

# The Role of House Outdoor Environment Features in Creating Home Attachment

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Received: 26 July 2017- Accepted: 20 February 2020

## Abstract

Home attachment is a positive emotional bond between home and its dwellers which may result in safety, solace and tranquility for them. To create this kind of relationship, some physical and social prerequisites need to exist inside home. This article aims to answer the question whether house outdoor environment features are also effective in developing home attachment or not. Aiming to answer the question, it tries to survey features effective in creating home attachment in order to discover those related to house outdoor environment. It employs causal process method in which a logical causal link is made between linkable concepts in the research area. This causal relationship is discoursed by referring to related literature. Therefore, some outdoor prerequisites for home attachment can be revealed after going through some causal steps. This research has identified "residential satisfaction" as a preliminary step for creating home attachment. After establishing this causal relationship, efforts are made to discover some outdoor features effective in residential satisfaction by survey on literature of this area and coding proper concepts through content analysis. Based on this article findings, some outdoor features effective in developing residential satisfaction and also home attachment are: "exterior view of the house and neighboring buildings", "neighboring satisfaction", and "quality and good reputation of neighborhood". Lack of these features will result in decreasing residential satisfaction leading to a decrease in home attachment. Concentrating on these factors and presenting physical and social solutions to improve them can result in creating homes that may ease dwellers attachment.

**Keywords:** Home Attachment, House Outdoor Environment Features, Residential Satisfaction, Causal Process

## 1. Introduction

People and their surrounding environment usually influence each other so that there are types of mutual interaction between them. These interactions sometimes lead to emotional relationships, positive or negative, between people and places. Positive emotional relationships may result in place attachment, which helps dwellers to perceive place as a mental haven. Therefore, they are more likely to feel safe and confident there (Cooper Marcus, 2006, Tsai, 2012). Moreover, by creating this kind of relationship, place becomes important for dwellers, and this motivates them to conserve and protect it. However, creating this kind of relationship seems more important in some places such as homes due to their reposing function where place attachment acts as a preface for ensconcing and perceiving comfort. Nevertheless, in most recently built houses, positive emotional relationship is seldom created so that they usually function as places for just sleeping and satisfying primary physical needs. In these houses, people are reluctant to their homes and feel they do not belong to it. Therefore, tranquility seems something unattainable in such homes.

Aiming to find solutions to help make this kind of relationship between people and their homes, this article seeks outdoor features that are effective in creating home attachment. It is comprehensible that "home interiors" or what happens inside home, plays a role in developing this bond. But the role of "house outdoor environment features" is obscure to some extents. Therefore this article

tries to find weather any outdoor environment features of the house can be effective in creating home attachment or not.

To answer this question, this article analyzes the contents of related documents to extract some concepts and tries to relate these concepts in a logical way in order to achieve some findings. It introduces residential satisfaction as a prerequisite for home attachment and discourses this relation referring to some related literature and analyzing their content. Then it tries to find some house outdoor features effective in developing residential satisfaction and consequently, home attachment. Findings of this article can act as a basis for architects and designers to find some solutions to improve home attachment through designing residential environments.

## 2. Literature Review

As an eminent approach to evaluating the relationship between people and places, place attachment has attracted many scholars in recent years and is most considered by architecture and design, human geography and environmental psychology (Iewicka, 2011). Various theoreticians have tried to define this sophisticated and multi-faceted concept (table 1) concentrating on place inward and emotional effect on people as the essence of the concept of place attachment. Phenomenologists' theories in this field has a process-based approach (Cross, 2015) such as Seamon's point of view which supposes place attachment a sophisticated, multi foundational and dynamic experience based on place complex processes

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(Seamon, 2014). Law and Altman indicate that in early 1990, studies focused on the existence of this phenomenon as well as identifying its meanings and goals. Later, this phenomenon was investigated more deeply, and scholars employed it as a basis for functional

researches in place design. According to changes accompanied by modern life and the need to adjust to new living places, place attachment has gained much scientific attention in recent years.

Table 1  
Definitions of place attachment in existing literature

	<b>Definition of place attachment</b>
<b>Tuan, 1974</b>	<ul style="list-style-type: none"> <li>• Topophilia, feeling in love with place</li> </ul>
<b>Relph, 1976</b>	<ul style="list-style-type: none"> <li>• Rootedness in place</li> <li>• emotional correlation with the environment which satisfies human's substantial needs</li> </ul>
<b>Sumaker &amp; Taylor, 1983</b>	<ul style="list-style-type: none"> <li>• Positive emotional dependence between people and place</li> </ul>
<b>Proshansky et al., 1983; Tuan, 1991</b>	<ul style="list-style-type: none"> <li>• A kind of correlation between a person or a group of persons and the environment</li> </ul>
<b>Altman, Low, 1992</b>	<ul style="list-style-type: none"> <li>• Cognitive emotional correlation with places</li> <li>• The effective gravity force between people and place</li> <li>• A symbolic relationship between people and place created by dwellers' granting common cultural meanings to a special place. It is the basis of people's perception of a place and the way they are related.</li> </ul>
<b>Rubinstein &amp; Parmelee, 1992</b>	<ul style="list-style-type: none"> <li>• A positive experience of the place</li> <li>• The process of converting space to place</li> </ul>
<b>Ahrentzen, 1992</b>	<ul style="list-style-type: none"> <li>• The relation between place and people as well as their social knowledge and beliefs</li> </ul>
<b>Fullilove, 1996</b>	<ul style="list-style-type: none"> <li>• Emotional, cognitive and behavioral correlation between people and place, which results in safety and satisfaction</li> </ul>
<b>Milligan, 1998</b>	<ul style="list-style-type: none"> <li>• The result of positive beliefs and feelings developed while people interact with places and give meaning to them</li> </ul>
<b>Bonaiuto et al., 1999</b>	<ul style="list-style-type: none"> <li>• People functional and emotional relationship with special places</li> <li>• establishing emotional relationships between people and a special place which results in becoming people as a part of the place</li> </ul>
<b>Stedman, 2003</b>	<ul style="list-style-type: none"> <li>• A dimension of sense of place</li> <li>• Positive emotional dependence developed between people and places</li> <li>• Indicative of people feelings to a geographical situation which emotionally links them to place</li> </ul>
<b>Brown &amp; perkins, 2003</b>	<ul style="list-style-type: none"> <li>• Feeling proud and happy of being in a place</li> </ul>
<b>Kim &amp; Kaplan, 2004</b>	<ul style="list-style-type: none"> <li>• Feeling correlated with place</li> </ul>
<b>Kyle et al., 2005</b>	<ul style="list-style-type: none"> <li>• The process in which people develop their connection to others and to place</li> </ul>

In short, place attachment is a complicated process that is dramatically influenced by social factors; it develops over time and gets formed (Sattarzadeh, 2018). Attention to place can be mentioned as a Profitable result of place attachment. It means that when someone is attached to a place, he/she pays more attention to it (Mesh & Manor, 1998). Some benefits of place attachment indicated in various studies are: improving people's physical and mental health, people's association enhancement, promoting social contributions activities, people's collaboration in common activities related to place, personal growth, safety, convenience and freedom (Scanell & Gifford, 2017) also increasing community resilience to disasters as well as reducing crime in neighborhood (Brown & Werner, 1985, P:33).

Attachment may serve to promote social interactions, sense of familiarity and safety in places we interact in our daily lives (Brown et al., 2003).

Overall, various researchers have studied meaning of place attachment and have enumerated physical and human components for it. Effective factors in creating home attachment are mostly classified in two physical and social categories (Alalhesabi et al., 2012). Definitely people are attached to both physical and social aspects of place and these two components of attachment are perceived parallel (Kamalipour et al., 2012). Studies such as kamalipour's one on Ekbatan's residents emphasizes on the role of physical factors in creating home attachment. But most of researches have focused on social aspects of the phenomenon. Lewika (2011) reviewing

hundreds of papers in the field of place attachment published in recent 40 years, declares that among three components of "person", "place" and "process"<sup>1</sup>, matter of "person" has gained much more attention in various studies and this has prevented developing and extending the theory of place attachment. She proposes doing more theoretical studies to fill gaps in the two dimensions of "place" and "process".

This article employs an architectural approach focuses on the "place" dimension in the subject of "home attachment". Despite comprehensive literature available in the field of place attachment and in spite of the importance of this emotional relationship in promoting the quality of human life, home attachment and solutions to creating or promoting it have not been investigated deeply. Studies have demonstrated the effect of home attachment on improving the quality of life (Casakin & Reizer, 2017). Many scholars have indicated that place attachment is an essential index for human well-being in residential environments. In addition, absence of this positive bond results in increasing the level of stress in dwellers and reducing their well-being (Stokols & Shumaker, 1981). Therefore, recognizing effective factors in creating or improving this emotional bond needs substantial attention.

As we know, a place could not be separated from its context. Therefore this article is to investigate those effective factors on home attachment that are related to house outdoor environment features. It is obvious that recognizing all outdoor features effective on home attachment is not possible in this article. This article investigates parts of them by analyzing the contents of some related studies and employing causal process in order to create a model of home attachment. Employing this method in future researches referring to more related references can lead to the creation of a more comprehensive model of home attachment<sup>2</sup>.

### 3. Research Methodology

This article aims to investigate house outdoor environment features that are effective on developing home attachment. It employs causal process method in which concepts and statements are linked in a logical way. This process can finally lead to creating theories<sup>3</sup>.

Causal process is defined as a set of certain or probable causal statements describing causal mechanisms which determine the effect of some independent variables on

some dependent ones. In this process, as a useful one in constructing various theories<sup>4</sup>, causal statements contributed from relevant concepts are linked in a logical way. Therefore, it is possible to lighten vague mechanisms in different areas of knowledge using this method<sup>5</sup>.

In this article, finding proper concepts and making logical links between them has become possible by content analysis of related documents which leads to extracting some proper codes that can be gathered under some main themes or concepts. The logical link between concepts is discoursed by referring to related documents and surveying them logically. Hence, this article employs causal process accompanied by content analysis in order to identify some outdoor effective factors on creating home attachment. Therefore, in the following sections, parts of this process will be constructed and linked in order to form a causal process model of home attachment.

### 4. Research Body

In order to identify house outdoor environment features that are effective on home attachment, this article goes through the causal process by passing some steps. In the following sections, steps of this process are constructed and linked in order to form a causal process model of home attachment which can lighten proposed features in residential environments.

#### 4.1 step 1: Residential satisfaction as a prerequisite for home attachment (a causal link)

As previously demonstrated in the literature review, various researchers have studied the concept of place attachment. Meanwhile, some have developed conceptual models to evaluate this phenomenon. One of the most famous theorists in this field is Daniel R. Williams, social sciences researcher in the Rocky Mountain Institute, whose proposed model has been used by many researchers up to now (Anton & Lawrence, 2014). After investigating 61 issues effective in place attachment, he and his colleagues proposed a two-dimensional model, which indicates place identity and place dependence as the components of place attachment (Williams et al., 1992). In their opinion, place attachment has two basic components: the aim-based one (functional), which refers to place dependence and the symbolic one (emotional), which implies place identity (Figure. 1). They have evaluated and validated this model by employing it in various projects. Further studies have also confirmed this two-dimensional model to evaluate place attachment (i.e. Wynveen et al., 2017). Anton and Lawrence (2014) in their study on place attachment in urban and rural districts in western-south Australia have confirmed these two

<sup>1</sup> See Scannel and Gifford (2010) model which identifies three components for place attachment: person, place and process.

<sup>2</sup> These processes have been done in the author's doctoral assertion and a comprehensive model of effective factors in developing home attachment has been created. This research is explaining one of these processes which focuses on residential satisfaction.

<sup>3</sup> In every branches of science, developing knowledge can be possible through making new theories. Each new theory is expected to create a new vision. Presenting an Exquisite target to the phenomenon instead of repeating previous visions is the ultimate goal of theory construction. This vision gives us recognition to describe, identify and control the events. It can be said that theory is a way of seeing the world.

<sup>4</sup> Human's tendency to control events happening in the world motivates him/her to recognize their mechanism. Constructing theories is a response to this motivation, which is formed in each of these three ways: set of laws, axiomatic ones and causal process theories.

<sup>5</sup> To study more about theory construction and causal process see: Davidson Reynolds, 1971

factors as subsets of place attachment as well as identifying ownership, length of residence and sense of satisfaction as effective factors in creating them. In addition, Kyle and his colleagues, being influenced by William's notion, tried to survey the phenomenon of place attachment. They supplemented the two-dimensional model proposed by Williams indicating social bonds as a new component (kyle et al., 2005) (Figure. 2). Based on Kyle's model, Ghazizadeh (2011), an Iranian architect and researcher, proposed a conceptual framework for evaluating place attachment. She has achieved effective factors in place identity, place dependence and social bonds by investigating various related documents. Her proposed framework has developed and advanced prior ones. Ghazizade's model is presented in Figure 3.

As it is obvious, place dependence has been considered a component of place attachment in all of these frameworks. Place dependence (a functional attachment) reflects the importance of a place in providing features and conditions that support specific goals or desired activities (Stokols & Sumaker 1981, Williams & Roggenbuck 1989). This functional attachment is embodied in the area's physical characteristics (Williams & Vask, 2003, p.831). Such attachments may form with any place supporting highly valued goals or activities (ibids). Place attachment researches recognizes place dependence as how well a place's resources help visitors in

fulfilling desired goals compared to other alternatives (Rastbod & Aflatounian, 2017). Place dependence has been assessed with the following statements in related studies.

- Being here satisfies me more than being in any other place.
- What I do here is more important than what I do in any other place.
- No other place can be a suitable alternative for the activities I do here.
- What I do here is more enjoyable than what I do in any other place.
- I enjoy using this place more than any other place.
- I prefer nowhere to this place for doing activities similar to what I do here.

As seen in Figure. 4, satisfaction is the most important factor to evaluate place dependence in most studies. Ownership and length of residence are also other responsible factors for place dependence. However, most researches confirm the effective role of place satisfaction in providing place dependence. Stokols and Shumaker (1982), define place dependence as that part of the concept of attachment related to providing people's satisfaction and meeting their needs.

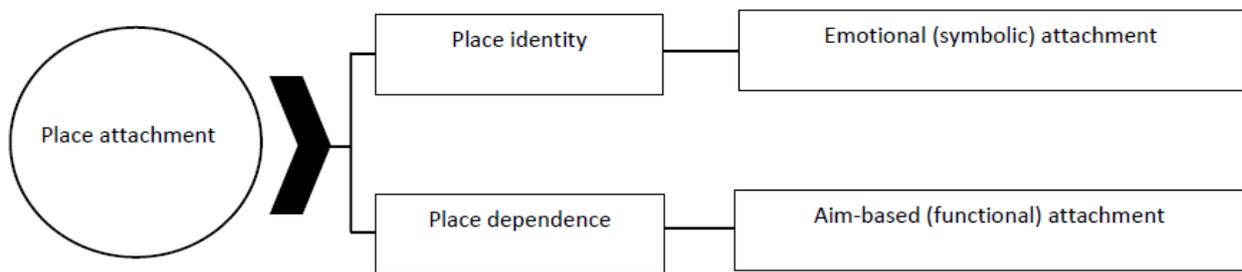


Fig. 1. Williams's model of place attachment (Source: williams et al., 1992)

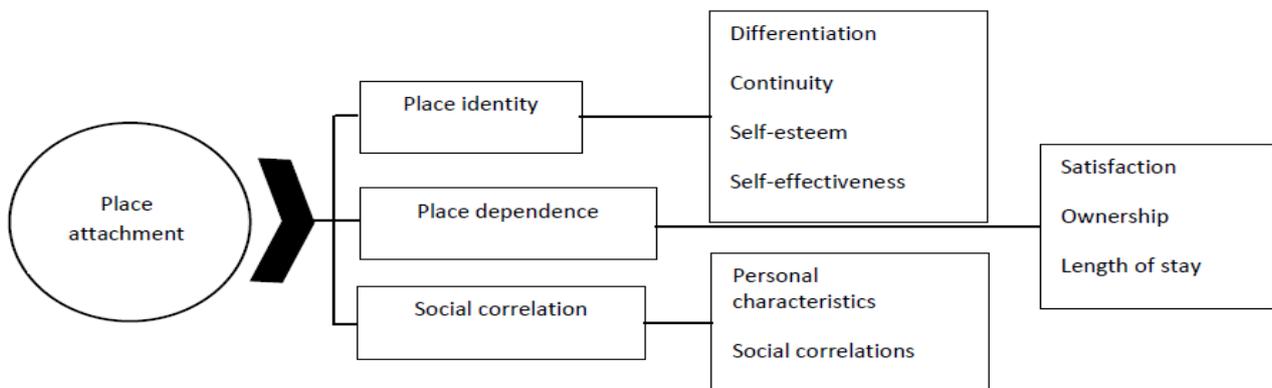


Fig. 2. Kyle's model of place attachment (Source: Kyle et al., 2005)

On the other hand, various researches have emphasized the mediating role of place satisfaction in the formation of place attachment. In most theories, attachment is often

(but not necessarily always) made after people are satisfied with places. Table 2, which is produced through analyzing related documentaries' contents, is presenting

theorists' opinions about relationship between place satisfaction and place attachment, especially in residential environments. In some studies, there is no difference between these two concepts and they are used interchangeably. Other scholars have considered place satisfaction a component or predictor of place attachment (Brocato 2006; Halpenny, 2006). Others have mentioned

some differences between these two, but what almost all studies confirm is the relationship between these two phenomena and the necessity to provide place satisfaction as a prerequisite for place attachment. This relationship has been emphasized more in residential environments (see table 2).

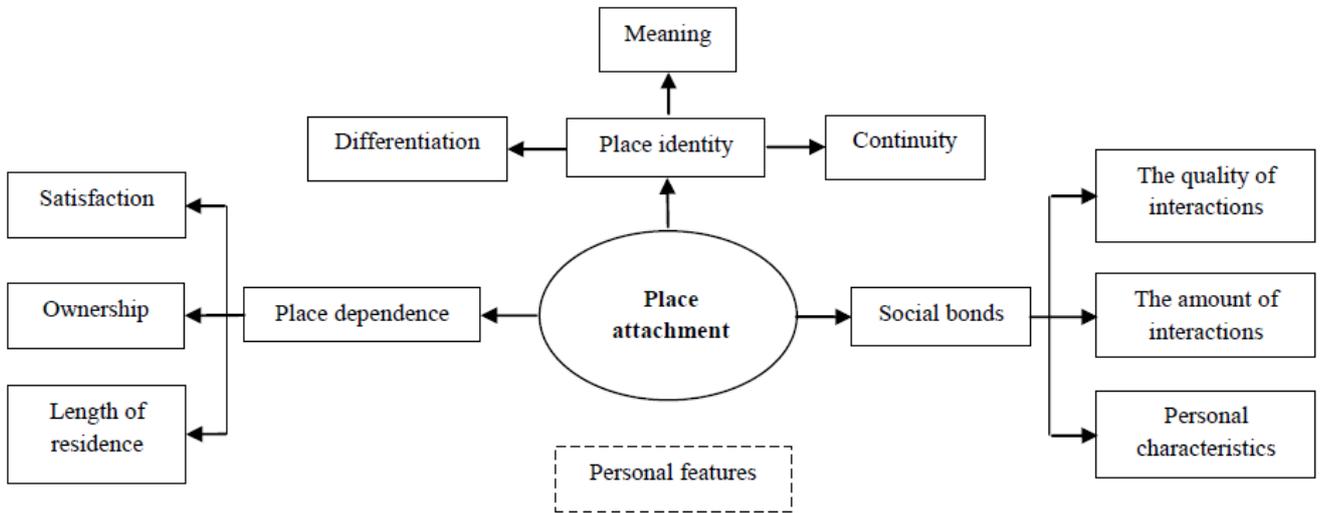


Fig. 3. Ghazizadeh's model to evaluate place attachment (Source: Ghazizadeh, 2011)

Place dependence				
Anton & Lawrence, 2014	Ghazizadeh, 2011	(Kyle et al., 2005)	(Williams and Vaske, 2003)	(Kim and Kaplan, 2004)
Sense of satisfaction	Sense of satisfaction	Sense of satisfaction	Sense of satisfaction	Sense of satisfaction
Ownership	Ownership	Ownership	Place priority	Sense of ownership
Length of residence	Length of residence	Length of residence		Sense of cohesion
				Long term residence

Fig. 4. Place dependence components in existing literature

Considering the relationship between place satisfaction and place dependence as well as the role of place dependence as a component of place attachment in most researches and regarding the effective role of place satisfaction in the formation of place attachment, especially in residential environments, this article identifies residential satisfaction as a prerequisite for home attachment. Recognizing this relationship can result in constructing the first part of the intended causal process of home attachment (Figure. 5). Based on this diagram, it can be declared that the level of residential satisfaction is an important measure to evaluate the level of home attachment. In other words, if someone is satisfied with his/her home, it is more probable that he/she becomes

attached to it. On the contrary, lack of residential satisfaction leads to reduction in home attachment. As mentioned earlier, it should be considered that residential satisfaction is not the only essential prerequisite for home attachment. However, this article tries to find those home attachment preliminaries that are related to satisfaction. Recognizing other prerequisites for home attachment related to place identity and social correlations is not the subject of this article and needs to be investigated in other researches. Therefore, some outdoor factors effective in residential satisfaction are being recognized in the following. Due to the causal process established, these factors can also be considered the preliminaries of home attachment.

Table 2  
the relation between place satisfaction and place attachment in various documents

<b>Theory</b>	
<b>Casakin &amp; Reizor, 2017</b>	Indirect effect of residential satisfaction on life satisfaction due to mediating role of place attachment
<b>Khozaei et al., 2012</b>	The mediating role of housing satisfaction in creating sense of attachment
<b>Hashas, 2004</b>	The necessity of recognizing the level of residential satisfaction in order to understand home attachment
<b>Bonaiuto et al., 1999</b>	Residential satisfaction as a prerequisite for home attachment
<b>Brocato, 2006; Halpenny, 2006</b>	Place satisfaction as a component or predictor of place attachment
<b>Amerigo &amp; Aragones, 1990</b>	The straight relation between people's evaluation of residential satisfaction and their evaluation of neighborhood attachment
<b>Spear, 1974</b>	Less tendency to residential mobility consequent to higher residential satisfaction High tendency to residential mobility consequent to lower residential satisfaction Sense of satisfaction as the most important cause to stay at home



Fig. 5. the causal link between residential satisfaction and home attachment

#### 4.2. Step 2: Identifying some outdoor effective factors on providing residential satisfaction

##### 4.2.1. What is residential satisfaction?

Residential satisfaction is considered an attitude to the environment and can be created after the formation of some interactions between environment physical characteristics and human's cultural symbols and subjective abilities. Therefore, it is a psychological approach to the "quality of place" in which personal characteristics and environmental features are considered as effective factors. According to the theory of place in environmental psychology<sup>6</sup>, residential satisfaction is the experience of enjoyment or pleasure of living in a certain place. Weidman and Anderson (1985) declare that satisfaction is dwellers' emotional response to their residence, their positive or negative feelings for it. This phenomenon can be known as the dynamic process of interaction between inhabitants and physical and social components of the environment (Galster, 1987).

Everyone has a specific standard for residential environment quality that compares his/her real environment with it. As the distance between these two (the real environment and one's standards) decreases, residential satisfaction increases. Therefore, satisfaction is known as the distance between one's properties and preferences (Marans & Rodgers, 1974; Morrissy &

Handal, 1981; Canter & Rees, 1982; Bardo & Hughey, 1984). As a result, measuring the distance between one's perceived residential environment and his/her ideal one can be a method for evaluating the sense of satisfaction. Logically, when this distance is small, one is more satisfied than when it is not. Satisfaction is being evaluated with such questions in available literature:

- How much are you satisfied with living in this place?
- Do you suggest this place to your friends?
- What score do you give this neighborhood (home) as a place to live?

Satisfaction depends on the degree that human's needs and preferences are fulfilled in a special place. When these needs are more satisfied, developing an emotional bond with place is more probable (Fisher et al, 1977). In society sociology, satisfaction is the functional value (of a place) to meet certain needs. When an object is matched with one's needs and preferences and satisfaction is achieved, gradually attachment to it can be emerged. Consequently, one may feel safe and convenient and would be motivated to preserve and protect the object (Hashas, 2004).

<sup>6</sup> Canter theory (1977)

4.2.2. *What are the effective outdoor factors on developing residential satisfaction?*

Residential satisfaction is a multi-dimensional structure centralizing on different aspects of a place (Francescato et al., 1989). Bonaiuto and his colleagues (2003) developed an instrument consisting of 11 scales measuring perceived residential environment quality (PREQ). PREQ scales are included in the four generative criteria as follows: three scales deal with spatial aspects (i.e. architectural-planning space, organization and accessibility of space, green space), one concerns human aspects (i.e. people and social relations). Four scales relate functional aspects (i.e. welfare, Recreational, Commercial, Transport services) and three scales concern contextual aspects (i.e. peace of life, environmental health, upkeep and care). According to Bonaiuto and his colleagues, all four categories of residence characteristics are effective in residential satisfaction. Among features related to architecture and urban planning space, buildings aesthetics are positively and buildings density and volume are negatively related to residential satisfaction. Among these two, buildings aesthetics is a more important factor in creating residential satisfaction (Bonaiuto et al., 1999).

Moreover, in 1999, Aragonez tried to evaluate sense of satisfaction in public housing of Madrid, Spain. The results of his research indicated that satisfaction and good relation with other neighbors have great influence in residential satisfaction. In providing residential satisfaction, psycho-social aspects such as relationships with neighbors are more important than physical features such as infrastructure and equipment of the house (Amerigo & Aragonez, 1997, 1990). However, there are some debates in this area. Various scholars have studied the influence of privacy as well as social interactions in residential satisfaction and have presented various outcomes. Francescato et al (1989) declared that privacy is an eminent essential factor to provide residential satisfaction for high-rise dwellers, but in Spear's opinion (1974), residential satisfaction is improved by increasing number of friends and families living in the neighborhood.

Fried's notion seems to be more comprehensive in this field. He declares that neighborhood and community features are the most important factors influencing residential satisfaction. He also emphasizes that variables referring to home and those referring to neighborhood both influence residential satisfaction. However, those related to neighborhood are more effective. His study shows that residential satisfaction and attachment are more influenced by physical features of the environment than social relationships made there. In his opinion, "choice right" is the determinative key in the issue of the relation between social interactions and satisfaction. It means that people should have the right to choose whether to make social relationship with neighbors or to keep their privacy, and the environment should help to satisfy this right. This is the important factor that causes residential satisfaction and attachment. Social relationships with neighbors can act as a cause of residential satisfaction for those who value these interactions, and are not satisfying for others. Therefore, residential satisfaction largely depends on how social relationships are matched with one's preferences in order to provide privacy and social distance or form close interactions due to people's preferences.

As previously indicated, this article focuses on outdoor features which are effective on home attachment and satisfaction. Some codes extracted from opinions that are related to this area are presented in table 3. Some of these codes can be categorized under a main concept which is shown in the table. The concept of "exterior view of buildings" can cover concepts related to buildings form and facade. Additionally, codes extracted from documents about relationship with neighbors are categorized under the main concept "neighboring satisfaction". Considering people different preferences in choosing privacy or social interactions with neighbors, this satisfaction may have different sources for everyone with regard to his/her preference. Therefore, the general theme "neighboring satisfaction" can contain all these variations and cover them. Features related to neighborhood characteristics containing its physical and social aspects have been categorized under the axial theme "neighborhood quality and reputation".

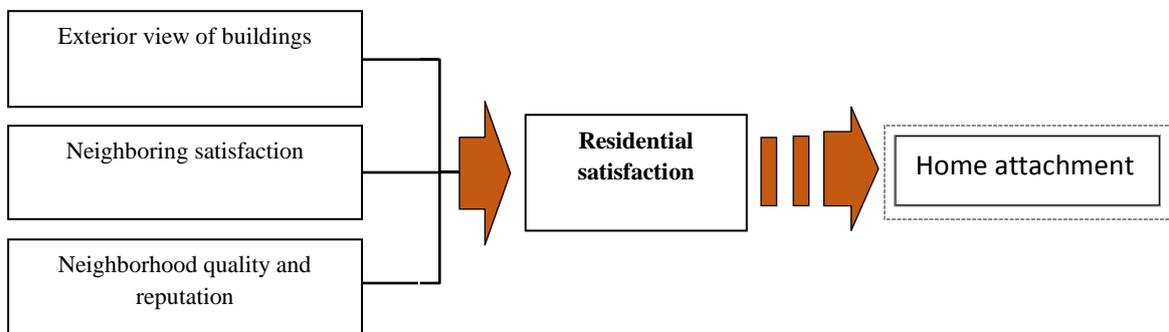


Fig. 6. The causal process indicating house outdoor environment features effective on home attachment

Table 3

Codes extracted through content analysis of available documents in the field of residential satisfaction

	Investigated Codes	Main concepts
<b>Bonaiuto et al., 1999</b>	Buildings aesthetics	exterior view of buildings
	Buildings density	
	Buildings volumes	
<b>Aragonez et al., 2002</b>	Positive relationships with neighbors	Neighboring satisfaction
<b>Amerigo &amp; Aragonez, 1997,1990</b>	Social relations with neighbors	
<b>Fried, 1982</b>	The “choice right” to keep privacy and social distance or make close relationships with neighbors	Home ownership
<b>Francescato et al., 1989</b>	Providing privacy in relationships with neighbors	
<b>Spear, 1974</b>	Social interactions with neighbors	
<b>Bonaiuto et al., 1999</b>	Contextual features of neighborhood	Quality and good reputation of
<b>Fried, 1982</b>	Neighborhood and community features	
<b>Amerigo &amp; Aragonez, 1997,1990</b>	Physical and social aspects of the neighborhood	
<b>Spear, 1974</b>	Home owners tendency to be satisfied with their residence more than tenants	Home ownership
	Pride of home ownership	
	High costs of mobility from a private home	

*Step 3: Identifying some home attachment prerequisites employing causal process:*

As mentioned earlier, this article focuses on residential satisfaction as a prerequisite for home attachment. It means that home attachment is not created unless residential satisfaction is provided. Satisfaction along with other essential prerequisites for home attachment can create this emotional bond. Referring to previous discussions in this article, three concepts which are related to house outdoor environment are proved to influence residential satisfaction: "exterior view of buildings", "neighboring satisfaction" as well as "neighborhood quality and reputation". Based on former logical arguments about relation between satisfaction and attachment, these concepts can be considered in a causal process as the outdoor prerequisites of home attachment. This process is shown in Figure. 6. Due to this process, it can be argued that providing the following conditions in house outdoor environments can be effective in creating home attachment:

- If exterior view of house and neighboring buildings gives aesthetic pleasure to viewers instead of an unpleasant view of dense, congested and massive buildings outside.
- If residents are satisfied with their neighbors. It means that they have the authority to make interactions with them or keep their privacy depending on their preference.
- If the house is situated in a high quality neighborhood with a good reputation.

Providing all three mentioned outdoor conditions can facilitate residential satisfaction and, consequently, home attachment to be made. On the other hand, lack of each of

these conditions may result in dissatisfaction and deprivation of home attachment. Creating attachment to a house with an unpleasant external appearance or a house situated in a low quality or notorious neighborhood or where residents are not satisfied with neighbors seems unlikely.

**5. Conclusion**

Findings of this article define three outdoor factors explored through a causal process as prerequisites of home attachment. These three factors are influenced by physical characteristics of the environment. Therefore, this recognition provides a basis for more applied researches in order to reach design solutions to improve attachment in residential environments. Consequently, the results of this research are presented in the form of three achievements:

- 1: Exterior view of buildings: The quality of what is presented in an outside view of the house and neighboring buildings is effective in developing home attachment. An unpleasant, worn-out and ruin external appearance, which associates abandoned buildings or many other factors which decrease the pleasure of exterior view of buildings, may lead to decreasing home attachment; but how should this appearance be to facilitate making this emotional bond? Answering this question needs comprehensive researches which exceed the concerns of this article. These researches can result in principles and solutions to design external appearances of buildings so that home attachment will be improved.
- 2: Satisfaction with neighbors: The “choice right” for residents to form social interactions with neighbors or keep their privacy is of great importance in home

attachment. This matter is influenced by physical characteristics as well as social features of the environment. Presenting physical solutions to improve neighborhood satisfaction is the duty of designers and design researchers which may result in creating home attachment. Caring about families' territories, providing privacy and such issues in residential design are some physical issues that may influence residential satisfaction. Recognizing these subjects needs comprehensive researches that may result in creating principles and solutions to satisfy these concerns in order to increase residential satisfaction and, consequently, home attachment.

3: Neighborhood quality and reputation: Neighborhood characteristics can highly influence home attachment. Usually neighborhood qualities and reputation are more important in choosing a house, satisfaction with it and attachment to it than features of the house itself. Caring about people's territories in design, avoiding the creation of anonymous common places, inaccessible or uncontrollable or, in other words, indefensible places are all solutions to create secure and reputed neighborhoods, which should be considered in design<sup>7</sup>. Presenting reasonable solutions in this regard needs deep studies in the field, which is the duty of future researches. These researches can result in presenting principles and solutions to design residential environments in order to improve home attachment.

Considering the above-mentioned findings, the accomplishment of this research is recognition of some important outdoor issues effective in developing home attachment. Therefore, it can be a basis for some applied researches in order to achieve principles and solutions to design residential environments so that home attachment could be improved. Finally, it should be considered that providing these factors does not ensure home attachment. Various other factors play role in this relationship, which need deep researches to be carried out. Recognizing other prerequisites for home attachment can result in creating a more comprehensive model of factors effective in this field. However, findings of this research show parts of essential outdoor prerequisites lack of which may lead to deprivation of home attachment. If designers are willing to create houses that make dwellers attached, they should consider these outdoor issues besides indoor ones and try to find physical solutions in order to satisfy them. Consequently, achievements of this research are the necessity to consider these factors in contemporary houses and make efforts to find physical and social solutions to satisfy them. Parts of these efforts are the duty of architects, urban planners and design researchers to present solutions to enrich these concepts. Then, they can create houses, which facilitate making attachment between dwellers and themselves.

<sup>7</sup> To study more in this field, see: Newman, 1972

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