



Study Of The Impact Of Form Enclosure In Residential Complexes On The Sense Of Place Attachment Of Residents

(Case study: Shahrakee Ekbatan and Shahrakee Gharb residential complexes)¹

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Abstract: The attachment and belonging to the environment in the traditional neighborhood life has always contributed to a sense of responsibility in the residents relative to each other and the city and establishing social partnerships. Today, major changes have occurred in the lifestyle and social communications especially among the neighbors. This has resulted in indifference and separation of the citizens from each other and also from the events that occur within the city and the neighborhood. The increasing process of weakening social relations will eventually lead to social disconnectedness. Since the traditional neighborhoods in Iran enjoyed a built-in enclosure and hierarchy and such enclosure had a significant impact on the residents' sense of place attachment, this question comes to mind that whether the enclosed form of a residential complex can also affect the level of the inhabitants' sense of place attachment similar to the traditional neighborhoods?

Hence, in this paper we have attempted to examine the lives of the residents of the residential complexes such as Shahrake Ekbatan and Shahrake Gharb in the Greater Tehran to come up with a clear answer to the raised question. Undoubtedly, the research result may affect the process of design and development of residential settlements in accordance with the needs of the indigenous peoples.

We used the Williams & Vask questionnaire to this end. We dispensed the questionnaire with 12 benchmark questions about the extent of the sense of place attachment among 210 residents of both towns. Based on the obtained results, the inhabitants of Shahrake Ekbatan showed a higher sense of place attachment than the residents of the Shahrake Gharb. In other words, since the t-statistic is larger than the absolute value of 1.96 at 95 percent confidence level; and also since the error level is smaller than 0.05 at 95 percent confidence level; so there is a significant difference between the level of enclosure and the residents' sense of place attachment. Therefore, the highly enclosed form of a residential complex begets a higher sense of place attachment among the residents.

Keywords: enclosure; neighborhood; residential complex; sense of place attachment; social interactions.

1. INTRODUCTION

The sense of place attachment in the Western architecture and urbanism has become a matter of concern since the mid-twentieth century. The development of human societies in the twentieth century and the major changes in the people's lifestyle, as well as the inefficient experiences of the modern architecture, encouraged many professionals to investigate the effect of physical environment on people's daily lives. After the Pruitt-Igoe incident and its destruction, it was critical to identify the meanings of the built environment and the importance of places for the people and especially for residents, so the designers and architects started to identify the existing gap in the environmental design fields and began to recognize these environmental concepts and feelings (Matlabi, 2001) to upgrade the quality of environment and the sense of place attachment is one of these major concepts that helps to upgrade the quality of human

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environment (Forozandeh & Matlabi,2011:28). That is while the sense of place attachment has a longstanding history in the traditional Iranian cities and localities and it has been running in the veins of the cities before the advent of modernism, mass production, and commercialization of the construction industry. Today, this sense is gradually paling out and is putting the community at the risk of social disconnectedness.

Due to the population growth and delving into the modern technological world, mass construction and apartment settlements are inevitable but the issue of attachment of residential complex inhabitants to their place of living should not be ignored, since the sense of place attachment increases the social communications and partnership at the neighborhood level, and at the larger social scale.

Many factors are involved in creating the sense of place attachment that can be investigated and evaluated jointly or severally. Theorists such as Relph (1967), Schulz (1981), Lynch (1981), (1981), Shamaï (1991), Stefanovic (1998), Sircus (2001), Salvesen (2002), Pretty (2003), Carmona (2007) have presented some criteria for measuring and creating a sense of place attachment. Particularly, Fritz Steel argues that the level of enclosure is one of the determining factors of the sense of place attachment. All of the theories presented about the factors affecting the sense of place attachment have been pivoting around urban spaces and there have been no references to the residential complexes. While the residential complexes and towns can be fairly compared to the traditional neighborhoods in terms of lifestyle and the living requirements. The neighborhoods with a high level of enclosure in which the residents had a feeling of attachment and commitment to their place of living. Now, the question is *whether the enclosure in the residential outdoor spaces does matter similar to the urban spaces? And, does the enclosure created by the buildings' architectural form affect the level of the sense of place attachment and create an identity for living in the neighborhood?* The answer to these questions requires a different review and investigation compared to the urban space. In line with this, the aim of the present research is to understand such relationships and provide a clear answer to the raised questions. Without a shadow of a doubt, the research result may affect the process of design and development of residential settlements in accordance with the needs of the indigenous peoples.

2. RESEARCH BACKGROUND

Satisfaction with the place of living is one of the most important factors of life satisfaction such that Kearney argues that the satisfaction with the place of living next to the marital satisfaction is the second factor that determines the individual's satisfaction of his/her lifetime (Kearney, 2006:135). For this reason, many researchers have started to study this field and by examining the personal, social, physical, and other factors affecting the satisfaction level, have tried to establish and improve the psychological level of the lives of the residential environment's inhabitants.

Hossein Zabihi *et al.* presented an article entitled *The Relationship between the Level of Satisfaction with Residential Complexes and the Impact of Residential Complexes on the Human Relationships*. The research results suggested that there was a strong relationship between the level of satisfaction with the residential complex and its impact on the human relationships (Zabihi *et al.*, 103:2010). Mostafa Behzadfar & Neda Ghazizadeh in their article entitled *The Sense of Satisfaction with the Residential Outdoors Spaces*, have pinpointed the four-fold model of space, society, management, and functional as the effective criteria to achieve the people's satisfaction. Based on the obtained results, the space indicator is most effective in creating the sense of satisfaction with the residential outdoors, and the functional indicator is least effective in creating the sense of satisfaction (Behzadfar & Ghazizadeh, 2010:15). Also, Ghazizadeh & Amir Saeed Mahmodi have presented a similar study entitled *Good Attachment in the Outdoors Spaces of Residential Complexes*. The results of studying the successful values of the residential Complexes of the City of Tehran showed that providing a platform suitable for the higher involvement of the residents and paying attention to the spatial qualities, including the criteria such as consistency, legibility, naturalism and the existence of the privacy besides management characteristics affect the residents' assessment of the outdoors spaces in tandem with the level of the sense of place attachment. Also, the choice of the scale and layout of blocks along with the design of structure and space details would change the level of the sense of place attachment in the future inhabitants (Ghazizadeh & Mahmodi, 2010). Roya Sadeghi Freshteh *et al.* in their research entitled *The Study of the Relationship of Physical Design of the Residential Complexes and the Sense of Place Attachment among the Residents* have studied the Imam Khomeini and Imam Reza residential complexes in Hamedan. The obtained results showed that amongst the six indicator of welfare facilities, the quality of indoor spaces, social interactions, type of access and visibility and perspective, the two indicators

of access and visibility and perspective were more effective on the sense of place attachment (Sadeghi Freshteh *et al.*, 2012:253). Hesam Kamalipor *et al.* in an article entitled *The Determinants of Place Attachment in the Residential Urban Environment* have studied the relationship of physical dimensions of attachment as an extremely important development factor of the sense of place attachment (Kamalipor *et al.*, 2012:459). Many researchers have tried to pinpoint the factors affecting the sense of attachment in both urban spaces and the various spaces of residential complexes. Bahram Siavoshpor *et al.* in the article entitled *Physical Factors that Boost the Sense of Attachment, with Emphasis on the Physical, Social and Emotional Factors (Perception and Cognition)* pointed out factors such as physical sustainability, functional sustainability, unique features, matching activities, comfort, outdoors space, security, access, vitality, diversity, and legibility as positive factors affecting the physical aspect of the sense of place attachment (Siavoshpor *et al.*, 2014:5). A good point to ponder is that the enclosure is effective in creating and strengthening the sense of place attachment in a favorable urban environment (Forozandeh & Matlabi *et al.*, 2011:27). However, the degree of enclosure has not been taken into consideration as one of the physical factors affecting the creation of sense of place attachment in the outdoor residential spaces as public spaces and the major part of the common premises of a complex. As we mentioned before, the residential and settlements are somewhat comparable to the traditional neighborhoods in terms of lifestyle and living requirements. In the traditional neighborhoods, it is the mass of the buildings that creates a positive atmosphere by virtue of its enclosure. But in the construction of residential complexes with an inconsistent architectural form, the mass has always been considered a positive space and the impact of the mode of construction in the collective spaces is not taken into consideration. Thus, the outdoor space is converted into a negative space. Apparently, the negative space created by the buildings cannot trigger effective communications among the residents.

3. THEORETICAL FOUNDATIONS

Life in the timeworn neighborhoods was a factor that encouraged extensive social interaction amongst the inhabitants. Social interaction, according to Dehkhoda Dictionary is meant to be some sort of exchange between the members of a society. It is an antonym of the social disconnectedness and it links the people of a territory.

The neighborhood is a healthy cultural environment and an antidote against all types of social vices, especially in a post-industrial world after the expansion of industry in the cities. The neighborhood in its urbanism sense, is a space created in the midst of green and open spaces with a cultural space formed in its center (Shie, 2005:368).

The traditional neighborhood has several characteristics and *enclosure* is one of them. Enclosure in the urban space means confinement of space in a structure. The quality of the space enclosure is determined by seven interconnected factors: size, shape, consistency, height of the body, flooring, architectural characteristics of the surrounding buildings, and the statue (Hedman & Jaszewski, 2002). The quantity of space enclosure is essentially calculated according to the distance of the observer's eye from the height of the enclosing body (Seyedian & Yeganeh, 2012:48).

The residential complex is the outcome of accumulation of a number of apartments in the form of one or more urban blocks. Such complexes can replace the old neighborhoods, but what we face today is a formation called *neighborhood unit* based on Western definition wherein the sense of place attachment is less than the sense of place attachment in the traditional neighborhoods.

Nowadays, creating a sense of place attachment in the city and in the neighborhood units is one of the concerns of urban planners because the neighborhood units can upgrade the social interactions and create a sense of local community towards better urban management and more social participation (Seghatoleslami & Aminzadeh, 2013).

3.1. the sense of place attachment

The sense of place is a mixture of conscious and unconscious emotions and perceptions. It is a rich concept that reveals the individuals' method of perception, experience and expression and imparts meaning to a location (Kashi & Bonyadi, 2013:45). A physical space does not cause a sense of place *per se*, but this sensation is created through interaction between the individual and the place, and among the individuals (Pretty *et al.*, 2003:287). In the Gustafson's model of the meaning of location (2001), the individual, environment, and others are the main pillars of imparting meaning to space. The environment and its physical features as a third aspect of the model of meaning of location, plays the intermediary role in constructing a meaning for the sense of attachment (Forozandeh & Matlabi, 2011:35). The factors which

form the sense of place attachment are personal cognitive factors, social factors, and environmental-physical factors. The sense of attachment is one of the criteria to assess high-quality environments; and in the architecture and environment design scope, physical characteristics such as form (color, size, shape, scale) and the relationship of physical components with provision and emphasis on the social environment activities, play an important and effective role in constructing the sense of attachment (*Ibid*:27).

There are many definitions and opinions regarding the meaning of the sense of place. Norberg-Schultz argues that the sense of place is found in places that have a specified and distinctive character and this distinctive character draws from tangible things that are characterized by materials, shape, texture and color (Schultz, 1997). Lynch holds that the sense of place connects between the humans and the locations and brings about the unity (Lynch, 1981). Shamai believes that the sense of place persuades the individual to participate in the location-related activities (Shamai, 1991). Punter divides the factors that generate a sense of place into three general categories: physical structure consisting of urban landscape, scenery, permeability, the shape of construction and urban furniture; activity including usages, pedestrian traffic volume, motor vehicle traffic volume, patterns of behavior, artificial environment, and legibility; conceptual including cultural relations, cognitive functions, and quality evaluation (Punter, 1991). Sircus argues that the quality of the location, sustainability of the location, and reliability are the factors that shape the sense of place attachment (Sircus, ۲۰۰۷). With the growth and development of the world of communications and the progress of technology and welfare facilities and also upgrading the mankind's general thinking level, the intellectuals started to introduce new criteria for the sense of place attachment. Bonaiuto (2002) proposed the existence of facilities and services and in the same year Salvesen proposed the personal intermingling and welfare facilities as the factors affecting the level of the sense of attachment besides other factors. Moreover, Carmona (2007) added the management and time planning to these criteria.

3.2. enclosure

One of the principles of organizing the urban spaces is enclosing the space. Tavasoli holds that enclosing the space is the first principle of designing urban places (Tavasoli, 1986:26). Observing the space hierarchy and taking note of the principles of organizing the space (and the enclosure issue in particular) are effective in creating and boosting the sense of place attachment (Matlabi, 2006:60). *Enclosure* means enclosing the space in a physical or symbolic manner that affect the quality and quantity of the level of enclosure.

D.K. Ching believes that the four vertical planes that fully enclose a space, probably create the most common and certainly the most powerful kind of space definition in architecture (Ching, 2004:168). He holds that the space characteristics of the architecture depend on the characteristics of the space walls (*Ibid*:175). Trancik, in his famous book *Finding Lost Spaces*, states that the mental image of the people and their reaction to the space is influenced by the amount of its enclosure (Trancik, 1986). Zucker believes that the urban space is an organized, disciplined, and adorned structure and it is physically based on the human activities and distinct and clear rules such as: the relationship between the shape of the body of the surrounding buildings, similarity or diversity of their shapes, the absolute dimensions of these bodies relative to the width and length of the enclosed space, the passage angle of the streets that end at a square, and finally the position and location of historical monuments, pools, fountains or other 3D elements (Tavasoli & Bonyadi, 1993). Tuan (1974) also holds that open space implies freedom and public realm while the enclosed space, suggests coziness, security and privacy of the location (Tuan, 1974:28). Fritz Steel (1981), argues that the level of enclosure - besides the size of the location, contrast, proportion, human scale, distance, texture, color, smell, sound and visual variety- is the most important physical factor affecting the perception and the sense of place attachment (Steel, 1981). In the urban spaces, enclosure is one of the factors that lead to reinforcement of the sense of place attachment and the sense of place attachment in turn creates the identity of the location (Seamon & Jacob, 2008:3).

4. RESEARCH METHODOLOGY

The present research is going to find the quality of an indicator and it has a qualitative nature. Enclosure is the independent variable and the sense of place attachment is the dependent variable. We used research tools such as questionnaires and interviews in order to achieve the goal of *the role of enclosure level in creating the sense of place attachment in the residential complexes* in the statistical population. The

method of research is statistical and based on the level of enclosure in the two case study samples (Shahrake Ekbatan and Shahrake Gharb towns), the method of reasoning is inductive.

To access the question raised about the role of the building's form enclosure on the level of the residents' sense of place attachment, a number of standardized questionnaires about the sense of attachment were examined and among them, the Williams & Vask Questionnaire (2003) was in line with the research goals. This questionnaire consists of 12 questions about the sense of place attachment. Also, its reliability and validity was measured in an article entitled *The Measurement of Place Attachment: Validity and Generalizability of a Psychometric Approach*. The summary of this article states that: "in order to increase the ability of land managers to pay even more attention to the meanings of landscape and the symbolic values of specific positions in decision-making for natural resources, this study was designed to measure the psychological features of place attachment, and to determine the extent of the people's emotions and feelings to these places. By relying on the past efforts, the aim of this research is the validation and the generalization of place attachment across all items of measuring attachment, places and dimensions (place dependence and place identity) (*Ibid*: 830). Further in the article, the method of data analysis is presented and in the end it states that: "...each of the dimensions of *attachment* can be measured with regard to the headings presented in the form of four questionnaires. The validity, through the analysis of the relationship between the criteria of place attachment, is convergent and we predict that both the behavioral and psychological variables should be related to the location." (*Ibid*).

Notwithstanding the use of a standard questionnaire, we submitted the questions to the sample group after the translation process to ensure the authenticity of the translation. Next, they were dispensed among 270 residents of both complexes and 210 respondents answered the questions. Since the measurement scale of the questionnaire questions is the Lickert scale, we analyzed the data in the IBM SPSS Statistics V. 22 software after the extraction.

5. FINDINGS

5.1. descriptive statistics

To achieve the two samples suitable for conducting the research, we studied and compared the main towns around the Greater Tehran. In this regard, Shahrake Ekbatan (A) and Shahrake Gharb (B) were more equivalent and similar in terms of indicators affecting the sense of place attachment. Since the *level of enclosure* was the only indicator of the study, the difference in the enclosure form of the residential complexes was also an important criterion for the choice of the statistical population (Fig.1).

Shahrake Ekbatan is one of the largest and most important towns in Tehran and Iran, with a current population of 44981. It was designed in 1966 by the American Jordan Gruzen and the partnership of Starrett Co. based on principles of high-rise building and urban development of the twentieth century (Tehran Municipality Information Technology, district 5, 2014).

Shahrake Gharb was built in 1961 by the American companies for the accommodation of foreign residents in Iran. The layout of these buildings was inspired by the American residential towers of its period (Norkhani, 2013). The scope of the case study, in addition to the residential towers of Khayyam, Hafez, Saadi, and Nezami; included other complexes such as Persepolis, Pasargad, Bistoon and Apadana.

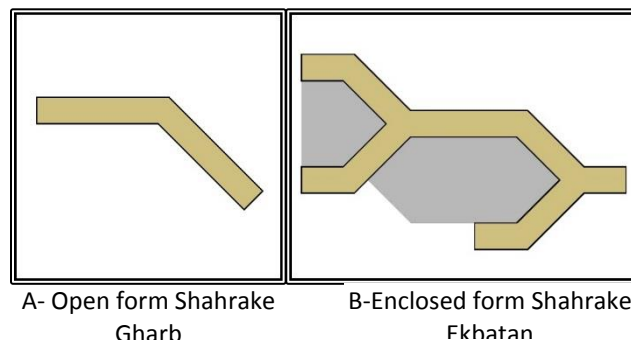


Fig.1: The schematic of enclosure shape difference between the two sample residential complexes.
Reference: the author.

Both complexes are similar in terms of the date of construction, design, the quality of services and the quality of life in the neighborhood, distance and access method, texture, color, smell, sound, comfort, security, outdoors space and other factors related to the sense of place attachment. To test the hypothesis, the questions raised in the aforementioned questionnaire that includes 12 items are translated and presented in the table 1.

Table 1. Williams & Vask Questionnaire (2003)

Rank	Question
١	I feel this place is a part of my being.
٢	This place is the best place to do my favorite tasks.
٣	This place is very special to me.
٤	This place is not comparable to any other place.
٥	I am completely familiar with this area.
٦	I am satisfied with living here rather than anywhere else.
٧	I am very attached to this area.
٨	It is very important for me to do my tasks here, not elsewhere.
٩	Living in this area imparts some identity to me.
١٠	I do not want to replace this place with any other place to do my tasks.
١١	This area is very meaningful to me.
١٢	I feel joy regardless of whether I am doing my tasks here or at other similar places.

We prepared 135 questionnaires for each of the Ekbatan and Gharb residential complexes which were filled on the spot by means of interview or by the people themselves. We collected 130 questionnaires in Shahrake Ekbatan and 80 questionnaires in Shahrake Gharb (table 2).

Table 2: The number and the method of collecting the questionnaires

Place of handing out the questionnaires	Noticed	Filled	Valid
Ekbatan	١٣٥	١٣٠	١٢٩
Gharb	١٣٥	٨٠	٧٩

Based on the collected information, 47.12% of respondents were female and 52.88% were male. Also, 21.2% had a high school diploma or lower degree, 15.9% had associate degree, 39.4% had BSc., 18.3% had MSc. and 5.3% had Doctorate or higher degrees. The age of respondents was as such: 4.4% between 15 to 20, 15.5% between 20 to 30, 25.2% between 30 to 40, 18.9% between 40 to 50, and 35.9% were above 50. The duration of living in the complexes was as such: 0.5% less than 1, 12.3% between 1 to 5, 23.5% between 6 to 10, 31.4% 31 between 11 to 20, and 32.4% more than 20 years.

5.2.inferential data analysis

We used the t-test of the two independent samples in order to study the research’s question. The purpose was to examine the role of form enclosure in the level of the sense of place attachment among the inhabitants of the two towns of Shahrake Ekbatan and Shahrake Gharb. The results of the table below shows the responses of the inhabitants of these towns along with the corresponding variables (table 3).

Table 3: The status of the inhabitants’ responses of the two towns

Sense of attachment	Place	Enclosure	Number	Mean	Standard deviation	Mean standard error
	Ekbatan	High	129	3.8865	.61287	.05396
Gharb	Low	79	3.4727	.69242	.07790	

The first step in the interpretation of the t-test results with two independent samples is the expression of equality or non-equality of score variances between the two groups. We used the Levene's test for this purpose. If the error level of the latter test is greater than 0.05, then we use the first row results in the t-

test for equality of means which corresponds to the equality of variances. But if the error level of this test is smaller than 0.05, then we use the results of the second row which corresponds to the inequality of variances. Here, because the Levene's test for all the variables with error levels above 0.05 is insignificant; we used the results of the first row related to the sense of attachment variable to interpret the results of t-test of the two independent groups (table 4).

Table 4: The conditions of the sense of attachment among the residents with a high and low physical enclosure of the form. *Reference: the author.*

Sense of attachment	Leven's test of equality of variance		T-test of equality of mean						
	Fisher statistic	Error level	T-statistic	Degree of freedom	Error level	Difference of mean	Difference of Standard error	Amount of difference at 95% confidence level	
								Upper limit	Lower limit
Equality of variance	3.212	.075	4.497	206	.000	.41380	.09203	.23237	.59523
Inequality of variance				149.78					
			4.367	8	.000	.41380	.09477	.22655	.60105

The result of the t-test of independent groups for each of the variables between the two groups of residents of Shahrake Gharb and Shahrake Ekbatan towns showed that the sense of attachment means of the two groups of residents of the two towns is significantly different (table 4). The Shahrake Ekbatan residents whose residential buildings have a more enclosed form, have a higher sense of attachment than the residents of the Shahrake Gharb at 95% confidence level. In other words, since the t-statistic is larger than the absolute value of 1.96 at 95% confidence level and the error level is less than 0.05 at the same confidence level, there is a significant difference between the level of enclosure and attachment to place among the residents. Thus the hypothesis of the research: *increased level of form enclosure in residential complexes enhances the sense of place attachment in its inhabitants*, is proven and fulfilled.

6. CONCLUSION

In this study, we studied *the role of form enclosure level in the level of the sense of place attachment* in the two towns of Shahrake Ekbatan and Shahrake Gharb. We collected the information using the Williams & Vask questionnaire (2003) and analyzed it by the t-test with a 95% confidence level. As we mentioned before, the residential settlements and complexes are almost comparable to the traditional neighborhoods in terms of lifestyle and the living requirements. Traditional neighborhoods have a high level of enclosure and the inhabitants felt a sense of place attachment and commitment to their living quarters. This research was going to find the similarities of enclosure created by the architectural form of the building and the enclosure of traditional neighborhood and its impact on the level of the sense of place attachment and creation of an identity based on living in the neighborhood, to improve the process of design and development of residential towns and to play a positive role in upgrading the native requirements of the region.

The results indicated that the inhabitants of Shahrake Ekbatan feel a higher sense of place attachment than the residents of the Shahrake Gharb at 95% confidence level. In other words, since the t-statistic is larger than the absolute value of 1.96 at 95% confidence level, and also the error level is smaller than the 0.05 value at the same confidence level, there is a significant difference between the level of enclosure and the place attachment of the residents, i.e. a higher level of enclosure in the form of residential complex increases the level of inhabitants' place attachment. Since in most residential complexes the design is restricted to mass and space and the factors affecting the senses are less accounted for, the residents are less inclined to attend the collective spaces. The enclosed form –as a physical factor of the sense of place– can increase the collective communications among the neighbors.

The result of the present research in comparison with the results of other research conducted in the field of place attachment suggests the coherence of these studies. The enclosure of form can be a physical indicator which is on a par with the group of positive factors influencing the physical aspect of the sense of

attachment including: security, access, vitality, diversity, and legibility. Enclosure is also a *spatial property* that has the highest impact on creating a sense of satisfaction with the residential outdoors space. The level of enclosure of form can be one of the factors affecting the design of the structure and space components, and according to the research, it may change the level of the sense of attachment of future residents. Form enclosure, is a physical dimension that creates attachment as an extremely important developer of the sense of place attachment. As we mentioned earlier, there is a strong relationship between the level of satisfaction with a complex and its impact on people's relationships (Zabihi *et al.*, 2010:103). According to comparisons, the enclosure of form can also be a factor in bringing about satisfaction with a residential complex. Although a number of indicators that influence the sense of place attachment in residential complexes have been examined so far, it seems other indicators and factors such as scale, distance, texture, color, visual variety and other factors that improve the social interactions among neighbors, and at a broader level among the neighborhoods, should be investigated as well. Moreover, factors such as age, the level of education, and the length of stay may also affect the level of the sense of place attachment and a clear answer to these speculations will come by through careful consideration and more extensive research.

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