urban environment. Due to population growth and technological development, mass construction and vertical residential complexes have become necessary. Still, the positive feelings of residents towards places and their attachment to them must be considered. Therefore, open urban spaces in residential complexes are essential for social interactions, communication, and interaction with others to occur and to satisfy residents' functional, social, psychological, and health needs. Based on what the structuralisms pointed out, the physical and social structures have a symbiotic relationship, and the aspects of the physical structure have no meaning. They cannot be explained except through the elements of the social structure. Thus, attachment to a place is a major and tangible factor in evaluating the relationship between a person and a place, with its social and physical aspects.

The research paper aims to contribute to bridging the knowledge gap represented by "the lack of clarity about the influence of the social and physical aspects of place in enhancing attachment to place" by defining the concept of attachment to place and its dimensions. Explaining the idea of the dimension of place, what are the aspects of place? In addition to reviewing a group of previous literature and building a conceptual framework to answer the research hypothesis, which states, "The effect of the dimension of place varies with its physical and social aspects in enhancing attachment to place, depending on the influencing variables and their possible values," The research hypothesis was applied to the selected study case (Bismayah Complex) and analyzed to reach conclusions.
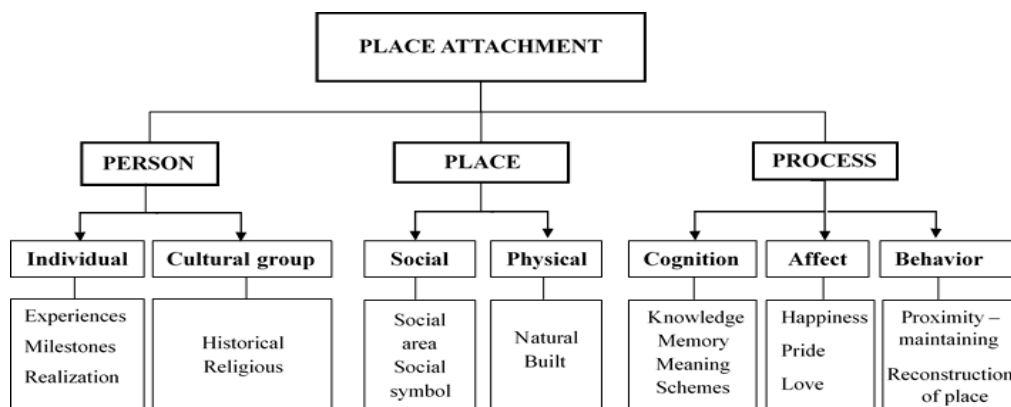
### Place Attachment

Tuan et al.[1], Simon Weil et al.[2] indicated that place attachment is the most important need of the human soul, but everyone does not know it. Environmental psychologists have the most prominent role in studying the concept of place attachment. Scientists have used several topics to describe place attachment, defined in dimensions, concepts, and components. Place attachment is a complex, multidisciplinary, and multifaceted

concept. It refers to the positive relationship between the individual and the place, represented by emotional, perceptual, and cognitive features. The place gains its importance and meaning through positive interactions and activities between individuals and The place, on the one hand, and the individuals among themselves, on the other hand This relationship is characterized by maintaining closeness to the place of attachment, behaviours, and reactions supportive of the urban environment and society, in addition to community participation and communication with others.[3,4] An individual's positive feelings towards a specific geographical location arise because it is the physical environment that contains life experiences. These feelings are known as place attachment. In other words, early life experiences carry an emotional quality that generates attachment to a place.[5] It is an emotional bond that people form through certain attitudes towards where they usually are and where they feel comfortable and safe, with the desire to stay, not to leave, and to stay close.[6] It is a complex phenomenon that includes positive emotions, connectedness, knowledge, behaviours, beliefs, and actions. It encourages experimentation, confidence, and freedom in expressing feelings, behaviour, and exploration within groups. It is associated with the availability of safety, comfort, privacy, control, and pleasure in places, which results in emotional connections and feelings of pride and belonging to the place.[7]

In urban studies and architecture, place attachment promotes individuals to interact with urban places and open spaces. Scientists from various disciplines, such as environmental psychologists, sociologists, and human geography, have realized that place attachment is an important social construct for exploring the phenomenon that connects individuals to a specific place.[8,9] Social connections within the urban environment (first dimension) act as an intermediary between people (self/individual dimension) and the physical environment (environmental dimension) in this three-dimensional active-dynamic process. Social interactions in the physical world influence memories and feelings, strengthening attachment to places and shaping subsequent events. In other words, place attachment is a dynamic and complex idea that arises from the confluence of related memories, thoughts, interpretations, feelings, and ideas.[10] Place attachment is another term for the beneficial behavioural, cognitive, and psychological relationships individuals form with their social and physical surroundings over time.[11] Thus, the research paper finds that place attachment is an important driving force behind the development and preservation of urban places. It is a field of study that aims to understand the psychological and emotional relationships that bind individuals to their surroundings. It is the link between people and their urban environment through the social and physical aspects of the place.[12]

Many different models have been proposed to express place attachment. Still, the tripartite conceptual framework of attachment to place (figure 1) proposed by Scannell et al.[14] is one of the most prominent models agreed upon by most researchers, covering the definitions found in previous literature meaningfully. This model explains that attachment to place is a multidimensional term, including the individual dimension, the psychological process dimension, and the place dimension. It indicates that an individual's attachment to a specific geographical location results from the activities and social interactions within its borders, which give the location its importance and make the site a place for the individual. As a result, place is the most important dimension of place attachment, divided into two aspects: social and physical.[13,15]



**Source:** drawn by the author based on Scannell et al.[14]
**Figure 1**. Dimensions of Place Attachment

## Place

Places are part of the reality in which people live, represented by physical, social, and emotional attributes. A meaningful place combines location, locality, and place attachment. a Location refers to the absolute point in space; locality refers to the physical and social setting of the place; and place attachment relates to the feelings and meanings that the place arouses in users at the individual or group level.[16] It is the point at which materiality, activity, and purpose are intertwined in people's experiences of place.[17] The place is a

manifestation of human culture, and spaces become places where physical, social, and cultural characteristics blend with individuals' emotional perceptions and basic needs.[18] Emphasized that place is the centre of meaning, which evokes human feelings, interactions, and relationships in a particular space. As for Manzo[19], it indicates that place is an integral part of existence and that activities in places create meaning. Relph et al.[20] point out that space can turn into a place when it has three broad, interconnected features that constitute the place and give it meaning: the physical environment, meaning, and activities. He considers representing the most important and indispensable feature among these three. It also indicates that awareness of place can lead to the revitalization, restructuring, and vitality of places.

Place is an important issue in architecture and urban design and has an important role in human life. Every place has its own unique character, as many psychological and behavioural factors affect the built environment, such as personal space, the function of the place, and the meanings and values it carries. Individuals create strong emotional connections with a place, which grows over time due to activities and experiences in that place. Thus, place attachment is a process derived from social interaction and activity within the place. The place also effectively strengthens social ties in urban communities, as Altman et al.[21] states that place is a means of cultural, social, and individual relationships. Human feelings towards a place are directly linked to the elements of the place. Punter pointed out that human feelings towards places are affected by form, meaning, and activity (figure 2-1). Based on the theory of both (Punter and Canter), Montgomery[20] conducted a similar study to arrive at a detailed model of the dimensions of the place, which is characterized by the ability to arouse the individual's positive feelings towards the place and enhance interaction, connection with it, and attachment to it, which are: the form (the physical structure of the place), the activities, and the images (which embody the symbolic meanings of the place), as in figure 2-2.

Heidegger[22] points out that place expresses the meaningful reciprocal relationship between a person and his surrounding urban environment, which grows into a connection that represents place attachment. Place attachment is the factor through which space becomes a place. As Steele[23] points out, place attachment is the experience of everything people bring to a place. Also stressed the importance of the interaction between a person and his surrounding environment to understand and distinguish its boundaries. Place stimulates the individual's sense of belonging, attachment, and familiarity by meeting basic needs such as protection, security, and comfort.[24]

Urban places are a socially responsive urban environment that enhances positive feelings towards and place attachment. They are places characterized by urban and environmental quality and meet users' basic and psychological needs. Safety, security, pleasure, activities, vitality, life experiences, and social communication are all social environment indicators.[25,26] As for the open urban places in the vertical residential complexes, they are vacant places in the building blocks and not owned by anyone, and their management is under the responsibility of the administration of the residential complex. And include all the green, blue, and grey places in the residential complex, along with the pedestrian walkways, streets, landscaping, and urban furniture. These places are intended to meet the needs of individuals in social interactions, activities, community ties, and human communicationn.[27] These open places are considered major urban environments in vertical residential complexes, allowing residents the possibility of social interaction, communication, and social cohesion. Their importance is not in their dimensions and large areas, but rather in their proximity, ease of access, and familiarity and topophilia towards them. These places are characterized by privacy and security because they are designated only for the complex's residents.[28]
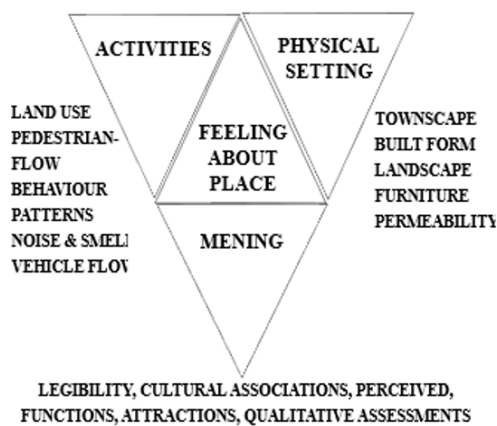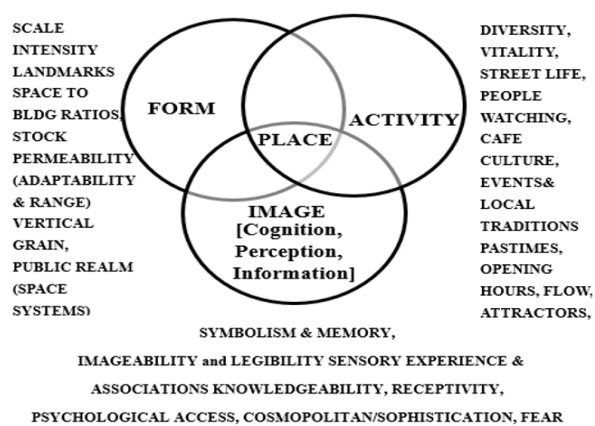


**Figure 2-1.** Punter Theory          **Figure 2-1.** Montgomery Theory
**Source:** J. Montgomery et al.[20]

**Figure 2.** Dimensions of place that arouse an individual's positive feelings about the place and enhance place attachment

*The Physical Aspects of Place*

Despite the most prominent influence of the social aspect on attachment to a place, physical features sometimes have a greater influence than social factors.[13] Place dependence highlights the physical characteristics of a place as fundamental to attachment because they provide human needs, amenities, or resources to support an individual's goals. The types of places that individuals find meaningful represent a wide range of physical settings, from built environments such as homes, streets, public spaces, and squares to natural habitats and parks.[19,14] Stedman et al.[29,30] indicates that individuals may relate directly to the salient physical features of a place represented by high quality and good design that attracts attention and the senses; in other words, the attractive, unusual, and distinctive combination of the environment, or indirectly through the meaning represented by those features. The physical aspects indicate the possible implications that the place may symbolize, and therefore, place attachment based on the physical aspect lies in these symbolic meanings. The importance of the physical dimensions of places also lies in developing individuals' self-concepts, as in the identity of the place, in addition to the extent of people's attachment to "things and the places themselves that contain those things" and the influence of the presence of other people in those places in shaping the individual's identity and the identity of the place. Which are variable throughout the lifespan Uzzell et al.[31] established four principles for developing place identity: distinctiveness (of place), continuity (of place), self-esteem (based on place attachment), and self-efficacy (the individual's ability to carry out chosen activities in place).

*The Social Aspects of Place*

The social aspects of the place are based on the concepts of returning to normal life, attracting people to urban areas and motivating them to be there, increasing social life and social communication, enhancing community activities and participation, offering a variety of life experiences, establishing links between people and the outside world, and achieving a high degree of social sustainability.[32] Regardless of the physical characteristics of the site, and since society is an integrated and complex system that includes friendship and kinship ties, formal relations, and informal ties in the family life of individuals, in addition to the processes of community upbringing, urban sociologists note that attachment to a place through attachment to residents and friends is an attachment to aspects social of the place.[14,33] A community is an assembly of individuals within a particular domain, which requires commonalities such as language, history, memories, experiences, traditions, and customs. First and foremost, a community needs a place (a specific geographic location where people can gather).[32] Thus, place attachment is a social construct that results from shared behavioural and cultural processes rather than through the perception of the physical features of a place alone. The physical aspects of a place serve as a container for social processes. Social ties and community participation in formal and informal activities increase positive feelings and place attachment, thus increasing place importance.[13] A place's social aspects are represented by factors such as length of stay, social interactions, and community links, which are positive indicators defined by the presence of friends and family, social cohesion, and communication with neighbours. Another element that contributes to attachment is a feeling of safety and security.[30] A person can achieve a sustainable connection with his urban environment through participation and communication with others, actions, and emotions. Moreover, physical, social, psychological, and spiritual association makes a person feel satisfied with the place. Establishing a relationship between two or more individuals that elicits a response from them is known as social interaction. The nature of this relationship varies depending on the roles and social statuses of the participants. Places can shape these relationships and lead to social interactions, so urban places play an important role in the social lives of individuals.[32]

## Literature Review
*Previous Studies*

A distinction is made between the components and aspects affecting the creation and development of positive feelings and place attachment, as the factors of presence, activities, social interactions, and social support in the environment, society, and local gatherings are included in the social aspect of place, which highlights the importance of social variables in creating place attachment. In addition to the individual dimensions that indicate the influence of the length of residence, marital status, gender, and income of the person on the sense of place attachment. Social sustainability is also an indicator of social coexistence, environmental harmony, and the material quality of where individuals live. It shows the importance of open urban spaces as a physical environment that contains social activities and interactions and enhances the interaction between humans and places on the one hand and humans with others on the other hand. The physical aspects of the place are concerned with the physical features of the place and how they influence strengthening a person's sense of attachment to the place. This can be summarized by employing environmentally conscious urban design solutions to achieve urban quality, meet human requirements and needs, complete safety and protection, reduce crime rates, and enhance attractiveness and visual richness. The distinctive characteristics of the place

that distinguish it from other sites work to help individual users identify and understand themselves as part of the social structure, which enhances attachment to the place. In addition to providing common characteristics to people in a place, which are part of their spatial grouping, their sense of place attachment increases. [34,5]

The main focus of the research is to determine the role of place's physical and social aspects in enhancing place attachment in the urban environment of vertical residential complexes. Therefore, the study examined a group of previous literature that dealt with the concept of place attachment, focusing on aspects of the place dimension and neutralizing other dimensions and factors to extract the most important vocabulary and indicators for the social and material aspects of place attachment, as shown in table 1.

**Table 1.** Important studies that addressed the concept of place attachment in residential complexes

| Researchers | Studies | Aspects | Vocabulary |
|---|---|---|---|
| Forouzande et al. [36] | The Role of Open-Spaces in Neighborhood-Attachment,2012 | Social Aspects | Activities and interactions, safety, comfort and tranquillity |
| | | Physical Aspect | Building arrangement, legibility, accessibility, natural elements, human scale |
| B. Karsono et al. [37] | Attributes and Characteristics of Place Attachment,2015 | Physical Aspect | Accessibility, human scale, legibility |
| Kazemzade et al. [38] | Enhancing Social Interaction in Residential Complexes: Case Study Esfahan,2017 | Social Aspects | Individual factors (age, gender, social homogeneity), Social activities and interactions, community participation, security and privacy |
| H. Moztarzadeh et al. [32] | Explaining The Effective Features of Open and Semi-Open Spaces in Availability and Increase of Social Interactions in Residential Complexes,2019 | Physical Aspect | Diversity, building arrangement style, natural elements, legibility, hierarchy |
| Yaghmaeian et al. [39] | Developing P.P.P Model of Place-Attachment for Evaluating-Residential Environment: Cases Study; Open-Space of Iranzamin & Ekbatan-Buildings,2019 | Social Aspects | Social activities and interactions, safety, comfort and tranquillity |
| | | Physical Aspect | Legibility, flexibility, diversity, accessibility |
| Rahimi et al. [40] | Evaluation of Effect of Physical-Components on Place-Attachment in Communal Spaces of Selected Residential Complexes: Tehran,2020 | Social Aspects | Social activities and interactions, community links |
| | | Physical Aspect | Building arrangement style, legibility, human scale, diversity, natural elements |
| Chang et al. [30] | Social-Environments Still Matter: The Role of Physical and Social Environments in Place-Attachment in a Transitional City; Guangzhou-China,2023 | Social Aspects | Individual factors (length of residence, housing ownership, gender, age), social activities and interactions, community participation, community ties, privacy |
| | | Physical Aspect | The style of arrangement and shape of the buildings, the height of the buildings, legibility, natural elements, accessibility |

**Building the Conceptual Framework**

Based on what was presented in previous studies, which pointed to the most important indicators and variables for the physical and social aspects which impact enhancing place attachment in urban places of vertical residential complexes. Thus, the research paper focused on the most influential variables appropriate to the chosen study case to build the conceptual framework for the research, as shown in table 2.

**Table 2.** The conceptual framework of the research shows the most important indicators and variables of the physical and social aspects that enhance place attachment

| Aspects | Vocabulary | Indicators | Variables |
|---|---|---|---|
| Social Aspects | Individual Factors | Time, housing ownership, social homogeneity | Time (length of stay) |
| | | | Housing ownership (owner, tenant) |
| | | | Common factors among community members |
| | Psychological Factors | Safety and Security | Possibility of parents monitoring children and community monitoring |

| Physical Aspect | | | The fence surrounding the complex, gates and guards |
|---|---|---|---|
| | | Privacy and territoriality | Providing lighting and surveillance cameras |
| | | | Identification cards for the complex's residents |
| | | | Spatial organization and hierarchy of open spaces |
| | | | The ability to use the place without interference from others |
| | | Comfort and tranquillity | Environmental compatibility (Availability of natural elements) |
| | | | Availability of urban furniture |
| | | | Cleanliness and tidiness |
| | | | Satisfaction with the behaviour of others |
| | Social Activities and Interactions | Tripartite activities necessary, social, optional | Possibility of walking |
| | | | Possibility of sitting |
| | | | Possibility of conversation and listening |
| | | | Possibility of playing and entertainment |
| | | Community interaction and participation | Participate in informal meetings and interactions with residents of the complex. |
| | | | Communicate with neighbours and others. |
| | | Community links | The presence of friends and relatives within the complex |
| | Formal Factors | Enclosure | The pattern of arrangement of buildings and their shapes |
| | | Human scale | Suitable building height |
| | | Visual richness | Diversity of urban elements, such as signs and identification signs, variety in the facade elements of surrounding buildings, such as openings and colours |
| | Functional Factors | Legibility | Ease of orientation and understanding the boundaries of the place, entrances and exits |
| | | | Visual communication |
| | | Accessibility | Proximity of open spaces to pedestrian walkways and easy access |
| | | | Quality of pedestrian walkways with informational and semantic signs |
| | | | Isolating cars from pedestrians and bicycles |
| | | Place dependence | Quality of place and ease of use |
| | | | Meeting needs and providing service and entertainment facilities |
| | | | Functional diversity to attract different groups and ages |

## METHOD

Despite the qualitative nature of the research paper, a combined approach between quantitative and qualitative methods was used to examine the relationship between variables. place attachment is the dependent variable, and the social and physical aspects of the place dimension are considered independent variables. Using a causal-comparative approach, the impact of the social and physical aspects of open spaces in vertical residential complexes on enhancing residents' place attachment was tested. The research paper requires different methodologies to achieve the desired goal of the study. In the first stage, a qualitative approach was used, building the conceptual framework for the research and formulating its basic hypothesis by studying previous literature related to the subject research, analyzing it, and discussing its results. In the second stage, the quantitative approach and application to the selected case study area (Bismaya Residential Complex) through field survey, interviews, observation, and collection of data from the selected samples, and then evaluating them using questionnaires consisting of (31 closed-type questions) designed according to the research objectives, her answers were on a Likert scale. Because the initial perception of the entire population suggests similarity and homogeneity and is intended for people of limited income, the samples were selected simply through a random sampling method to ensure the most effective representation of both genders and to obtain more honest and reliable answers.

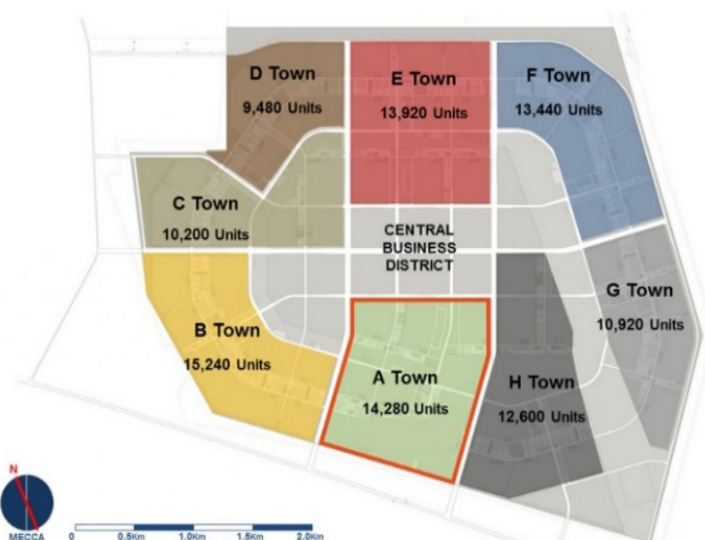### Case Study: Bismayah Residential Complex

It is necessary to choose the study case appropriately to obtain the most accurate information to answer the questions related to the research hypothesis. This complex was chosen because it is considered the first

and largest development project targeting people with limited income within the projects of the National Housing Program in Iraq. The residential complex is located near the borders of the capital, Baghdad, on the left side of the southeastern gate of Baghdad. It is about 10 km from Al-Mada'in District, southeast of Baghdad, and 25 km from the city centre. The complex is located on the international road linking Baghdad and Kut (figure 3). It is expected to accommodate about 600,000 people on an area of 1,830 hectares, with 100,000 housing units, in addition to public facilities and service facilities such as educational, religious, recreational, and commercial facilities, as well as water and wastewater treatment plants and a network of infrastructure, including electricity, water, and main streets.[41] The complex consists of 8 residential sectors with integrated services, in addition to an industry 9, which represents the central area for government and commercial needs and services, as shown in figure 4. Each residential sector is divided into several neighbourhoods with different numbers of buildings and their assembly styles, in addition to a difference in the number of residential units in each neighbourhood. The complex's functional uses are generally varied (figure 5). Residential use represents the largest part of the complex. In the middle of the residential neighbourhoods, there are open green spaces for older people to gather and children to play. In addition to the circular strip of green spaces surrounding the central area, the complex is also surrounded by a green belt. The educational strip permeating residential neighbourhoods include schools, kindergartens, health institutions, infrastructure services, markets, shops, and general community functions. The project consists of police departments, civic centres, stadiums, shops, sports facilities, and places of worship.[42,43]



**Source:** BNCP[41]
**Figure 3.** Complex Location



**Source:** BNCP[41]
**Figure 4.** Master Plan

**Figure 5.** Various urban places

*Data Collection and Measurement*

In addition to reviewing and analysing literature studies and reviewing their results, field surveys and observation of the selected case study (Bismayah Residential Complex) were conducted, interviews were shown, and a questionnaire form was distributed to collect data and survey participants' opinions about the social and physical aspects of open places in the urban environment of the residential complex, which contribute to enhancing their positive feelings about places and their attachment to them. The survey was conducted during March and April 2023, considering the weather conditions and climate suitability in these months. Therefore, the questionnaire form was designed in two sections, each containing several sections that include a set of closed-type questions that aim to obtain accurate information that suits the research goal .The first section, which deals with social aspects, consists of three branches. The first branch included questions related to individual factors.

In contrast, the second branch included questions about psychological factors affecting individuals' attachment to places, while the third included inquiries about activities, social interactions, and community ties. The second section, associated with the physical aspects, consists of two branches: the first addresses questions related to formal factors, and the second includes inquiries about functional factors. Then, analyse the results.

## DISCUSSION

Residents and participants were asked to complete the survey through questionnaires provided to them. The questionnaire included (150) participants of both genders in different proportions and age groups, behavioural monitoring and interviews with residents. The results for social and physical aspects were as follows:

*Social Aspects*

Individual Factors: according to figure 6, the length of stay in the complex was the most influential indicator (48 %), as most participants expressed that they had lived in the complex for more than five years and had no desire to leave in the future. They were followed by the homeownership index (33 %). The participants expressed their joy and feelings about owning their housing unit due to the circumstances of the housing crisis. It is a positive indicator that enhances presence in the place and the desire to settle. As for the tenant, he loses his sense of temporary housing and leaves the place at any moment. From his desire to attach to a place and connect with society and others. Finally, social homogeneity (19 %) was the least influential indicator, although most of the complex's residents are low-income and employed.
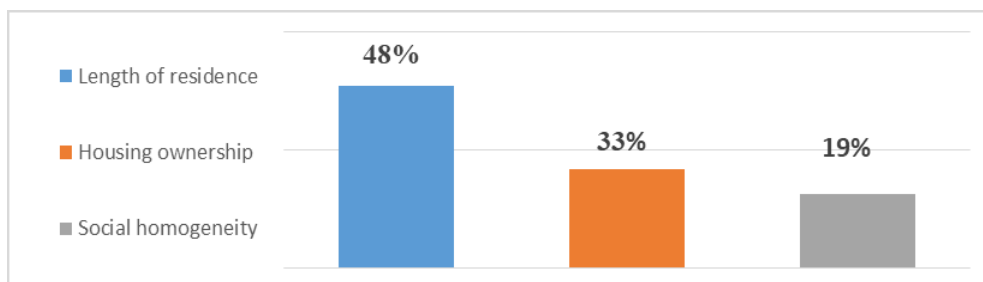


**Figure 6.** Statistics of the impact of individual factors

Psychological Factors: as shown in figure 7, The security and safety indicator was most influential among the participants (51 %). The fence surrounding the complex, with security guards at the gates and constant monitoring, and the resident residents having special identification cards to enter the complex, were the most

concerning and influential among the residents. In addition to the presence of surveillance cameras and the permanent presence of people in open spaces, which enhance community viewing, the privacy and territoriality index reached 15 % ,due to the hierarchy and pattern of arrangement of the buildings, which creates open, semi-private spaces between the buildings, leading to public spaces for all residents, in addition to the possibility of using gardens, barbecues, and seating areas without interference or disturbance from others. The percentage of comfort and tranquillity reached (34 %), and the variable cleanliness and arrangement were of most interest due to the presence of a specialized company carrying out cleaning and maintenance work for the open spaces in the residential complex, followed by the availability of natural elements and urban furniture in an appropriate manner. As for satisfaction with the behaviour of others, it was the least influential variable. This is due to the inability to control the behaviour and rudeness of others.
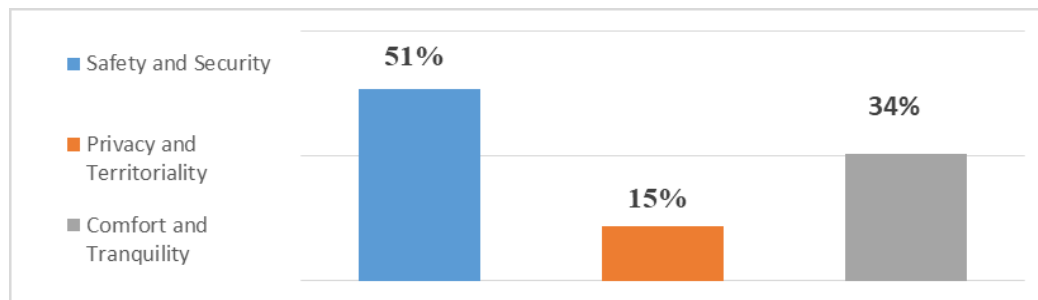


**Figure 7.** Statistics of the impact of psychological factors

Social Activities and Interactions: as shown in figure 8, the three activities had the largest share in influencing participants' interest, at a rate of (59 %), and social activities had the highest impact, as they represent the sum of other activities and the important social stimulus to enhance attachment to the place, which is represented by the possibility of entertainment and play—sports and talking with others. The community ties index came in at (24 %), characterised by the presence of family, friends, and relatives in the complex, which aligns with human nature to remain in groups according to values and customs to meet societal needs and a sense of strength and pride. Finally, the social interaction index, represented by community participation and communication with others among the complex's residents, reached (17 %).
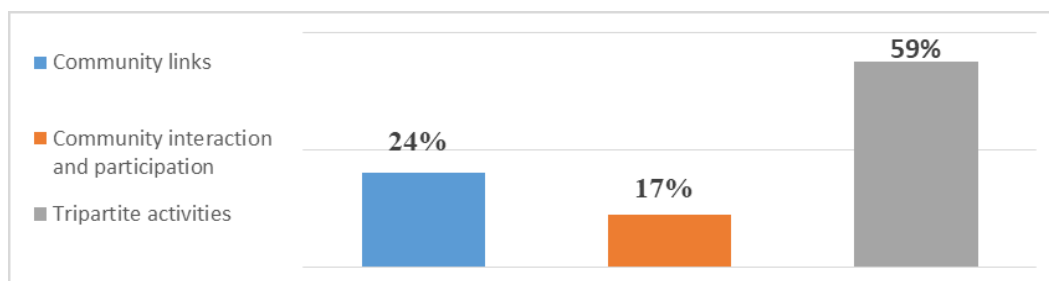


**Figure 8.** Statistics of the impact of social activities and interactions

*Physical Aspects*
Formal Factors: according to figure 9, the enclosure was the most influential indicator among the formal factors, with a percentage of (51 %) due to the buildings designed in the shape of a U, which enhances individuals' feelings of familiarity and intimacy. The perception of the place and the mental image of the residents are affected by the percentage of enclosure, as explains. The open place means freedom and public space, while the closed place means privacy, security, and comfort. As for the visual richness index, its percentage of influence was (33 %), as the diversity in urban elements, the shapes of the surrounding buildings, the various building openings and windows, the use of arches, and the difference in the colours of the buildings are among the material factors affecting the promotion of positive feelings towards the place and thus attachment to it, by creating an identity. Distinctive to the place. Finally, the human scale was the least influential indicator (16 %), as the height of the residential buildings surrounding the open spaces is ten floors, with the height of the service buildings ranging between one and two floors. The human scale enhances the individual's comfort and freedom from fear and being stunted in front of the building.
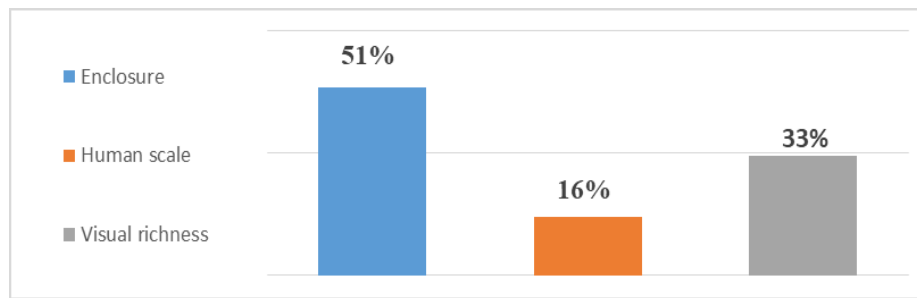
**Figure 9.** Statistics of the impact of formal factors

Functional Factors: as figure 10 shows, the accessibility index had the greatest impact (55 %) due to the proximity of the open space to pedestrian and car traffic corridors and the isolation between pedestrian and bicycle traffic from cars. The variables of material quality and climatic suitability of pedestrian paths and the presence of signs and signboards followed this. Then, the place dependence index was mentioned with a percentage of (31 %). The most prominent variable was functional diversity, comprehensiveness, and the availability of suitable places for all groups and ages, followed by the variable of quality of place and ease of use by everyone, and the availability of stairs and ramps, taking into account people with special needs, as well as the variable of meeting needs and availability of services, which is proximity. The presence of shops and kiosks near open spaces and the availability of parking facilities for cars and bicycles had less impact than others. Finally, the legibility indicator had the lowest percentage impact (14 %), which was represented by the ease of perceiving the place, identifying entrances and exits, and building images and mental maps by the residents as a result of the simplicity of the design, openness, and orientation, in addition to the possibility of visual communication.
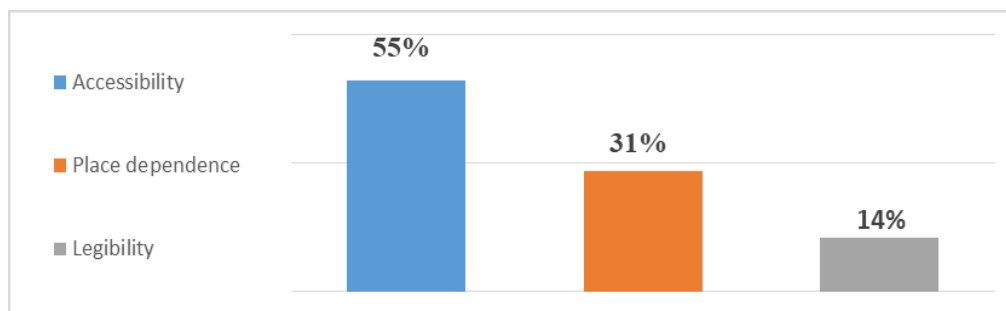


**Figure 10**. Statistics of the impact of functional factors

## CONCLUSIONS

Place attachment refers to individuals' positive feelings and emotional connections with a particular place. It also refers to people's mental perceptions of their urban environment, which contributes to strengthening the functional and emotional bond between them and their surrounding environment. When perception and feeling come together, the meaning of place is formed. Through connection with place, space becomes a distinctive and meaningful place for individuals. The paper aims to enhance urban quality in vertical residential complexes by assessing the relationship between open spaces' social and physical aspects and connection to place. Through open spaces, residents have access to nature and social life. Therefore, paying attention to the physical and social aspects of open spaces is necessary, as these aspects are considered the basic criteria for evaluating an individual's feelings about the place and enhancing attachment to the place.

In light of the results obtained from previous literature, the research concluded that there is a causal relationship between the social and physical aspects studied in this research and the concept of place attachment. The extent of the influence of social and material aspects, their factors and variables on place attachment was also tested through samples of residents of the Bismaya residential complex.

The research results concluded that the most important factors for stimulating and enhancing place attachment, concerning social aspects, are the length of residence index among the individual factors, followed by home ownership, then social homogeneity and similarity among the complex's residents.As for psychological factors, security and safety were of greatest concern to residents; privacy and territoriality came in second place of concern, while comfort and tranquillity came in last place of concern. Social activities and interactions are considered the most influential because they increase interaction with others, followed by the community links variable, and finally, the community participation variable with residents on official and unofficial occasions.

In the physical aspects, the enclosure index had the greatest impact among the formal factors, followed by the visual richness index, which enhances the aesthetic values of the place and stimulates the feeling of connection to the place.In contrast, the human scale index had the least impact. As for functional factors, accessibility had the greatest impact on participation through the ability to frequent the place easily for all groups, followed by place dependence and meeting basic, recreational, and service needs. Finally, legibility, the ability to perceive place, and the ability to form mental images had the least significant effect on enhancing place attachment.

In conclusion, the research paper found that the physical and social aspects contribute to enhancing place attachment by creating an urban environment that is financially and socially sustainable and responsive to human functional, social, recreational and psychological needs, activities, interaction and communication with others.

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