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Place attachment and place identity in Israeli cities: The influence of city size

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ABSTRACT

A major limitation of most urban and environmental studies dealing with place attachment and place identity is that they are mostly restricted to neighborhood. There is a general assumption that neighborhood is the fundamental category of analysis to study attachment and identity. However, except for a few studies focusing on environments such as dwellings, other spatial scales still need to be explored. This gap exists despite the fact that the intensity of attachment and identity bonds established with place are supposedly affected by the size of the environment. In order to explore differences in the relation between the two bonds and the size of the environment, we carried out a study in neighborhoods and cities. We further investigated possible differences in place attachment and place identity between residents who were born in the city and residents originally from other cities. The sample involved 208 participants (54.8% natives and 45.2% from other cities). Results showed a higher level of attachment and identity to city than to neighborhood. Place attachment was higher in large and small-sized cities than in medium-sized. Place identity, on the other hand, was greater in large rather than in small and medium-sized cities. In addition, a positive correlation was found between the two bonds and the length of residence in the city. However, having been born in the city or not did not affect the intensity of bonds with place. Implications for urban planning are suggested.

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Introduction

Philosophers, psychologists, sociologists, human geographers, as well as urban planners and urban designers have often argued that reality is not as objective as its definition makes it out to be, mainly because its very existence depends on the perceiver. And this of course is unique to each individual. Individuals, however, do not have direct access to the reality that surrounds them because such reality is affected by their interpretation, construction, and perception of it (Berger & Luckmann, 1976). Influenced by beliefs, emotions, attitudes, and previous experiences, the perception process leads to a circular relation where perception influences the construction of reality. In turn, the mental representation of situations affects how reality is perceived.

Places are part of the reality in which people live and as such are represented according to the physical, emotional, and behavioral characteristics attributed to them (Generaux, Ward, & Russell, 1995). Likewise, the attitudes, emotions, and beliefs established with places also influence the internal image that people have of them (Werner, Brown, & Altman, 2002). Accordingly, the emotional bonds that people establish with place play an important role in the way it is perceived and interpreted (Félonneau, 2004; Scannell & Gifford, 2010). But, at the same time, the perception and cognitive representation of a place can also affect the bonds established between an individual and that place (Brown, Perkins, & Brown, 2003; Rollero & De Piccoli, 2010). The two bonds developed with place that have received most attention from urban planners and environmental psychologists are place attachment (Altman & Low, 1992; Giuliani, 2003; Hummon, 1992; Lewicka, 2005; Shamsuddin & Ujang, 2006; Zenker & Rutter, 2014) and place identity (Lalli, 1992; Oktay, 2002; Proshansky, 1978; Proshansky, Fabian, & Karminoff, 1983; Soltani, Zangiabadi, & Nastaran, 2013). Place attachment is generally defined as an emotional tie that individuals develop towards their places of residence (Bonaiuto et al., 1999; Brown et al., 2003; Giuliani, 2003; Manzo, 2003), with which they generally maintain close relations (Hidalgo & Hernández, 2001). Place attachment is seen as a positive affective bond between people and their place of residence (Shumaker & Taylor, 1983). While establishing affective bonds with place, people feel comfortable and safe and tend to remain in that place for a long time (Hernández, Hidalgo,

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Salazar-Laplace, & Hess, 2007). In contrast, when people are not able to develop strong bonds with their place of residence, they are prone to leave (Twigger-Ross & Uzzell, 1996). Although affective bonds are often related to the physical conditions of the environment and the way that individuals perceive it (Hummon, 1992; Longhinotti-Felippe & Kuhnen, 2012), attachment is not always a direct result of such conditions (Brown et al., 2003). It is not uncommon to find cases in which residents are able to develop strong emotional ties with very decayed environments (Saegert, 1989; Taylor, 1996), which somehow reflects the complex nature of ties that people establish with the environment over time.

Place attachment can be developed in different-sized environments such as the home (Cuba & Hummon, 1993; Hidalgo & Hernández, 2001), the city (Bonaiuto, Aiello, Perugini, Bonnes, & Ercolani, 1999) and the neighborhood (Brown et al., 2003; Cuba & Hummon, 1993). The size of the environment can affect the emotional bond that individuals develop, particularly their spatial perception of the area they feel they belong to, and their responsibility and motivations towards it (Smith, 2000; Syme, Nancarrow, & Jorgensen, 2002).

Neighborhood attachment is a psycho-social process (Brown, Brown, & Perkins, 2004; Brown et al., 2003) that is based on affective ties and positive attitudes directed towards local environments, and is characterized by intense and dynamic social interactions (Brown & Perkins, 1992). Neighborhood attachment reflects a general feeling of satisfaction with the residential area (Brown & Werner, 1985) that develops through daily interactions between neighbors. It is not surprising that most research in place attachment has focused on neighborhood (Brown et al., 2003). Likely reasons for this are the large number of studies about residential satisfaction focusing on the neighborhood, and the fact that neighborhood is the intermediate scale in the continuum between home and city (Hernández et al., 2007). Studies have assumed that attachment to neighborhood is higher than to other geographical scales (Mannarini, Tartaglia, Fedi, & Greganti, 2006). According to Lewicka (2010), about 70% of research on place attachment focuses on neighborhood, 20% on home, and only 10% on city. Merely a small percentage of these studies deal simultaneously with more than one place. The fact that most instruments dealing with attachment are concerned with measures of neighborhood attachment (Giuliani, 2003; Lewicka, 2010) leads to questions about possible differences in the intensity of affective bonds established with other larger geographical scales such as the city.

The few studies that compare neighborhood with other geographical scales have shown that bonds developed with the city are stronger than those established with neighborhood or country (Cuba & Hummon, 1993; Hernández et al., 2007; Salazar-Laplace, Hidalgo, & Hernández, 2005; Hidalgo & Hernández, 2001; Lewicka, 2010). It is possible that symbolic aspects relating to the nature of the interaction with place may have an influence on the development of emotional bonds (Hay, 1998) and thus people experience a stronger symbolical interaction with city than with neighborhood (Hernández et al., 2007). The city therefore might be perceived as full of relevant meaning, whereas the neighborhood may lack sufficient symbolism. It is therefore interesting to analyze results from these studies and look for possible reasons to explain such differences.

Bonnes, Mannetti, Secchiaroli, and Tanucci (1995) view the city as a "multi-place" system containing small environments such as houses and neighborhoods. Despite their complexity and size, the hierarchical organization of cities allows them to become landmarks and places of reference for their residents. But according to Bronfenbrenner's (1979) ecological model, in addition to neighborhoods, cities contain other important places with which people interact. This may explain why the links established with city are stronger than with neighborhood. Likewise, Hidalgo and Hernández (2001) and Lewicka (2010) showed the existence of a U-shaped curvilinear relationship between place attachment and place scale, where ties established with neighborhood were weaker in comparison to those established with home or city. It is possible that cities offer more choices and opportunities than neighborhoods and can therefore better meet the daily needs of their residents. Accordingly, attachment to cities had a larger effect on social welfare than attachment to neighborhoods. But when cities were perceived as unattractive, dangerous, and not fully controlled, the links established with neighborhoods were shown to be stronger (Lewicka, 2010). In another study, Lewicka (2011) found that length of residence was a main predictor of attachment to both neighborhood and city/town/village.

Nevertheless, in these studies the notion of city was referred to as a comprehensive urban scale, disregarding the possibility that different-sized cities may affect emotional ties in dissimilar ways. Given the effect that urban scale has on the emergence and development of affective bonds with place, further research is essential to gain deeper insight into these differences. For example, whether city is an absolute scale or to what extent city size can affect bonds with place are questions that need to be addressed.

In addition to attachment, identity is another critical concept by means of which it is possible to relate to place. The importance of the concept of identity stems from being part of the very essence of place (Relph, 1976; Sharifi & Murayama, 2013; Yuen, 2005) and is intimately related to place attachment (Kyle, Mowen, & Tarrant, 2004; Pretty, Chipuer, & Bramston, 2003). Place identity is a major component of the identity of self, manifested through own ideas, beliefs, preferences, values, and objectives that are relevant to such a place (Kyle et al., 2004; Pretty et al., 2003), as well as through the way place is understood and perceived (Jorgensen & Stedman, 2001, 2006). This notion can also be defined as a substructure of the identity of being. This bond is far from stable and may vary according to personal characteristics such as gender, age, social condition, place of birth (Proshansky et al., 1983), and experiences and interactions with a specific place or location (Wester-Heber, 2004).

The interest that this notion has captured in the urban planning community (Eben Saleh, 1998; Soltani et al., 2013; Tolle, 2010) comes as a reaction to the recent processes of globalization, integration, and homogenization, which seriously threaten the identity of places (Lewicka, 2010). For example, Oktay (2002) studied the dramatic urban transformation of Cypriot settlements and their influence on urban identity. He found that, as a consequence of current trends in contemporary city planning, the cohesive city of the past is being substituted by a spread distribution of slab-like buildings that are barely recognizable as a whole. Gospodoni (2006) examined landscape transformations in the post-industrial city and observed the existence of 'glocalised' urban landscapes combining built heritage with new landscapes of diffused urbanity.

Similarly to place attachment, place identity may also be affected by different features, situations, and processes. An example is the work of Félonneau (2004) which demonstrates how perception of the city (i.e., 'urban-phobia' or 'urban-philia') affects the way people behave and identify with it. Ng, Kam, and Pong (2005) also found that environmental variables relating to residence and neighborhood quality have a greater influence on feelings of belonging to the city than other socio-demographic variables. When considering place scale and its effect on the intensity of the link, Hernández et al. (2007) showed that identity appears to be stronger in the city than in the neighborhood. One reason is that neighborhoods are interchangeable places that play a minor role in the development of place identity.

Residents' place of birth is another determining factor that influences identity ties (Hui, Zhong, & Yu, 2012). The processes by means of which a group of people identifies with their area of

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residence can help understand how place identity is established. Deener (2010) found that non-native residents who best consolidated their identity with the neighborhood were those who participated in daily activities and celebrations with locals. In contrast, residents who refuse to become involved in routine activities failed to develop positive ties with place. Zenker and Rutter (2014) raised questions of whether place of birth and length of residence can sufficiently explain how people create a strong bond with a place of residence, or whether other aspects such as place satisfaction can provide a better explanation.

A major problem in existing literature is that the relation between place attachment and place identity continues to be fuzzy (Giuliani & Feldman, 1993; Hidalgo & Hernández, 2001; Vidal, Valera, & Peró, 2010). One reason is the confusion that prevails in the fields of urban planning and environmental psychology with regard to the definition and connection between place attachment and place identity. In some cases these concepts are even used interchangeably, as if they were synonyms (e.g., Brown & Werner, 1985). While Jorgensen and Stedman (2001) believe that both concepts are part of a multidimensional construct associated with sense of place, Lalli (1992) understands place attachment as a component of place identity. In contrast, Kyle, Graefe, and Manning (2005) view identity as a notion that encompasses attachment with place. Another problem is the limited number of studies that either address place attachment and identity simultaneously or compare the development of these emotional bonds with places that vary in size. The latter may be due to preconceptions that bonds with place mainly evolve within the neighborhood.

Hernández et al. (2007) argue that a reason for the ambiguity between place identity and place attachment can be that the samples used in most studies are characterized by natives with long periods of residence in one place. Consequently, the degree of place attachment and identity might be interconnected in such a way that it is impossible to distinguish which develops first. Hernández et al. (2007) therefore carried out a study about place attachment and place identity between natives and non-natives. In order to investigate possible effects of scale of place on bond strength, these researchers compared attachment and identity in three different settings: neighborhood, city, and national territory. In line with previous studies (Hidalgo & Hernández, 2001), they showed that the intensity of the two bonds was higher for city than for neighborhood, with a maximum value for national territory. These results were valid for both natives and non-natives. Hernández et al. (2007) attributed the insignificant role played by neighborhood to size, relative symbolism, and processes of spatial integration. Moreover, they found that place attachment and place identity differed in the native and non-native groups. For natives, ties of attachment and identity were similar and stronger than for immigrants, while for immigrants, attachment was higher than identity in all three environments (neighborhood, city, and national territory).

In research carried out in Israel, Casakin and Billig (2009) found a positive interaction between city size and bond with place, where affective ties were stronger in smaller settlements than in larger ones—especially for religious residents for whom living in small and cohesive communities was a major motivation. In contrast, secular residents established stronger links with bigger cities. Casakin and Billig (2009) further reported that a possible reason for such differences was that the smaller settlements were suitable for developing an intense community life, as was demanded by the religious residents. Conversely, secular residents, whose lifestyle was more individualistic, tended to develop stronger bonds with large settlements, characterized by developed services and infrastructure. The reason why the former results differed from those of Hernández et al. (2007) can be explained by the type of sample used, which in the case of Casakin and Billig (2009) was characterized by religious and highly idealistic people living in small communities with strong feelings for the land. In light of the above, studying the relation between place attachment and place identity simultaneously in different urban scales (i.e., neighborhood and city) and with different types of populations (i.e., natives and non-natives) constitutes a major theoretical rationale, and a main motivation for carrying out this study.

Research goals

With the aim of extending findings from Hernández et al. (2007), this study compared links with place for the dimensions of attachment and identity in different urban scales that included natives and non-native residents. The scale showed consistency and validity in other independent studies mentioned in the methods section (Vidal et al., 2010). One difference between both studies focuses on how the concept of the non-native is interpreted. In their first study, Hernández et al. (2007) considered non-natives to be individuals from other cities and other islands. In the second study, however, they regarded immigrants from other countries as non-natives. In our study, non-natives are defined as individuals who were not born in the place of residence when the study was carried out.

The main objective of this research dealt with the comparison of place attachment and place identity in the physical contexts of city and neighborhood where all participants resided, irrespective of place of birth. As in previous studies (Hernández et al., 2007; Hidalgo & Hernández, 2001; Salazar-Laplace et al., 2005) stressing the importance of city over neighborhood, in this work we expected to find differences between both physical contexts. However, in contrast to our investigation, most studies considered the city as an absolute scale and thus failed to explore the effects that different-sized cities may have on the development of place attachment and place identity. Bearing in mind that previous research showed that city scored higher levels of attachment and identity than neighborhood, it then followed that the larger the city, the stronger the bonds of identity and attachment with place.

Casakin and Billig's (2009) findings about the significant role of small environments on bonds with place differ from those of Hernández et al. (2007), which stressed the dominant role of large-scale environments. Therefore, a second objective of this study was to analyze relations with place on three different city scales (large, medium, and small environments). We compared bonds of attachment and identity established by residents of small places, such as settlements, with those developed in larger cities.

Based on previous studies, we regarded place attachment as an emotional bond that materializes in a relatively short period of time through interactions with the physical context. On the other hand, we considered the development of place identity as a slower and more complex process, which emerges over longer periods of time (Knez, 2005; Twigger-Ross & Uzzell, 1996). Thus, we assumed that significant differences in place identity would arise between natives and non-natives, resulting in higher levels of identity for natives. However, we suggested that there would be no differences between native and non-native groups in relation to place attachment.

Method

Participants

A total of 213 university students participated voluntarily in this study. Five participants were eliminated because of structural inconsistencies in their responses or a high percentage of unanswered questions. The final sample consisted of 208 people

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Table 1
Average years of residence in the city and the neighborhood for natives and non-natives.

	City	Neighborhood
Natives	23.5	20.23
Non-natives	11.39	9.62

residing in Israel, and comprised 67% women and 33% men. The majority (78.4%) lived in the homes of their relatives, 16.4% resided in their own home, and only 6.2% lived in an apartment or in student dormitories. At the time of the study, 22.7% of participants resided in large cities (over 500,000 inhabitants), 53.6% in medium-sized cities (20,000–500,000), and the remaining 27.3% in small settlements (fewer than 20,000 inhabitants). The criteria in determining the size of cities was based on information obtained from the Israel Central Bureau of Statistics (CBS) (2012) about locality type and corresponding population size. From the total sample, 54.8% were born in their city of residence and 45.2% were born in another city. In this study, we considered non-natives to be those individuals who were born in a city other than their current city of residence. The values of length of residence in the city and neighborhood for natives and non-natives are included in Table 1. Although the categories used to classify the different city sizes can, to some extent, be regarded as artificial and subjective, they were suitable for organizing Israeli cities into three distinctive groups.

Instrument and procedure

As one of the objectives was to extend Hernández et al.'s (2007) study, this research was based on the questionnaire designed by them to measure salient elements concerning place attachment and place identity in neighborhood and city contexts. The scale considers place attachment and place identity as two separate but related variables, rather than as sub-dimensions of a general concept. Conceptual differences between the two variables were validated in a confirmatory analysis (Vidal et al., 2010). Moreover, two other studies that used this scale found optimal reliability, thus confirming its consistency (Devine-Wright, 2011; Devine-Wright & Howes, 2010). The place attachment scale includes affective aspects such as the extent to which a person enjoys living in a place, is happy to return to that place, and feels attached to it. The place identity scale embraces other representational aspects such as the extent to which individuals identify or feel that they belong to a place.

Eight attachment items and four identity items were considered for the city and neighborhood environments, respectively. The final questionnaire was composed of 24 items, measured on a six-point scale, where 1 was equivalent to 'Not at all' and 6 to 'Very Much'. Participants were required to include personal and socio-demographic data, including city of birth, length of residence in the current city, and specific features of their dwellings. Two different types of questionnaires were designed to ensure a mixed order of appearance of items in each subscale. The Appendix contains the scale used to assess attachment and identity in the city, which is similar to the scale used to assess these bonds in the neighborhood.

University students were selected as a convenience sample for this study. To obtain a representative sample and minimize possible bias towards a specific group over others, questionnaires were delivered at different faculties and departments on campus, as well as at the main library. Participants were randomly approached before or after attending courses, or when studying or working in the library. They were informed about the rationale of the research and thereafter were asked to respond to the questions voluntarily, in the presence of the researcher. In order to avoid biased responses, participants were told that questionnaires would be treated anonymously and that the data collected would only be used for the purposes of the study. Participants took an average of 15–20 min to complete the questionnaires. With the exception of 15 students, all agreed to respond to the questions.

Results

Internal consistency was calculated for each scale of attachment and identity for the environments evaluated (city and neighborhood). Table 2 shows Cronbach's alpha values.

Pearson's correlation between measures of attachment to city and neighborhood was 0.62 ($p < .01$), while the correlation between identity with city and neighborhood was 0.61 ($p < .01$). Moreover, length of residence in the city correlated with city attachment (0.19; $p < .01$) and city identity (0.24; $p < .01$), whereas length of residence in the neighborhood correlated with neighborhood attachment (0.20; $p < .01$) and neighborhood identity (0.28; $p < .01$). In both contexts, the correlation between attachment and identity was 0.85 ($p < .01$), but the cross correlation (neighborhood attachment with city identity or city attachment with neighborhood identity) was 0.54 ($p < .01$).

In order to find out whether there were significant differences between neighborhood attachment and city attachment, as well as between neighborhood identity and city identity, a mean difference test was performed for each setting. Intensity of bonds was confirmed to be higher in the city than in the neighborhood, especially for attachment (t (166) = 4.277, $p < .001$, eta^2 semi-partial = .10). Moreover, the percentage explained for identity was slightly lower (eta^2 semi-partial = .08) but was also higher for the city ($t(166) = 3.818$, $p < .001$).

Bearing in mind previous studies indicating that city generates stronger identity and attachment, we analyzed the extent to which city size may affect these ties. In addition, we considered another variable that was important in previous studies dealing with 'being born in the city' (e.g., Hernández et al., 2007). To this aim, we used a multivariate analysis of variance with two inter-subject variables: city size on three levels (large, medium, and small settlements) and origin (natives and non-natives), and two dependent variables (attachment and identity).

The interaction of the two inter-subject variables was not significant and neither was the main effect of the variable origin. In this sample, having been or not having been born in the city where participants resided had no effect on the intensity of attachment and identity. However, the main effect of city size was significant for both attachment ($F(2,188) = 11.77$, $p < .001$, eta^2 semi-partial = 0.11) and identity ($F(2,187) = 15.45$, $p < .001$, eta^2 semi-partial = 0.10). Fig. 1 shows the means of the two dependent variables analyzed according to the size of the environment.

Post-hoc analysis revealed differences between large and medium-sized cities, and between medium-sized and small settlements. As in previous studies (Hernández et al., 2007; Hidalgo & Hernández, 2001), a curvilinear relationship was found, indicating that the bond was higher in small and large spatial scales than in the intermediate scale. Consequently, medium-sized cities were shown to generate less attachment compared to the other two city scales. On the other hand, differences in identity were found

Table 2
Cronbach's alpha coefficients of scales of city and neighborhood attachment and identity.

Environment	Place attachment	Place identity
City	.98	.98
Neighborhood	.85	.81

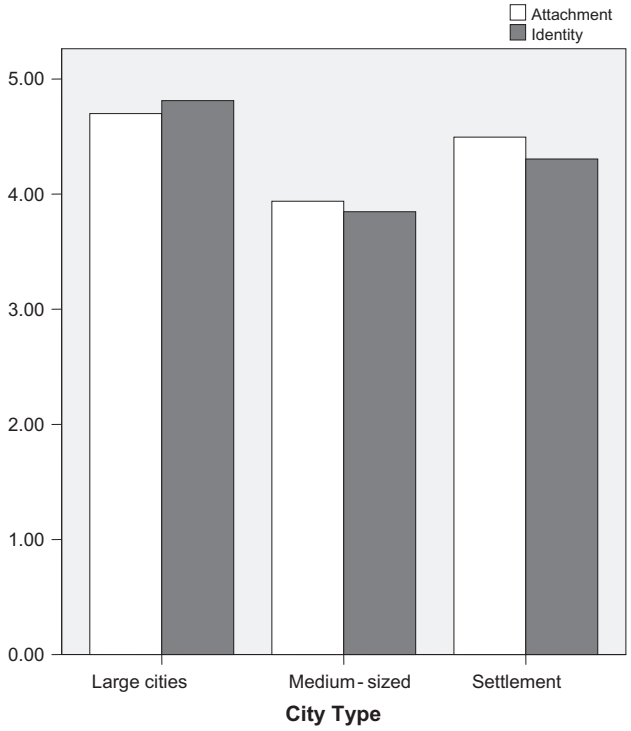

Fig. 1. Means for attachment and identity depending on city type.

between large and medium-sized cities, but not between medium-sized and small settlements (see Table 3).

Discussion

The few studies that focused on the relation between bonds with place and city, considered the city as a single geographical scale (Hernández et al., 2007; Lewicka, 2010). Our study findings, however, contributed to gain insight into how the dimension of site can affect the way that individuals develop their bonds with place. Results indicated the existence of significant relations between measures of city attachment and neighborhood attachment, city identity and neighborhood identity, and between these two bonds in both physical contexts. This suggests that, although attachment and identity are two concepts that measure different psychological aspects of interaction with the environment and are affected by different variables (Rollero & De Piccoli, 2010), they are closely linked to each other. These findings stress the need to differentiate between measures of attachment and identity, and lead to questions about the attention that should be paid to other features of the physical context in which they are analyzed. Accordingly, the relation between these measures and important aspects of environmental planning such as aesthetics (Lewicka, 2011), quality (Bonaiuto et al., 1999), services (Casakin & Neikrug, 2012), maintenance (Brown et al., 2003), and sustainability (Ceccato & Lukyte, 2011) would merit further research.

As anticipated, other results showed that city rather than neighborhood generated higher attachment and identity bonds. As in previous studies (Hernández et al., 2007; Hidalgo & Hernández, 2001; Salazar-Laplace et al., 2005), city appears as the preeminent place for establishing and developing the most powerful bonds, neighborhood being relegated to a secondary plane. In all likelihood, city is perceived as a dominant place where it is possible to establish relatively stable bonds, while neighborhood is seen as a setting with greater mobility in urban dynamics. It is often the case that the physical delimitation of neighborhood is more dependent on governmental or managerial reasons (e.g., zoning for tax collection) than on environmental characteristics. This may explain why neighborhoods have less influence on the construction of identity links. These findings suggest that urban planners, who have a continuous influence over the growth and form of the physical environment at different scales, should direct their efforts to enhancing identity with city over identity with neighborhood. For example, urban planners can pay special attention to improving meaningful urban elements that can potentially contribute to enhance the legibility and distinctiveness of the cityscape (Lynch, 1984). A clear image of the city can enable residents to feel comfortable, secure and emotionally involved, and to identify with that city. A distinctive urban environment can contribute to the co-existence of symbols and materialization of collective memories of its residents (Lewicka, 2008). Although residents create their own images, an important task for city planners would be to identify the most meaningful public shared images for residents (Lynch, 1984) and how such images would influence planners' interventions at different urban scales.

The results for type of bond and type of place were stable for both natives and non-natives. However, given the socio-demographic similarity of these groups (all were students), it would be advisable to extend this research to other types of populations because differences in place attachment and identity between students born in the cities where they resided and students from other cities were found to be similar to the differences between natives and non-natives shown in other studies (Vidal et al., 2010).

A fine-grained analysis showed differences in city attachment and city identity. Contrary to what was anticipated, place attachment was not directly associated with city size. Indeed, place

Table 3
Multiple comparisons between the three types of city for attachment and identity (Sidak).

Variable	(I) City type	(J) City type	(I–J) Means difference	Standard error	Significance
Attachment	Large	Medium-sized	.8020*	.20626	.000
		Small	.1964	.24419	.807
	Medium-sized	Large	−.8020*	.20626	.000
		Small	−.6056*	.20626	.011
	Small	Large	−.1964	.24419	.807
		Medium-sized	.6056*	.20626	.011
Identity	Large	Medium-sized	.9987*	.24875	.000
		Small	.4671	.29449	.306
	Medium-sized	Large	−.9987*	.24875	.000
		Small	−.5316	.24875	.099
	Small	Large	−.4671	.29449	.306
		Medium-sized	.5316	.24875	.099

Based on observed means.
* The means difference is significant at level of .05.

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attachment was higher in larger cities and in small settlements, but lower in medium-sized cities. This finding replicates the curvilinear relation found in previous studies when comparing house, neighborhood, and city (Hernández et al., 2007; Lewicka, 2010). Thus urban planners should consider that attachment in larger cities may be related to the concept of multi-place system (Bonnes et al., 1995), characterized by high-end services and a developed infrastructure that cannot be accessed in smaller cities.

Attachment in smaller cities might be for social reasons, such as familiarity, closeness, mutual assistance and cooperation among residents, as well as involvement in communitarian activities (Casakin & Billig, 2009). Conversely, medium-sized cities might be disadvantaged by both aspects, namely, not being large enough to offer high-end services or small enough for residents to get to know each other.

Research assumptions about the relation between city size and identity ties were partially verified. Identity was stronger in large cities than in the other city scales where no differences were observed. That attachment and identity were higher in larger cities is in line with past studies (Hernández et al., 2007; Hidalgo & Hernández, 2001; Salazar-Laplace et al., 2005), which showed that city and metropolis are places mainly characterized by bonds of attachment and identity. Nevertheless, these assumptions should be generalized with caution since they are, after all, based on the mean scores of a self-reported scale, albeit reliable and valid.

On the other hand, these findings are contrary to those of Casakin and Billig (2009), who found that affective bonds were stronger in smaller than in larger settlements. According to previous explanations, a main reason for such differences can be attributed to the type of sample used. In the case of Casakin and Billig, the sample was characterized by religious and highly idealistic people with strong feelings for the land. Another possibility can be attributed to differences in the instrument used to measure bond to place. Whereas Hernández et al. (2007) differentiated between attachment and identity, Casakin and Billig (2009) used the multidimensional construct of sense of place, of which place attachment and place identity are part (Jorgensen & Stedman, 2001).

Additional results showed that city attachment and city identity had similar patterns in natives and non-natives. Findings for city identity are somewhat surprising, since previous studies (e.g., Hernández et al., 2007; Hidalgo & Hernández, 2001) indicate that the development of this bond is slow and complex. Hence, the hypothesis about possible differences in favor of natives for place identity was rejected. The lack of difference between natives and non-natives can be due to the relatively prolonged time of residence of most non-natives, as compared to samples of previous studies. We believe, however, that, in addition to the positive correlation between city identity and length of residence, this result supports the view that being born in a place is not as important as the time spent living there. When non-natives spend a long period in the same place, their place identity can become as high as that of natives. Therefore, that place attachment of natives and non-natives was similar is not surprising, considering this emotional bond is purported to emerge in a relatively short period of time.

Conclusions

This study can be seen as a further step to gaining insight into the experience and perception of the environment. In particular, it has contributed to understanding how the dimensions of the urban environment can affect the way that people perceive and experience place. Although there is a prevailing tendency to consider neighborhood as the major category of analysis of identity and attachment, this study has demonstrated that city has a predominant effect on the development of these two bonds. By acknowledging the existing gap in research, future investigations can be expected to dedicate more attention to thoroughly exploring this urban scale. Findings also have implications for urban planning. That city size has an effect on identity and attachment is a major aspect that urban planners and policy makers should take into account when making planning decisions for urban developments.

A limitation of this study, however, was that it analyzed the impact of city size on attachment and identity by only checking means differences. Future research should extend these findings to clarify which aspects of place affect the bonds established at different city scales. To this end, other data collection methods can be adopted, including qualitative data, life stories, autobiographical stories, and observable data (Esteban-Guitart, Monreal-Bosch, & Vila, 2013).

Although this research extended previous studies in the field, findings should be treated with caution, in view of the homogeneous sample of university students that participated. Many students live temporarily away from their families in apartments that are cheaper than the average. They probably plan to move to another neighborhood or city when their studies are over, or to return to their original city. In this regard, Dekker and Bolt (2005) showed how different factors could affect place attachment in ethnic groups characterized by demographic and lifestyle differences. In a future work we plan to extend current findings to samples of heterogeneous populations and to include demographic and socio-cultural factors that may affect the bonds established with different urban environments. In order to gain further insight into the effects of urban planning features on place attachment and identity, we will also explore environments differing in physical aspects such as urban morphology, transportation network, and services.

Appendix A

	Not at all	Not Much	A little	Quite a lot	A lot	Very Much
I like living in this city	1	2	3	4	5	6
I feel attached to this city	1	2	3	4	5	6
I would be very sorry if I had to move to another city	1	2	3	4	5	6
When I've been away for a while, I really want to come back	1	2	3	4	5	6
I really feel at home in this city	1	2	3	4	5	6
When I'm away, I miss this city	1	2	3	4	5	6
This is my favorite city to live in	1	2	3	4	5	6
When I'm away, I'm happy to come back	1	2	3	4	5	6
I identify with this city	1	2	3	4	5	6
This city is part of my identity	1	2	3	4	5	6
I feel like I belong to this city	1	2	3	4	5	6
I feel like I'm from this city	1	2	3	4	5	6

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References

Altman, I., & Low, S. (1992). *Place attachment*. New York: Plenum.

Berger, P. L., & Luckmann, T. (1976). *La construcción social de la realidad*. Buenos Aires: Amorrortu.

Bonaiuto, M., Aiello, A., Perugini, M., Bonnes, M., & Ercolani, A. P. (1999). Multidimensional perception of residential environment quality and neighbourhood attachment in the urban environment. *Journal of Environmental Psychology, 19*, 331–352.

Bonnes, M., Mannetti, L., Secchiaroli, G., & Tanucci, G. (1995). The city as a multi-place system: And analysis of people-urban environment transactions. In L. Groat (Ed.), *Giving places meaning* (pp. 57–85). London: Academic Press.

Bronfenbrenner, U. (1979). *The ecology of human development. Experiments by nature and design*. Cambridge: Harvard University Press.

Brown, B., & Perkins, D. (1992). Disruptions in place attachment. *Human Behavior & Environment: Advances in Theory & Research, 12*, 279–304.

Brown, B., & Werner, C. (1985). Social cohesiveness, territoriality, and holiday decorations: The influence of cul-de-sacs. *Environment and Behavior, 17*, 539–565.

Brown, B., Perkins, D., & Brown, G. (2003). Place attachment in a revitalizing neighborhood: Individual and block levels of analysis. *Journal of Environmental Psychology, 23*, 259–271.

Brown, G., Brown, B., & Perkins, D. (2004). New housing as neighborhood revitalization: Place attachment and confidence among residents. *Environment and Behavior, 36*, 749–775.

Casakin, H., & Billig, M. (2009). Effect of settlement size and religiosity on sense of place in communal settlements. *Environment and Behavior, 41*, 821–835.

Casakin, H., & Neikrug, S. (2012). Place identity in high and low-end neighborhoods as perceived by the elder. In H. Casakin & F. Bernardo (Eds.). *The role of place identity in the perception, understanding, and design of the built environment* (pp. 107–119). Bentham Science Publishers.

Ceccato, V., & Lukyte, N. (2011). Safety and sustainabilty in a city in transition: The case of Vilnius, Lithuania. *Cities, 28*, 83–94.

Cuba, L., & Hummon, D. M. (1993). A place to call house: Identification with dwelling, community and region. *The Sociological Quarterly, 34*, 111–131.

Deener, A. (2010). The 'black section' of the neighborhood: Collective visibility and collective invisibility as sources of place identity. *Ethnography, 11*(1), 45–67.

Dekker, K., & Bolt, G. (2005). Social cohesion in post-war estates in the Netherlands: Differences between socioeconomic and ethnic groups. *Urban Studies, 42*(13), 2447–2470.

Devine-Wright, P. (2011). Place attachment and public acceptance of renewable energy: A tidal energy case study. *Journal of Environmental Psychology, 31*, 336–343.

Devine-Wright, P., & Howes, Y. (2010). Disruption to place attachment and the protection of restorative environments: A wind energy case study. *Journal of Environmental Psychology, 30*, 271–280.

Eben Saleh, M. A. (1998). Place identity: The visual image of Saudi Arabian cities. *Habitat International, 22*, 149–164.

Esteban-Guitart, M., Monreal-Bosch, P., & Vila, I. (2013). A qualitative study on transnational attachment among eight families of foreign origin. *Psyecology, 4*(3), 245–266.

Félonneau, M. (2004). Love and loathing of the city: Urbanophilia and urbanophobia, topological identity and perceived incivilities. *Journal of Environmental Psyechology, 2*, 43–52.

Generaux, R. L., Ward, L. M., & Russell, J. A. (1995). The behavioral component in the meaning of places. In L. Groat (Ed.), *Giving places meaning* (pp. 43–55). London: Academic Press.

Giuliani, M. V. (2003). Theory of attachment and place attachment. In M. Bonnes, T. Lee, & M. Bonaiuto (Eds.), *Psychological theories for environmental issues* (pp. 137–170). Aldershot: Ashgate.

Giuliani, M. V., & Feldman, R. (1993). Place attachment in a developmental and cultural context. *Journal of Environmental Psychology, 13*, 267–274.

Gospodoni, A. (2006). Portraying, classifying and understanding the emerging landscapes in the post-industrial city. *Cities, 23*, 311–330.

Hay, B. (1998). Sense of place in developmental context. *Journal of Environmental Psychology, 18*, 5–29.

Hernández, B., Hidalgo, M. C., Salazar-Laplace, M. E., & Hess, S. (2007). Place attachment and place identity in natives and non-natives. *Journal of Environmental Psychology, 27*, 310–319.

Hidalgo, M. C., & Hernández, B. (2001). Place attachment: Conceptual and empirical questions. *Journal of Environmental Psychology, 21*, 273–281.

Hui, E. C. M., Zhong, J., & Yu, K. (2012). Mobility and work-residence matching for new immigrants in Hong Kong. *Habitat International, 36*, 444–451.

Hummon, D. M. (1992). Community attachment: Local sentiment and sense of place. In I. Altman & S. Low (Eds.), *Place attachment* (pp. 253–278). Nueva York: Plenum.

Jorgensen, B. S., & Stedman, R. C. (2001). Sense of place as an attitude: Lakeshore owners' attitudes toward their properties. *Journal of Environmental Psychology, 21*, 233–248.

Jorgensen, B. S., & Stedman, R. C. (2006). A comparative analysis of predictors of sense of place dimensions: Attachment to, dependence on, and identification with lakeshore properties. *Journal of Environmental Management, 79*, 316–327.

Knez, I. (2005). Attachment and identity as related to a place and its perceived climate. *Journal of Environmental Psychology, 25*, 207–218.

Kyle, G., Mowen, A. J., & Tarrant, M. (2004). Linking place preferences with place meaning: An examination of the relationship between place motivation and place attachment. *Journal of Environmental Psychology, 24*, 439–454.

Kyle, G., Graefe, A., & Manning, R. (2005). Testing the dimensionality of place attachment in recreational settings. *Environment and Behavior, 37*, 153–177.

Lalli, M. (1992). Urban related identity: Theory, measurement and empirical findings. *Journal of Environmental Psychology, 12*, 285–303.

Lewicka, M. (2005). Ways to make people active: The role of place attachment, cultural capital, and neighborhood ties. *Journal of Environmental Psychology, 25*, 381–395.

Lewicka, M. (2008). Place attachment, place identity, and place memory: Restoring the forgotten city past. *Journal of Environmental Psychology, 28*, 209–231.

Lewicka, M. (2010). What makes neighborhood different from home and city? Effects of place scale on place attachment. *Journal of Environmental Psychology, 30*, 35–51.

Lewicka, M. (2011). On the varieties of people's relationships with places: Hummon's typology revisited. *Environment and Behavior, 43*, 676–709.

Longhinotti-Felippe, M., & Kuhnen, A. (2012). Environmental care and place attachment: Perspectives for sustainability in schools. *Psyecology, 3*, 145–156.

Lynch, K. (1984). *The image of the city* (3rd ed.). Cambridge, MA: MIT Press.

Mannarini, T., Tartaglia, S., Fedi, A., & Greganti, K. (2006). Image of neighbourhood, self-image and sense of community. *Journal of Environmental Psychology, 26*, 202–214.

Manzo, L. C. (2003). Beyond house and haven: Toward a revisioning of emotional relationships with places. *Journal of Environmental Psychology, 23*, 47–61.

Ng, S. H., Kam, P. K., & Pong, R. W. M. (2005). People living in ageing buildings: Their quality of life and sense of belonging. *Journal of Environmental Psychology, 25*, 347–360.

Oktay, D. (2002). The quest for urban identity in the changing context of the city. *Cities, 19*, 261–271.

Pretty, G. H., Chipuer, H. M., & Bramston, P. (2003). Sense of place amongst adolescents and adults in two rural Australian towns: The discriminating features of place attachment, sense of community and place dependence in relation to place identity. *Journal of Environmental Psychology, 23*, 273–287.

Proshansky, H. M. (1978). The city and self identity. *Environment and Behavior, 10*, 147–169.

Proshansky, H. M., Fabian, A. K., & Karminoff, R. (1983). Place identity: Physical world socialization of the self. *Journal of Environmental Psychology, 3*, 57–84.

Relph, E. (1976). *Place and placelessness*. London: Pion.

Rollero, C., & De Piccoli, N. (2010). Place attachment, identification and environment perception: An empirical study. *Journal of Environmental Psychology, 30*, 198–205.

Smith, D. M. (2000). *Moral geographies: Ethics in a world of difference*. Edinburgh, UK: Edinburgh University Press.

Syme, G. C., Nancarrow, B. E., & Jorgensen, B. S. (2002). The limits of environmental responsibility: A stormwater case study. *Environment and Behavior, 34*, 836–846.

Saegert, S. (1989). Unlikely leaders, extreme circumstances: Older black women building community households. *American Journal of Community Psychology, 17*, 295–316.

Salazar-Laplace, M., Hidalgo, M. C., & Hernández, B. (2005). Barrio, ciudad e isla como objetos de apego y referentes de identidad: Un estudio comparativo entre inmigrantes y nativos. In R. García Mira, A. Fernández González, M. D. Losada Otero, & M. Goluboff Scheps (Eds.), *Psicología Social y problemas sociales* (Vol. 5, pp. 15–22). Madrid: Biblioteca Nueva.

Shamsuddin, S., & Ujang, N. (2006). Making places: The role of attachment in creating the sense of place for traditional streets in Malaysia. *Habitat International, 32*, 389–409.

Sharifi, A., & Murayama, A. (2013). Changes in the traditional urban form and the social sustainability of contemporary cities: A case study of Iranian cities. *Habitat International, 38*, 126–134.

Shumaker, S. A., & Taylor, R. B. (1983). Toward a clarification of people-place relationships: A model of attachment to place. In N. R. Feimer & E. S. Geller (Eds.), *Environmental psychology: Directions and perspectives*. New York: Praeger.

Scannell, L., & Gifford, R. (2010). Defining place attachment: A tripartite organizing framework. *Journal of Environmental Psychology, 30*, 1–10.

Soltani, L., Zangiabadi, A., & Nastaran, M. (2013). The quarter: An effective pattern for satisfying women's sense of place in the city of Isfahan. *Cities, 30*, 161–174.

Taylor, R. B. (1996). Neighborhood responses to disorder and local attachments: The systemic model of attachment, social disorganization, and neighborhood use value. *Sociological Forum, 11*, 41–74.

Tolle, A. (2010). Urban identity policies in Berlin: From critical reconstruction to reconstructing the wall. *Cities, 27*, 348–357.

Twigger-Ross, C., & Uzzell, D. L. (1996). Place and identity processes. *Journal of Environmental Psychology, 16*, 205–220.

Vidal, T., Valera, S., & Peró, M. (2010). Place attachment, place identity and residential mobility in undergraduate students. *Psyecology, 1*, 291–307.

Werner, C. M., Brown, B. B., & Altman, I. (2002). Transactionally oriented research: Examples and strategies. In R. B. Betchtel & A. Churchman (Eds.), *Handbook of environmental psychology* (pp. 203–221). New York: John Wiley & Sons Inc.

Wester-Heber, M. (2004). Underlying concerns in land-use conflicts-the role of place identity in risk perception. *Environmental Science & Policy, 7*, 109–116.

Yuen, B. (2005). Searching for place identity in Singapore. *Habitat International, 29*, 197–214.

Zenker, S., & Rutter, N. (2014). Is satisfaction the key? The role of citizen satisfaction, place attachment and place brand attitude on positive citizenship behavior. *Cities, 38*, 11–17.

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