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Application of native materials and its impact in promoting place attachment in the design of the residential complex: A case study in Lahijan City, Iran

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Abstract

One of the basic human needs is the need for belonging. In the field of architecture, this need finds meaning in the form of place and first place known to man is house and his residence. Native materials are rooted in the culture and the past of people in a country, and are part of social indications. Having its own color, texture and form may increase visibility and physical contrast in the image of cities and can be effective in the knowledge and understanding of the environment and promoting place attachment. In this paper, with the aim of increasing the quality of life in the residential complex, research has been done associated with place attachment- one of the indicators of high quality environment quality. The research method was descriptive–analytical. Questionnaires were developed according to the purpose and content of the study. The research has been carried out with 50 samples. The data obtained through the questionnaires were described and analyzed by using software. Finally, the results were extracted, which were classified on the basis of accepting or rejecting hypotheses. It became clear that the questions could prove considered hypotheses. Results show that native materials can generate place attachment as a result of its color, texture, form and visual natural effect.

Keywords: Native materials, Place attachment, Residential Complex, Lahijan

Introduction

In order to achieve the ideal design attention to the needs of human beings is very important, the physical environment and its impact on the lives of human have been analyzed by many experts in recent years. In order to make the physical environment bearable and enjoyable for everyday human life it must have meaning. One of the important meanings in increasing the quality of the human environment is place attachment, and the use of native materials in building is one of the effective factors in the sense of human place attachment to the environment and human-environment relationship as well as the evaluation criteria of quality environments.

Statement of the problem

Today, native materials can rarely be seen in the internal and external image of houses. As houses of a city are no different than other cities in terms of materials, colors, design and construction practices and do not create a sense of place attachment for people. If sense of place attachment is reduced in an environment, in fact, its spatial quality and level of vitality in residential environment will be reduced and place identity will be lost thereby satisfaction among the people who use it decreases.

The significance of study

Today, living in residential complexes is not welcomed because their design is not consistent with human's spirit and desires. Houses built in the complex are just a space for living but their quality of life is little considered. On the other hand, with increasing population, the need for the design of such areas is very high. Thus, the need for research & development related to the needs of the present-day human beings for living in the residential complex has been doubled. In addition to the importance of achieving the principles to design a suitable complex for human life, the need for applying native materials is also of great importance. Use of native materials can both Increase a sense of place attachment to the place as well as the region's economic boom.

Objectives of the study

Living in a residential complex with a uniform quality of life for its residents is accompanied with homesickness. For this reason, what is the criterion for design excellence in a complex compared to other ones is the success of any plan to reduce this feeling and increase the sense of ownership and a feeling of place attachment. Thus, the research is intended to examine and classify features of place attachment to the place, to examine the properties of native materials with effect on the sense of place attachment and using native materials to increase the sense of place attachment and how to increase the sense of place attachment in residential complexes in Lahijan using materials.

Review Literature

Kamalipour, Jeddi and Alalhesabi in "prediction of place attachment in urban residential environment" have grouped factors affecting in the increase of place attachment into two physical and social factors and studied these factors on the residential complex Ekbatan through interviews and survey by 154 people. The results showed that the sense of place among the complex residents has been centered on neighborhood level rather than home or city. Also, Physical factors have a more prominent role than social factors. Residents who lived longer in the complex have a high sense of place and those who have a high fear of crime, cultural tensions, lower cohesion and social control have lower sense of place (Kamalipour, Jeddi&Alalhesabi, 2012).

Sajadi Qaemmaghami, Pourdeihimi, zarghami in 2010 in an article entitled "principles of social sustainability in residential complexes have examined social sustainability of the residential complexes from point of view of Iranian experts and professionals. Firstly, a questionnaire was prepared and distributed among 160 people of target statistical population. Extracted results have specified four elements: comfort within house, versatility of open spaces for children, social identity, social order

Also, Pourdeihimi and Nourtaghani in an article entitled "Identity and housing; examining interaction mechanism of resident identity and residential environment "explore the concept of identity and factors affecting it (Pourdeihimi, Nourtaghani, 2013).

Zandieh and Parvardinejad in the Sustainable development and its implications in the residential architecture of Iran explore the relationship between native materials and residential architecture (Zandied, Parvardinejad, 2010). He used the research library and get the conclusion that the use of native materials in each area is a way of generating sustainable development.

Research Question and hypothesis

The question raised in the study is whether using native materials in residential buildings can increase place attachment and by giving meaning to the space make physical environment for human life enjoyable. It seems that color of native materials is one element for enhancing place

attachment. These materials can increase place attachment due to its specific form and texture and also because of consistency with the surrounding nature and their natural visual image.

Methodology

For this study, descriptive – surveying method has been used. In first, literature review has been conducted. In this way, search has been conducted for finding books, articles and different foreign and domestic topics, and the information in them was collected. Using the resources and Information collected, the components of place attachment and native materials have been obtained. Using two elements, aim-content table has been formed in which both components of place attachment and native materials are inserted. The questions of the questionnaire was formed by filling this table and finding the relationship between elements and this questions were classified on a regular basis and understandable for people. Statistical population was selected in the city of Lahijan and the sample size was calculated 50 on the basis of formula and the questionnaire was distributed among 50 people. Questions taken from samples selected randomly were collected, then data analyzed using SPSS software and finally results were obtained.

Theoretical framework of the research

The definition of place: Relph considers the place as a combination of natural and man-made objects, activities (performance) and meanings whose experience can include from a small room to the continent in large scale. In his view, place has three components i.e. Physical setting, activities and meanings which brings out of a space nature and makes a place with a subjective experience for a person (Relph, 1976).Elsewhere Carmona in a tri-polar triangle considers the place a result of three elements i.e. activity, form and individual idea that produces place in an interactive triangle and meet different ranges (Carmona, 2006)

Place attachment: Place attachment represents a set of effective relationships between individuals, groups, communities, and a set of their daily life (Carrus et al., 2013).

From the perspective of human geography phenomenologists, sense of place attachment means a strong link and effective factor among People and places with its constituent elements that this positive link can expand the depth of connection and Individual interaction with the environment and becomes more widespread over time (1974, Tuan; 1976, Relph).

In reality, the place attachment is defined as an emotional connection that people have with their place. There, They tend to stay and feel safe and comfortable (Hidalgo & Hernandez, 2001).

Maria Lewicka in his research on the sense of place reached to the conclusion that among three factors of the tripartite model of place attachment (Scannell & Gifford, 2010a) individual element has been received most attention compared to the process and place element (Lewicka, 2011).

Creating a sense of place and community could in itself increase health, security, social interaction, mutual aids, defensible spaces and many other desirable characteristics of the individual and place (Shahrampour deihimi, 1392, 11).

Effective elements in generating place attachment

According to Ali Javan Frouzandeh, components of the place attachment are products of three factors, i.e. individual, others and the environment.

First: individual perceptive-cognitive factor

Environments with Visibility and physical differentiation are favorable for users and better understanding of the people takes placein it.

Second: social factor

The role of social variables such as culture, symbols and social symbols is of great importance. In principle, all people have social needs and seek to place attachment to relatives and friends in human need pyramid.

Third: the environment-physical factor

Activities governing in an environment are defined based on social factors, public actions and interactions of human beings and regulate body with form variables and components as the most important factors in creating sense of their environment. Shape, size, color, texture and scale as features of form have effective role in shaping a sense of place attachment and type of organization and layout of the physical components are another factor. On the other hand, physical elements are effective in creating a sense of place attachment through the harmony and the ability to meet the needs of human (Frouzandeh, 2010).

Data collection method

Using resources and collected data, elements of sense of place as well as native materials were obtained. Elements of place attachment include the following: Visibility, culture, symbol, vitality, happiness, identity, memory, collective memory, events, relaxation, Comfort, residence time in place, the number of relatives in a place, ownership, migration, community-based activities, seasonal celebrations, social cohesion, the amount of open space, accessibility, place reputation, beliefs and religions, sacred structures, ethnic diversity, social classes, historical events, neighborhood relations. These elements have been summarized after the necessary studies in 5 items. Native materials have elements such as color, material, form, shape, texture, natural visual effects. Goal-content table has been formed by using these two elements which in one side there is place attachment and in the other native materials. Place attachment features have been achieved by research conducted among which those related with native materials have been selected and put in the goal-content table along with native material features. Then, the elements related with each other have been marked with a star.

Table 1: Goal-content table

Place attachment features						
Comfort	Local Identity	Satisfaction	Vitality	Visibility		
*	*		*	*	color	native material features
	*			*	form and shape	
	*	*			texture	
*	*	*	*	*	material	
*	*	*	*	*	visual image	

Then questions were formulated on the basis of this table and distributed among 50 people. In order to make them understandable, pictures were annexed with questions.

Data analysis and Results

In this research, in order to collect data required to achieve the objectives of the research, interviews were conducted with 50 people randomly. Data from interviews was examined using software. The results were classified into 5 sections, each section has been designed in order to prove or disprove a hypothesis. In order to choose the appropriate test to measure dimensions, it first should be assured of statistical distribution of questions. In order to test the distribution normality, Kolmogorov - Smirnov test was used. The following table exhibits test results to items and dimensions. Results show that neither of these variables was normally distributed.

Table 2: Results of Kolmogorov-Smirnov test

		Natural visual image	Native materials	Native texture	Native shape and form	Color of materials
Number		50	50	50	50	50
Difference Intensity	Absolute	0.159	0.159	0.226	0.218	0.185
	Positive	0.159	0.159	0.226	0.218	0.185
	Negative	-0.088	-0.088	-0.174	-0.162	-0.103
Statistical Test		0.159	0.182	0.226	0.218	0.185
Significance Level and Range		0.003	0.000	0.000	0.000	0.000

First hypothesis testing: The color of native materials is a factor in increasing place attachment

Among those questions, 4 items were dedicated to this hypothesis which the following results were obtained after interview and analysis of interviewee's response.

Table 3: Questions related to the first hypothesis

	Very high		High		Low		Very low	
Color generates visibility in residential complex	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
	21	42%	22	44%	7	14%	-	-
Color generates vitality in residential complex	21	42%	26	52%	1	2%	2	4%
Color generates local identity in residential complex	27	54%	19	38%	3	6%	-	-
Color generates comfort in residential complex	19	38%	21	42%	9	18%	-	-

As can be observed in the above table, the effect of color on increasing place attachment is expressed in point of view of respondents.

Table 4: Results of first hypothesis testing

Model	Non-standard coefficients	Standardized coefficients		T	Significance level
	coefficient	Standard error	B		
Constant	0.701	0.109		6.414	0.000
Color of materials	0.607	0.062	0.814	9.721	0.000

This table shows that color of materials affects on the linear graph in increasing place attachment at a rate of 0.607. Thus, the first hypothesis was approved according to the obtained results.

Second hypothesis testing : The native materials can increase place attachment due to their specific form and shape.

Among those questions, 2 items were dedicated to this hypothesis which the following results were obtained after interview and analysis of interviewee's response.

Table 5: Questions related to the second hypothesis

	Very high		High		Low		Very low	
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Form and shape of materials generate visibility in residential complex	26	52%	20	40%	3	6%	-	-
Form and shape of materials generate local identity in residential complex	26	52%	23	46%	1	2%	-	-

As can be observed in the above table, the effect of form and shape on increasing place attachment is expressed in point of view of respondents. This effect is expressed by the following formula:

Table 6: Results of second hypothesis testing

Model	Non-standard coefficients	Standardized coefficients		T	Significance level
	coefficient	standard error	B		
Constant	1.075	0.152		7.058	0.000
Form and shape	0.426	0.096	0.539	4.433	0.000

This table shows that form and shape of materials affect on the linear graph in increasing place attachment at a rate of 0.426.

Third hypothesis testing: The native materials can increase place attachment due to their specific texture.

Among those questions, 2 items were related to this hypothesis which the following results were obtained after interview and analysis of interviewee's response.

Table 7: Questions related to the third hypothesis

	Very High		High		Low		Very Low	
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Texture generates satisfaction in residential complex	11	22%	27	54%	11	22%	1	2%
Texture generates local identity in residential complex	24	48%	21	42%	4	8%	1	2%

The effect of material texture in increasing place attachment

As can be observed in the above table, the effect of material texture in increasing place attachment is expressed in point of view of respondents. This effect is expressed by the following table:

Table 8: Results of third hypothesis testing

Model	Non-standard coefficients	Standardized coefficients		T	Significance level
	Coefficients	standard error	B		
Constant	0.968	0.133		0.968	0.000
material texture	0.410	0.069	0.651	0.410	0.000

This table shows that material texture affects on the linear graph in increasing place attachment at a rate of 0.410.

Fourth hypothesis testing: Type of native materials can increase place attachment due to their nature consistency.

Among those questions, 5 items were dedicated to this hypothesis which the following results were obtained after interview and analysis of interviewee's response.

Table 9: Questions related to the fourth hypothesis

	Very high		High		Low		Very low	
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Type of materials generates Visibility in residential complex	21	42%	25	50%	3	6%	-	-
Type of materials generates vitality in residential complex	19	38%	24	48%	6	12%	1	2%
Type of materials generates satisfaction in residential complex	19	38%	17	34%	12	24%	1	2%
type of materials generates local identity in residential complex	26	52%	18	36%	5	10%	1	2%
type of materials generates comfort in residential complex	18	36%	22	44%	8	16%	1	2%

The effect of type of materials in increasing place attachment

As can be observed in the above table, the effect of type of materials in increasing place attachment is expressed in point of view of respondents. This effect is expressed by the following table:

Table 10: Results of fourth hypothesis testing

Model	non-standard coefficients	standardized coefficients		T	significance level
	Coefficients	standard error	B		
Constant	0.973	0.133		8.633	0.000
Native materials	0.419	0.060	0.711	7.013	0.000

This table shows that type of native materials affects on the linear graph in increasing place attachment at a rate of 0.419.

Fifth hypothesis testing: Natural visual image of native materials increase the place attachment).

Among those questions, 5 items were dedicated to this hypothesis which the following results were obtained after interview and analysis of interviewee's response.

Table 11: Questions related to the fifth hypothesis

	Very high		High		Low		Very low	
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Visual image generates visibility in residential complex	19	38%	27	54%	4	8%	-	-
Visual image generates vitality in residential complex	19	38%	24	48%	6	12%	1	2%
Visual image generates satisfaction in residential complex	18	36%	25	50%	5	10%	2	4%
Visual image generates local identity in residential complex	24	48%	20	40%	6	12%	-	-
Visual image generates comfort in residential complex	19	38%	26	52%	4	8%	1	2%

The effect of natural visual image in increasing place attachment

As can be observed in the above table, the effect of natural-visual image in increasing place attachment is expressed in point of view of respondents. This effect is expressed by the following table:

Table 12: Results of fifth hypothesis testing

Model	Non-standard coefficients	Standardized coefficients		T	Significance level
	Coefficients	Standard error	B		
Constant	0.763	0.147		5.204	0.000
Natural visual image	0.553	0.082	0.698	6.761	0.000

This table shows that natural visual image affects on the linear graph in increasing place attachment at a rate of 0.553.

Conclusion and recommendations

The results show that native materials can improve place attachment due to their own color, texture, type and natural visual image. We can increase place attachment by using native materials in the structure, exterior and interior details of a house among the inhabitants and raise the quality of the environment. What can be seen in buildings of the city is the absence of native materials in their construction which can be attributed to the following reasons:

1. Low quality native materials available in the market are due to the old and inefficient ways of making materials, poor processing and maintenance. But if modern methods are used, native materials with high quality and efficiency can be applied.

2. The lack of professional manpower for the construction, operation, repair and maintenance of native materials

3. Native materials are mainly used in rural or simple-design buildings while using these materials in large designs encourage people and designers for taking advantage from them.

4. Lack of attention to environment and the necessity for its protection led designers to disregard the type of consuming materials and their irreversibility to the nature.

Due to the benefits of using native materials in terms of meeting basic human needs, such as place attachment as well as the economic, environmental, visual aspects it is better to use in new designs of native materials especially in residential areas. Of course, barriers to quality of materials, design, expertise must be resolved and then building design and construction using native materials would be considered and encouraged by authorities

References

Carmona, M. (2006). Public places, Urban spaces. Oxford : Architectural press

Carrus, G. et al. (2013). Place attachment, community identification, and pro-environmental engagement. In M. Lynne, & D.-W. Patrick (Eds.), Place attachment: Advances in theory, methods and applications (pp. 176-192). London and New York: Routledge.

Hidalgo, M. C. & Hernandez, B. (2001). Place Attachment: Conceptual and empirical questions. Environmental Psychology, 21, 273-281

Javan Frouzandeh, A., & Motallebi, Q. (2011). Concept of place attachment and its elements. The identity of the city, 8, 27-37.

Kamalipour, H., & Jeddi Yeganeh, A., & Alalhesabi, M. (2012). Predictors of Place Attachment in Urban Residential Environments: A Residential Complex Case Study . Social and Behavioral Sciences, 35 , 459-467.

Lewicka , M. (2011). Place attachment: How far have we come in the last 40 years? . Environmental Psychology, pp. 207-230.

Pourdeihimi, Sh., &Nourtaghani, A. (2013). Identity and housing, examining interaction mechanism of resident identity and residential environment . Housing and rural environment. 141.

Relph,E. (1976). Place and Place-lessness . London: poin

Sajadi, Q., &Pourdeihimi Zarghami, A. (2010). Principles of social sustainability in the residential complexes, 51, 75-87.

Scannell, L & Gifford, R. (2010). Defining place attachment: A tripartite organizingframework. Environmental Psychology, 30, pp.1-10

Zandieh, M., & Parvardinejad, S. (2010). Sustainable Development and its implications in the residential architecture of Iran. Housing and Rural Environment, 130, 1-21.