Architectural identity and place attachment in historic neighbourhoods: an empirical study in Sanandaj, Iran

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Abstract

Purpose – Environmental and functional situations of neighbourhoods can play a significant role in maintaining neighbourhoods' socio-economic activities and residents' place attachment. This study aims to examine the relationship between architectural identity components (i.e. symbol, ornament and old pattern) and place attachment in Aghazaman neighbourhood as a well-known historic neighbourhood in Sanandaj, Iran.

Design/methodology/approach – The study is quantitative in nature and a questionnaire survey was conducted on a sample of 300 respondents to assess the relationships between the architectural identity components and place attachment.

Findings – The findings indicate a significant and positive relationship between architectural identity and place attachment, indicating that higher architectural identity is associated with high perceptions of place attachment amongst residents. The results further indicate that the most influencing factor in shaping architectural identity is old pattern, followed by ornaments and symbols.

Social implications – As place attachment is a strong incentive to maintain social interactions in neighbourhoods and to create a sense of attachment towards the residential environment, attention must be paid to the relationships amongst people, place, meaning and identity.

Originality/value – The architectural elements such as motifs and columns give identity to the image of historic neighbourhoods. The use of architectural identity components can help in decision making of planners and practitioners of urban neighbourhoods. The study was designed to develop a guideline so that future developments in Iran could be monitored to sustain strong neighbourhood attachment.

Keywords Iran, Structural equation modelling, Place attachment, Architectural identity, Historic neighbourhoods

Paper type Research paper

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Introduction

As perception plays an important role in people's relationship with places, place attachment can be regarded as a socially-formed reaction strongly connected with place. Place attachment plays an important role on behaviours and environmental protection (Anton and Lawrence, 2014). There are correlations amongst components of place attachment, place dependence and place identity with environmentally responsible behaviour (Vaske and Kobrin, 2001). Studies on place identity in urban neighbourhoods indicate that residential buildings are of great importance as common components of cities. Despite their similarities, different cities have some specific distinguishing characteristics, which are defined by identity. Identity, as a fundamental concept, influences the social and physical dimensions of the community so that the weakness or lack of architectural identity in residential neighbourhoods may disrupt the interaction and communication of residents with each other and with the neighbourhood.

Identity crisis, which appears both individually and socially, adversely affects the residents through the evasion of responsibility, boredom and indifference to the environment (Wiese *et al.*, 2018). The wide range of physical and social interventions in traditional neighbourhoods over the past decades has led to an expansion aimed at meeting the infrastructure needs of the residents. Due to non-awareness of the identity and attachment elements in the structures of the neighbourhoods, this process has had no result but the destruction of identity and reduction of attachment (Zebardast and Nooraie, 2018). It is partially resulted from disregarding the cultural values in the neighbourhood design and to some extent from neglecting the role of components, especially physical components that influences the neighbourhood identity. It is regarded as a basic principle involved in the creation of identity in historic neighbourhoods and the lack of attention leads to the incredibility of many modernisation projects in the traditional context of the neighbourhoods.

Although the historical texture of Aghazaman neighbourhood in Sanandaj has a rich urban identity, it faces many problems such as low physical and functional qualities. Many buildings in this neighbourhood have been made of low-strength and non-durable materials. In recent years, residential textures on the outer edge of commercial areas have been abandoned or turned into warehouses of commercial units, which has led to a reduction in the population of this area. On the other hand, economic attractions and the possibility of changing the function of this texture has resulted in the renovation of the first wall and growing exhaustion of the second and third shells. The texture in this neighbourhood, especially in the depth is fine-grained. The high number of historical and valuable architectural works has led to the heritage richness in this area, and it must be acknowledged that the resulting height limits have limited construction at height (Habibi, 2016).

The evidence confirms that Aghazaman neighbourhood is one of the old neighbourhoods of Sanandaj ancient city, which is not physically similar to Sanandaj due to physical changes, occurred in this area in different centuries. This historical texture faces major problems such as physical exhaustion and restrictive renovation rules, the limits of historical monuments, the organic nature of networks, low economic efficiency, environmental problems and lack of services such as green space, population escape and migration to new neighbourhoods, all leading to a decline in this area. However, physical decline and degradation, fear of crime, incompatibility and lack of coordination between activity density, especially at night and day increase social harms and reduce neighbourhood identity (Makroni *et al.*, 2015). The study aims to identify the architectural

identity components in Aghazaman neighbourhood of Sanandaj, Iran, and seeks to examine the relationship between architectural identity components and place attachment.

Literature review

Since the 1960s, researchers discovered the importance of living place in the construction of people's identity. Fried (1963) as the first researcher, who explored the mandatory relocation in Boston found that personal identity was not only based on individual and social processes but also on physical environments. He further introduced place as an essential element in an individual's identity (Bernardo and Palma-Oliveira, 2016). Moreover, Vaske and Kobrin (2001) investigated the effect of place attachment and place identity on people's environmentally friendly behaviours and concluded that the emotional relationship with the place was an important factor that created a sense of responsibility and activeness in residents (Vaske and Kobrin, 2001).

Studies indicated that the relation between humans and their physical environment encompasses two different aspects. One is the affective dimension called place attachment, referring to emotional bond towards places, and the other is place identity, which is the cognitive dimension, referring to the self-cognition as a member of a place (Tournois and Rollero, 2020). These two concepts make residents more dependent and committed to their living environment (Tournois and Rollero, 2019). Scannell and Gifford (2010) presented an important organising structure for place attachment studies. They introduced place attachment as a multidimensional concept comprising psychological processes (cognition and beliefs) and place (both physical and social) (Clark *et al.*, 2017).

Architectural identity and place attachment

Identity as a complex notion refers to a kind of description or conceptualisation of the self, which includes the roles, personal traits, membership in social groups and social relationships (Devine-Wright and Clayton, 2010). Social psychology has presented some theories about identity, but the element of the physical environment is still under-investigated. Places are important constituents of identity. Different aspects of identity come from the places we belong to, because the places consist of symbols, which have specific meaning. In fact, places are not just physical environments, but an integral part of identity. Those aspects of identity that are related to the place can be described as "place identity", which refers to the effect of the physical environment on identity and place attachment (Hauge, 2007).

Identity is a fundamental concept by which one can be associated with a place. The extent to which identity is defined depends on theory. Not all identity theories are necessarily exclusive and they may be selected based on the interests in a particular research topic. In this regard, this research is based on Breakwell's theory. Breakwell's identity process theory considers the use of artificial environmental aspects. From this perspective, identity is a product of social dynamics, and interaction of self-conscious and organised perceptions. Aspects of identity originate from places to which we belong because places have symbols with a specific meaning and significance for each person (Hauge, 2007). Accordingly, perceptions towards a place can affect the bonds that exist between man and that place. Here, the concept of place refers to the mental perception of the human existence embodied in the material world. This is a paradoxical concept because it is quickly understood but defined with difficulty. As Patterson and Williams (2005) stated, there is no systematic theory of place because research on place consists of several research methods based on epistemological foundations and incompatible philosophical hypotheses about the nature of reality. Some aspects of place can be investigated quantitatively, while a

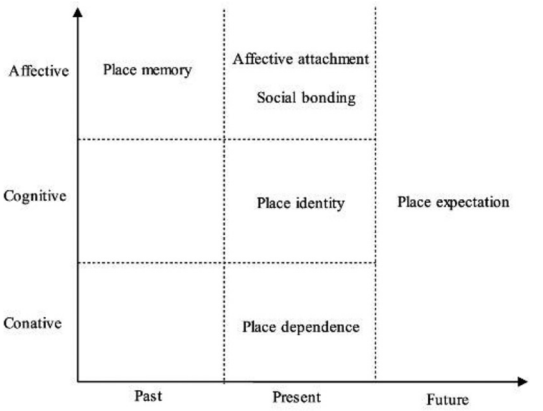
qualitative approach is more appropriate for other aspects (Morgan, 2010). Therefore, the construction of a significant place in the residential texture of the old neighbourhoods makes them more significant and important for their residents. What architects create is a potential environment for human behaviour and what a person likes is the environment that affects his/her. In this regard, attachment to place and place identity are two types of bonds with place, which have attracted the attention of urban planners and environmental psychologists (Morgan, 2010).

Place attachment is defined as an emotional link or connection between people and certain places (Anton and Lawrence, 2014). In this regard, some researchers emphasise the emotional bond with places and the cognitive relation to a particular space, but other scholars argue that distinguishing place attachment and satisfaction of a living place is a difficult task. Place attachment has physical and social dimensions, and social networks that extend beyond the household unit, creating interrelated lives in one place (Clark *et al.*, 2017).

Prior studies on place attachment presented a two-dimensional framework, which has been widely approved by environmental psychologists. This framework focusses only on the relationship between human and place, not on the relevant social or pure emotional components. Recent studies in environmental psychology have suggested social link and emotional attachment as two other important aspects of place attachment. The cognitive, social, emotional and attachment aspects of place attachment are reflected as:

- *place identity* that refers to one dimension of place attachment and a dimension of self and reflects uniformity (continuity) and distinction (uniqueness);
- *place dependence*;
- *social bonding*; and
- *emotional attachment* (Chen and Dwyer, 2018; Nogué and San-Eugenio-Vela, 2018).

Besides these four dimensions, researchers have introduced two other dimensions that play important roles in the evaluation of place attachment. They include "memory of place" (portrayal of attachment from the perspective of personal experiences) and "expectation of place" (how other experiences are likely to occur in a particular place) which are based on human-place interaction and rooted in personal experiences, rather than justification or



Source: Chen and Dwyer (2018)

Figure 1.
Dimensions of place attachment

evaluation. As shown in Figure 1, these six dimensions of place attachment can be classified according to their dynamic nature (Chen and Dwyer, 2018), which are categorised by their dynamic nature and the trilogy of mind.

Clark *et al.* (2017) examined the relationship between place attachment and residents' stay in the neighbourhood and concluded that family roots, social communication and neighbourhood satisfaction played a vital role in the development of residents' place attachment and staying in the neighbourhood (Clark *et al.*, 2017). Wynveen *et al.* (2017) compared place attachment in different cultures and posited that the measure of people's place attachment varied in different environments and its uniformity led to inadequate information and interpretation. Therefore, when the meaning of a place is related to some certain physical components, attachment and emotional and behavioural responses to the place emerge. In this case, place attachment is influenced by the physical characteristics of the place (Lin and Lockwood, 2014).

As indicated in Table 1, studies addressed the issue from a different dimension, such as physical and social characteristics, family roots and culture and social communication, which play important roles in creating place attachment. However, to the best of the authors' knowledge, no studies have been done on the measurement of physical identity components and their role in creating place attachment. Hence, the present study aims at evaluating architectural identity components and their impacts on enhancing the sense of place attachment in Aghazaman neighbourhood of Sanandaj.

Theoretical framework

Although the physical components are tangible, their meanings are largely fictitious because each viewer interprets it differently in different historical periods. These imaginary meanings do not merely exist in people's minds but are shared and circulated throughout the society, so that people's final image is a shadow of narratives, values and feelings about that object (Jones, 2018). Physically, the neighbourhood is often referred to a residential area, while socially, it is a place where social interactions occur. Therefore, both social and physical characteristics are identified as influential factors in attachment. Therefore, it is beneficial to create an attachment to a neighbourhood or home. This is associated with many positive outcomes such as health and community participation. Neighbourhood attachment makes more attached people, showing higher degrees of political and social

Researcher	Results
Fried (1963)	Personal identity was not only based on individual and social processes but also on physical environments
Vaske and Kobrin (2001)	Emotional relationship with the place is an important factor in creating a sense of responsibility and activeness in residents
Stedman (2003)	Physical characteristics and components of places are very important
Scannell and Gifford (2010)	Social networks which are at the centre of concepts such as social cohesion and social capital can be used as key components in understanding how place attachment works
Wynveen *et al.* (2012)	The meaning of place is rooted in the interpretation of physical properties of an environment and its important species
Clark *et al.* (2017)	Family roots, social communication and neighbourhood satisfaction were very important in the residents' place attachment and their staying in the neighbourhood
Wynveen *et al.* (2017)	The measure of people's place attachment was not identical in different environments

Table 1.
Review of literature

participation to protect the social and physical characteristics of their neighbourhood (Anton and Lawrence, 2014).

The conceptual framework is based on the *identity process theory* as formulated by Breakwell (1983, 1986), a well-known theory in studies focussing on identity with respect to the built environment (Speller *et al.*, 2002). In this theory, identity refers to a dynamic, social product of the interaction of the capacities for memory, consciousness and organised construal. Twigger-Ross *et al.* (2003) argued that places are important sources of identity elements, and do not have permanent meaning. From the theoretical point of view, the conceptual boundaries between the relationship of place attachment and place identity is blur and open. Sometimes these concepts are used interchangeably, as if they were synonyms (Brown and Werner, 1985), while Lalli (1992) subsumed place attachment under the concept of place identity. Kyle *et al.* (2005) also considered identity as a concept that includes place attachment. Our point of view in this study is much related to Lalli (1992) who have tried to develop the connection between place attachment and architectural identity assuming that place attachment is related to architectural identity.

The purpose of this study is to investigate the relationship between architectural identity components and attachment in Aghazman neighbourhood of Sanandaj. The study aims to examine the components of the physical identity in the residential architecture of Aghazaman neighbourhood, as well as the relationship between the architectural identity components and neighbourhood attachment. To address the research objective, the components of the physical identity in the residential architecture of Aghazaman neighbourhood were examined. This is followed by examining the relationship between the physical identity components and neighbourhood attachment. Figure 2 depicts the conceptual framework of the study based on the identity process theory.

Materials and methods

The present study is an applied research using a survey method. The population was the adults residing at Aghazaman neighbourhood of Sannadaj in the first half of 2018. In addition to the secondary data obtained from publications, books, and official reports of executive and policy institutions, a questionnaire survey and direct observation were used to collect primary data. According to the latest statistics by Sanandaj municipality, District 2, the number of households in the study neighbourhood was 932 (ISC, 2017), of which a sample of 300 households was randomly selected. The number of residents in the study neighbourhood is 4,270 (ISC, 2017). The study is quantitative in nature and the sampling unit is a household. The data used in this study were therefore gathered using a simple random sampling of adults 18 years old and over in households in the study area.

The validity of the questionnaire was established by five faculty members of the Department of Architecture and Urban Planning. Before starting the main survey fieldwork, five renowned academic lecturers in the area of the study were asked to review the questionnaire to examine how relevant the selected items measured the underlying

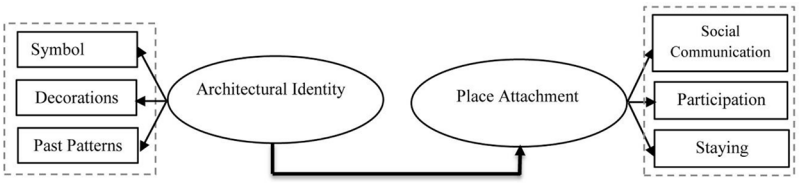


Figure 2.
The conceptual model of the study

variables and to evaluate the overall content validity of the survey instruments. Based on suggestions given by the experts, a few changes regarding the way to develop a few numbers of the statements have been done to make the survey instruments clear to the respondents.

The study area

Aghazeman, as the study area, is one of the most important neighbourhoods of Sanandaj (Figure 3) resided by the minority and located in the historical centre of the city. The neighbourhood is of great important because it is close to the main bazaar. In the past, it was resided by merchants whose financial ability have made the place remarkable and lasting. The historical texture of the city has occupied 1,030,392 square metres and the area under study, 355,555 square metres in size, is the core of the city. Formerly, this neighbourhood was the most populated part of the city. However, because of the expansion and development of the city, the formation of new texture and the deterioration of the central texture, the population of this place decreased to some extent. The texture of this neighbourhood that is full of narrow and curved alleys consists of two parts: the first part is composed of a large number of abandoned nationally-registered historical buildings from Qajar era and the second part, covering about 50% of the area of the city, is the residential area. One of the main problems of this neighbourhood is its low physical and functional quality. This historical texture encountered major problems of physical deterioration and modernisation restricting actions, landscape of historical monuments, organic networking, low economic efficiency, environmental problems and lack of services such as green space, demographic breakdown and migration to newly built neighbourhoods mainly due to its declining trend. The great discrepancy between the functions available in this texture and the typical functions in urban design, physical deterioration, the fear of crime in neighbourhoods and unproportioned activity density, especially at night and day, suggests social damage and decreasing both neighbourhood identity and the sense of place attachment.

Survey instruments

The conceptual framework consists of two main variables, namely, architectural identity and place attachment. As shown in Table 2, the variable of identity components includes symbols, ornaments and old patterns (Bemanian *et al.*, 2011). Bonaiuto *et al.* (2003) stated that neighbourhood attachment, as one of the aspects of place attachment in urban areas, played a significant role in social interactions in these areas. Lewicka (2010) identified the links formed in urban neighbourhoods as the best factors influencing neighbourhood attachment. Anton and Lawrence (2014) also found that residents who voluntarily chose a place to live because of its attractive physical characteristics, were more likely to participate in local communities.

Figure 3.
Historical texture of Sanandaj city (left) and location of Aghazaman neighbourhood in Sanandaj (right)

Variable	Indicator	Explanation	References
Architectural Identity	Symbols	I know historical houses of this neighbourhood well To give an address, historical houses can be used as a sign Ahmadzadeh's house is a symbol and one of the main signs of this neighbourhood	Bemanian *et al.* (2011), Komyli (2016), Mahdizadeh and Tabatabaee (2008)
	Ornaments	I know the architectural decorations of buildings in this neighbourhood I enjoy seeing the decorations on the bodies of historical buildings The historical buildings of this neighbourhood have details that distinguish it from other neighbourhoods	
	Old patterns	I like the use of historical buildings façade features in new buildings The use of historical buildings façade features in new buildings increases the architectural value of this neighbourhood I enjoy seeing the views of historical buildings of this neighbourhood	
Place attachment	Social communication	My friends/family will be upset if I leave Aghazaman neighbourhood If I leave this neighbourhood, I will lose touch with my friends Many of my friends/family prefer Aghazman neighbourhood to the rest of city	Lewicka (2010), Bonaiuto *et al.* (2003)
	Participation	I would like to attend the religious ceremonies of our neighbourhood If the lighting does not work in my neighbourhood, I will follow it up immediately to solve the problem People in this neighbourhood are willing to help their neighbours when needed	Anton and Lawrence (2014), Mesch and Manor (1998)
	Staying in the neighbourhood	It would be very hard for me to leave this neighbourhood If the opportunity arises, I am not willing to leave this neighbourhood. I am happy living in this neighbourhood	Clark *et al.* (2017), Mesch and Manor (1998)

Table 2.
Components of the main variables

Clark *et al.* (2017) identified that place attachment was an important factor in the relocation or stay of residents in their place of residence. Amongst indicators effective in creating neighbourhood attachment, social communication (Bonaiuto *et al.*, 2003; Lewicka, 2010), participation in the neighbourhood (Anton and Lawrence, 2014) and staying in the neighbourhood (Clark *et al.*, 2017) were studied in the present study. As shown in Table 2, apart from providing their demographic information, participants responded to 18 statements that reflect architectural identity and place attachment. A five-point Likert scale was used to measure the study variables.

Statistical analyses

The data were analysed using AMOS 22 to validate architectural identity and place attachment constructs via confirmatory factor analysis (CFA). The CFA procedure allows

the measurement models to be analysed at the latent level (Bollen, 1989). It is appropriate to examine the relationships between a set of observed variables and a set of latent variables. All the variables of interest were measured at the individual level. The first phase of the analysis refers to the establishment of the measurement model for the constructs. This is followed by testing a structural model to examine the hypothesised relationship between architectural identity and place attachment. Architectural identity and place attachment are hypothetically reflected by three dimensions.

After verifying the existence of assumption in structural equation modelling (SEM), at the first stage of the analysis, the study used SEM using CFA approach in the form of measurement models. The final stage of the analysis focusses on structural model analysis using AMOS to examine the relationship between latent variables and their respective indicators, as well as the casual relationship amongst the latent variables.

Results

Descriptive statistics

In the survey conducted on 300 residents, 59% of respondents were men and 63% of them were married. According to the information obtained from the questionnaire survey, 14% of the respondents were illiterate, 31.3% had a diploma, 19% had a bachelor's degree and 8% had a master's degree. Most of the residents of the neighbourhood were self-employed (about 47%), about 17% were employees and 26% of the samples were unemployed. In terms of the characteristics of residents' lives in this neighbourhood, it was found that most sample members (about 38%) had an old house in Aghazaman neighbourhood, 21% of them started living in new houses in the neighbourhood for the first time and 48% of the residents live in new houses, and before that, they have been living in this area, too.

Table 3 indicates descriptive indicators of architectural identity and place attachment components. As it is necessary to meet normality assumptions when analysing data in AMOS, we examined the normality using skewness and kurtosis. Skewness provides information about the symmetry of the distribution, while kurtosis examines the peakedness of the distribution. The accepted value for skewness and kurtosis must be between −1 and +1 (Hair *et al.*, 2011). As shown in Table 3, both indicators are within the aforementioned range, so the univariate normality of the variables is confirmed. To assess the internal consistency of the three components for each construct, Cronbach's alpha coefficient (α) was calculated for each construct. The resulting alpha values were 0.841 and 0.734 for architectural identity and place attachment, respectively.

According to Table 3, the mean of the component "old patterns" is slightly more than that of the other two components, i.e. the symbols and ornaments. The results indicate that the mean of social communication is less than the hypothetical average in the five-point Likert scale, i.e. 3.0. It is the only component, whose the mean value is less than 3.0. In

Table 3. Descriptive statistics of the study variables indicators

Construct	Cronbach's alpha	Variable	Mean	SD	Skewness	Kurtosis
Architectural identity	0.841	Symbols	3.79	0.80	−0.64	0.19
		Ornaments	3.63	0.73	−0.43	0.34
		Old patterns	3.87	0.92	−0.87	0.50
Place attachment	0.734	Social communication	2.98	0.96	0.04	−0.47
		Participation	3.92	0.83	−0.63	−0.10
		Staying in the neighbourhood	3.15	0.81	0.28	−0.09

addition, the mean participation in the neighbourhood is 3.92, representing a high level of participation in the neighbourhood area.

Measurement and structural models

To measure the correspondence of the model with the reality, the SEM is used. This model clearly demonstrates how much the results are consistent with reality. Then, using modelling through structural equations, the effect of each component of the research is studied. The statistical tests included a series of CFA and SEM procedures. Prior to assessing the final model, it was important to test the measurement model for each construct.

According to the model presented in Figure 4, it can be stated that the structural model of the research, including the architectural identity components (as the exogenous variable) and place attachment (as the endogenous variable) is fitted with the collected data. To test the research model, maximum likelihood estimation of SEM is used. Before using this statistical method, firstly, its assumptions must be examined, then the model for measuring the structures is confirmed and, finally, the structural model of research is fitted.

Table 4 indicates the significance of the coefficients between latent constructs (i.e. architectural identity and place attachment) and the respected indicators. As shown in Figure 4, the results indicate that the factor loadings for all items exceed the recommended value of 0.5 as suggested by Cohen (1988), suggesting that all items are good indicators to measure architectural identity and place attachment.

The results from the measurement models suggest that the model fits the data well. Several indices were used to determine whether the model fits the data, such as the relative-normed chi-squared (χ^2/df), chi-squared statistic (χ^2) and goodness-of-fit indices. It is recommended that the relative-normed chi-squared (χ^2/df) be less than or equal to 3. The final structural model resulted in eight degrees of freedom, $\chi^2 = 12.751$, $p = 0.121$, $\chi^2/df = 1.594$. It is suggested that the χ^2 should not be statistically significant if there is a good model fit, as the case of this study.

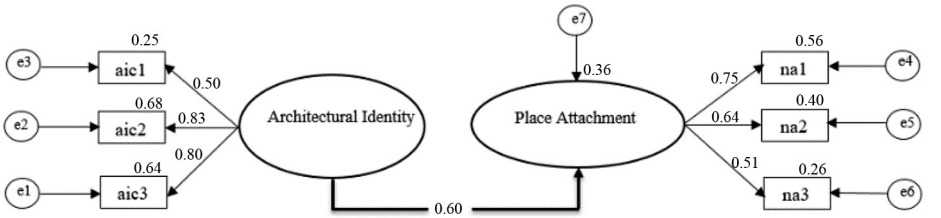


Figure 4.
Results of structural model

Table 4.
The significance of the coefficients between latent structures and respected indicators

Construct	Indicators	Factor loadings (β)	Estimate	SE	CR	p-value
Architectural identity	Symbols	0.501	0.635	0.097	6.568	0.000
	Ornaments	0.826	0.965	0.107	9.013	0.000
	Old patterns	0.800	1.000	–	–	–
Place attachment	Social communication	0.750	1.000	–	–	–
	Participation	0.635	0.609	0.096	6.366	0.000
	Staying in the neighbourhood	0.511	0.377	0.067	5.635	0.000

Note: CR = Composite reliability; SE = standard error

The model fit indicators goodness of fit index = 0.980, adjusted goodness of fit index = 0.948, comparative fit index (CFI) = 0.984, Tucker Lewis index = 0.971 and root mean square error of approximation (RMSEA) = 0.054 also support the fit results from the structural model. As the χ^2 statistic is sensitive to increasing variance due to sample size, the study used a combined cut-off approach as suggested by Hu and Bentler (1999), that determines models with CFI $\geq$ 0.90 and RMSEA $\leq$ 0.08 are to be acceptable, and a minimum discrepancy divided by the degrees of freedom statistic (CMIN/DF) less than 5 is considered adequate. According to these criteria, the study concluded that subsamples the model fit the data well, and the standardised regression weights were all significant. The final model demonstrated a good fit to the data, accounting for 36% of the variance associated with place attachment ($R^2 = 0.36$).

The final structural model is depicted graphically in Figure 4 with the statistically significant standardised path coefficients and factor loadings. The goodness of fit indices used showed that the model fit the data very well. After confirmation of the final model, it is necessary to test the relationships between the structures in the model through the formulation of sub-hypotheses. The results show that the path from architectural identity to place attachment is found to be significant and positive ($\beta = 0.15$, $p < 0.01$). This implies that a greater application of architectural identity is associated with high place attachment amongst the residents.

Discussion

The conceptual model of the present study consists of two main constructs of architectural identity and place attachment. The conceptual framework was formed based on identity process theory and data were collected from a historical neighbourhood in Sanandaj, Iran on a sample of 300 residents. The analyses by SEM demonstrated a significant relationship between the latent constructs and the respected indicators.

Based on the results, the direct relationship between architectural identity and place attachment is significant and positive, that is, 36% of the variance observed in the place attachment is explained by the architectural identity. The results also indicate the importance of using architectural identity components to develop more place attachment. Previous studies categorised the identity components of architecture as physical, cultural and social factors and pointed to the reflection of identity in the physical structure of the place. The results regarding identity components in Aghazaman neighbourhood are in agreement with the previous studies. However, as the extracted elements cannot be generalised to all areas, field studies were conducted here to identify and select elements that are more abundant. Finally, the identity components in the residential architecture of Aghazaman neighbourhood were examined and the application of old patterns followed by ornaments and symbols was discovered to be the most important factor measuring the architectural identity. Furthermore, it was found that architectural identity components can increase social communication, staying in the neighbourhood and participation in the neighbourhood activities.

Therefore, statistical analyses show the effect of architectural identity components in developing place attachment to Aghazaman neighbourhood, which indicates the importance of using identity components in creating neighbourhood attachment in historical contexts. Although none of the previous studies has addressed the relationship between architectural identity components and place attachment, the results of the present study regarding the effect of physical structure on place attachment is in some parts consistent with the results of similar studies such as Mazloumi (2010). Mazloumi (2010) stated that mental perceptions of the physical structure was one of the perceptual

factors affecting the dimensions of sense of place in residential neighbourhoods. Speller *et al.* (2002) confirmed that the identity covered many mental and objective areas of human life, and part of the identity of the urban landscape is associated with the old structure of the city, creating memorable places.

The result is also consistent with the finding of Cheshmehzangi (2015), which stated there was a significant relationship between physical characteristics of the residential neighbourhood of Aghazaman and the behaviour, actions and reactions of its residents. Nasr (2014) found that the sense of place, identity and quality, that lead to the uniqueness of each city, are amongst the features that must be considered in the renovation of urban textures. As a reason for this claim, he pointed out to some outcomes of place identification such as place identity, place attachment and place memory. In addition, the current study is consistent with Nasr (2014) with respect to direct relationship between place identity and increased place attachment.

Conclusions

The architectural identity construct is an aspect related to the identity concerning external conditions. Based on social cognition, the architectural identity components are composed of the meanings of personal and social events in people's daily lives. Therefore, they provide efficient cognitive-emotional connections with events. The place and its role in the formation of identity is important because it is a part of the real world where people live and is represented according to the physical, emotional and behavioural features attributed to it. Similarly, the attitudes, emotions and beliefs established about places affect the image people have about that place in their minds. Accordingly, emotional connections between people and places contribute to people's understanding and interpretations. Moreover, the cognitive perception and representation of a place can affect the bonds between people and the place where they live.

Place attachment and place identity as two types of bonds with place have attracted the attention of urban planners and environmental psychologists. The former is generally defined as an emotional bond between the individual and his/her place of residence. By establishing an emotional bond with the place, people feel comfortable and secure and tend to stay in the same place for a long time, as a result, a stable neighbourhood can be developed (Abdullah *et al.*, 2013).

Three elements of mass, function and mind give meaning to the space and create a sense of attachment. Given the important role of identity component in creating place attachment in the present study, place attachment in traditional neighbourhoods involves focussing on residential housing and studying the physical identity of neighbourhoods with an emphasis on identity components. Furthermore, the architectural identity components and place attachment are strongly correlated ($\beta = 0.60$). The variance of the main endogenous variable of the model, i.e. place attachment explained through the architectural identity construct is 0.36. It means that 36% of the variance of the main dependent variable is explained by architectural identity and 64% of its variance is related to variables outside the model. In general, the results on fitness indices show that the final model of the research fits the data.

In sum, the use of architectural identity components (i.e. symbols, ornaments and old patterns) to create place attachment can help planners and practitioners of urban neighbourhoods to make appropriate decisions. In line with the objectives of the present study, individual and group attachments to the place, provision of place for people with different levels of education, people's experiences of the place and the use of identity components are amongst issues that are suggested to be addressed. Future research in this

field can explore the patterns of housing design based on architectural identity components to promote the place attachment. In addition to the length of residency, one possible recommendation for future investigation would involve neighbourhood characteristics, suggesting that further research would benefit from a comprehensive study taking into consideration residential stability, collective efficacy and physical features.

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