

## Place attachment and place identity in natives and non-natives

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### Abstract

Place attachment is an affective bond that people establish with specific areas where they prefer to remain and where they feel comfortable and safe. Place identity, however, has been defined as a component of personal identity, a process by which, through interaction with places, people describe themselves in terms of belonging to a specific place. Most research has observed positive correlations between these variables in populations that have maintained ongoing interactions over long periods of time. This work presents two studies in which we compare place attachment to place identity in samples differentiated according to birthplace and length of residence, and the magnitude of these bonds to different places. The results of the first study revealed differences between intensity of attachment and identity depending on place of origin and place assessed. The second study found that identity and attachment tend to coincide in natives, while individuals from other places give higher scores for attachment than for identity. Results from the two studies have enabled us to consider that place attachment develops before place identity, at least in the case of the non-natives. Both studies reveal that bonds are stronger with the city than with the neighbourhood, but that attachment and identity with the island are stronger than either of them.

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### 1. Introduction

The study of the feelings that people develop towards significant places in their lives is receiving increasingly more attention from Environmental Psychology, while the concept of place attachment lies at the heart of these studies (Altman & Low, 1992; Brown, Perkin, & Brown, 2003; Giuliani, 2003; Manzo, 2003; Knez, 2005; Kyle, Graefe, & Manning, 2005). Along with the idea that attachment is a positive, affective link between an individual and a specific place, one of the main features would be the tendency to maintain close relations with such a place (Hidalgo & Hernández, 2001). We can therefore define place attachment as the affective link that people establish with specific settings, where they tend to remain and where they feel comfortable and safe (Hidalgo & Hernández, 2001).

This affective link can be developed towards places that differ in size and function: the house, the neighbourhood, the city, recreational settings, communities, rural places, etc. (Tuan, 1974; Altman & Low, 1992; Hay, 1998b). In a geographical sense, a person may feel attached to restricted or vast places of very different characteristics, but place attachment arises, among other variables, from mobility, length of residence, shared meanings and social belonging (Hay, 1998b).

Most research has concentrated on the neighbourhood, or community (Hummon, 1992; Woldoff, 2002; Brown et al., 2003) and the city (Bonnes, Mannetti, Secchiaroli, & Tanucci, 1990). This peculiarity is due to the origins of attachment study, connected with research into residential satisfaction and to the assumption that attachment to neighbourhood/community is greater than to other places (Guest & Lee, 1983; Cuba & Hummon, 1993; Mannarini, Tartaglia, Fedi, & Greganti, 2006). Nevertheless, greater attachment to the city and the house has occasionally been observed (Cuba & Hummon, 1993; Hidalgo & Hernández,

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2001; Salazar-Laplace, Hidalgo, & Hernández, 2005). Consequently, more detailed research is required into these differences and especially the circumstances that produce them. The identification of spatial bond units may contribute to the debate about the psycho-social impact of urbanization processes and to pinpointing the contribution of different spatial levels to the development of place identity.

One of the predictors of place attachment that has received most attention is length of residence, and it is often seen that persons who have lived longer in a place feel greater attachment to it (Riger & Lavrakas, 1981; Taylor, Gottfredson, & Brower, 1984). However, on occasions this variable has been shown to be mediated by others such as the number of relationships within a community, home ownership or otherwise, the presence of incivilities on their property, and even the scope of attachment analysed (Giuliani, 1991; Brown et al., 2003).

Another aspect of place attachment that requires further research is connected to the relation between this concept and others that make equal reference to the bonds that we establish with our surroundings (Hidalgo & Hernández, 2001; Manzo, 2003). In particular, the concept of place identity has received considerable research attention because of its intrinsic interest and relation to attachment (Pretty, Chipuer, & Bramston, 2003; Wester-Herber, 2004), since place is a fundamental component of personal identity (Proshansky, Fabian, & Karminoff, 1983; Lalli, 1992; Wester-Herber, 2004). We can define place identity as the process by which, through interaction with places, people describe themselves in terms of belonging to a specific place (Stedman, 2002). In other words, place identity would be a component of personal identity, which develops according to the elements that typify a specific area and the nature of the interactions that occur there (Wester-Herber, 2004; Bernardo & Palma, 2005).

Nevertheless, one of the main difficulties in this field continues to be the lack of clarity regarding relations between these concepts (Giuliani & Feldman, 1993; Hidalgo & Hernández, 2001; Mannarini et al., 2006). Thus, we can identify at least four different stances regarding the relation between place attachment and place identity. On the one hand, several authors consider them to be the same concept and either use both synonymously (e.g. Brown & Werner, 1985) or operationalize attachment in terms of identity (Stedman, 2002). One can also be understood as including the other. For example, for Lalli (1992), place attachment is a component of place identity. Other authors have considered place identity and place attachment as dimensions of a supraordered concept, such as sense of place (Hay, 1998a; Jorgensen & Stedman, 2001). Finally, another proposal suggests place attachment as a multidimensional construct that incorporates factors such as identity, dependence on place and social bonds (Kyle, Graefe, & Manning, 2005). It is therefore necessary to conceptually and empirically clarify the relation that exists between both concepts.

From our point of view, place attachment and place identity are two concepts that frequently overlap due to the fact that the samples used in most studies (native persons who have resided in that place for a long time) show a high level of both place attachment and place identity (Brown et al., 2003; Vidal, Pol, Guardia, & Peró, 2004). In this way, correlations between them are always high, and it is difficult to empirically establish which link precedes the other. Thus, the difficulty to empirically differentiate between them may arise from the use of these samples. But, in fact, one person could be attached to a place but not be identified with it (i.e. someone who likes to live in a place and wants to remain there but does not feel that this place is part of their identity; at least not their main place identity) and vice versa; someone could have a high personal identity with a place and not a high place attachment (for example, to feel that one belongs to a place but prefers not to live there).

A possible solution to the difficulty of the overlapping between place attachment and place identity may be to locate types of samples in which both links are not developed in the same way, or where one is modified by a circumstance of some kind. Thus, though samples of natives and long-term residents reveal similar levels of attachment and identity, non-native persons or persons with less length of residence may show different levels of development for these links. For example, Hay (1998a, 1998b) analyses sense of place in several types of samples such as long-term residents, outmigrants, tourists, long-term campers, holiday home owners and resident school children, showing how their place attachment is different. In this way, using samples of non-natives and of natives with different lengths of residence enables us to compare how these bonds form and develop differently.

Moreover, recent research indicates that the effects of other variables on one kind of link or other are notably different. Hence, voluntarily or involuntarily changing the place of residence has significant immediate effects on attachment and feelings and emotions with regard to the new place, while identity remains the same. Only after a long process of interaction does the new place gradually incorporate with identity (Wester-Herber, 2004).

In this sense, for some authors the components of attachment/identity and dependence act differentially on the appraisals and preferences of natural scenarios (Kyle et al., 2005), which questions the conceptualization of attachment as a multidimensional construct. Attachment has also been seen to influence identity, so that attachment is a process that provides personal and group identity (Brown & Perkins, 1992; Chawla, 1992), in such a way that it appears to precede identity (Twigger-Ross & Uzzell, 1996; Moore, 2000; Knez, 2005). However, as Hay (1998a) points out, the development of place attachment is regulated by factors such as rootedness and length of residence.

Consequently, we considered carrying out research in which we could compare place attachment to place identity

in different samples from natives and non-natives which aims to demonstrate that place attachment and place identity are two different ways of relating to residence places. We expected these two bonds to behave similarly in the case of natives but differently in the case of non-natives.

Moreover, we aimed to compare the level of identity and attachment towards three different environments: the island, the city and the neighbourhood. As we have seen above, the city and the neighbourhood are two places analysed in the literature with contradictory results; we decided to add the island because it is the geographical limit where the participants live. Along the same lines as a previous study (Hidalgo & Hernández, 2001), we expected the bond with neighbourhood to be lower than that with the other two places.

For these purposes, we designed two studies. The first compared a sample of natives with another two samples of non-native residents, although all were from the same country (national residents). The second study compared a sample of natives with non-natives from other countries (foreign immigrants).

## 2. Study 1

In this study, we set out to compare the levels of place attachment and place identity in two different samples: natives who have always resided in their place of origin and non-natives with a moderate length of residence (the group of non-natives was in turn divided into two groups according to their place of origin). The main objective was to analyse differences between attachment and identity within these groups. We consider place attachment to be an affective bond that arises relatively quickly because of interaction with the environment although it takes some time to reach its culmination (Hay, 1998a), while place identity is a more complex, long-term process. Specifically, we expect a significant interaction of the origin variable with the type of bond, so that natives will have similar levels of attachment and identity, while individuals who have moved from one place to another show a higher level of attachment than of identity. Moreover, we aim to compare the level of attachment and identity towards different areas such as the island, the city and the neighbourhood in which they live. Specifically, we expect to find differences between these three areas, in the same sense as previous studies (Hidalgo & Hernández, 2001; Salazar-Laplace, Hidalgo, & Hernández, 2005), which highlight the importance of the city over the neighbourhood as a significant place.

### 2.1. Method

#### 2.1.1. Participants

The 139 students from La Laguna University, in Tenerife (Canary Islands) (62% female and 38% male),

aged between 18 and 33 ( $M = 21.7$ ;  $SD = 2.9$ ), participated in this study.

The Canary Islands are situated in the Atlantic Ocean, off the north-western coast of Africa. A group of seven islands and an autonomous region of Spain, they are located more than 1000 km south of mainland Spain and only 115 km from the nearest point of the African coast. The economy is based primarily on tourism. The Canary Islands cover an area of 7447 km<sup>2</sup> and have a population of 1,968,280 with an average population density of 264 people per km<sup>2</sup>. Spanish is the official language. Tenerife is the biggest island, the population exceeding 1,843,755 people. Santa Cruz de Tenerife (population 221,627) is the capital city of Tenerife, and the University of La Laguna is situated in San Cristóbal de La Laguna, in Tenerife. It is the oldest university in the Canary Islands and dates back to 1701.

At the time of the research, 57.6% of the sample lived in La Laguna, 28.8% lived in Santa Cruz de Tenerife, while the remaining 13.6% lived in other places on the island. The differences between these three groups in their responses to the questionnaire were not significant. This led us to consider the different cities of residence as comparable, and the participants were treated as a single group irrespective of the city they lived in.

Most participants lived in flats (68.4%) or in houses (23.7%); 3.6% lived in university halls. The participants were classified into three groups: (a) born and resident their entire life in the city (natives), (b) resident in the city, but originating from other areas of the island of Tenerife (intra-island), and (c) born outside the island and currently resident in the city (extra-island). Following these criteria, 49 participants were assigned to the native group, 23 to the intra-island group and 67 to the extra-island group.

Table 1 shows the average length of residence for each of the three groups on the island of Tenerife, in the city and in the neighbourhood where they currently lived.

#### 2.1.2. Design

A factorial design of repeated measurements was employed in this research. Two within-subject factors and one between-subject factor were analysed. Within subject factors were “type of bond” (attachment and identity) and “type of environment” (neighbourhood, city and island). “Place of origin” (natives, intra-island and extra-island) was the between-subject factor. The dependent variable was “intensity of bond”.

Table 1  
Years of residence on the island, in the city and neighbourhood for each group according to their origin

Origin	Island	City	Neighbourhood
Natives	20.73	19.90	17.14
Intra-island	20.64	5.48	4.35
Extra-island	3.48	3.01	2.16

Therefore, the measurements were attachment and identity to neighbourhood, city and island. We also used three covariables to control the length-of-residence effect in each environment: length of residence on the island, length of residence in the city and length of residence in the neighbourhood.

### 2.1.3. Instrument and procedure

For this study, we designed a questionnaire composed of two sets of items to measure intensity of bonds. The first set contained eight items referring to attachment, which resulted in an overall score for intensity of attachment. The second consisted of four items referring to identity, which resulted in an overall score for intensity of identity.

The attachment items were based on those used by Hernández, Hidalgo, and Díaz (1998), Hidalgo (2000), and Hidalgo and Hernández (2001). Place identity items were based on those used by Valera and Pol (1994). For both sets of items, we aimed to select what was specific to each concept, so that the place attachment scale incorporates the most affective aspects (the extent to which individuals like living there, the extent to which they feel attached, the extent to which they want to return to that place, etc.), and the place identity scale incorporates the most representative aspects (degree of identification with place, feeling of belonging, etc.).

Intensity of attachment and identity were assessed in relation to the neighbourhood, the city and the island where participants currently resided. For that purpose, we used the eight attachment and the four identity items varying the reference according to the environment being assessed. Therefore, the final instrument was composed of 36 items where participants responded on a scale of six points, where 1 was “Not at all” and 6 was “Really a Lot”. Based on these items, we obtained an overall score for intensity of attachment to neighbourhood, a score for intensity of attachment to city and one for island, as well as a score for intensity of identity for each of these three areas.

We created two types of questionnaire, modifying the order of item presentation within each subscale. The Appendix gives the scale for assessing neighbourhood attachment and identity. Participants were also asked about sociodemographic identification, length of residence and housing features.

The questionnaire was applied collectively in university lecture rooms during the class and lasted from 15 to 20 min. All participants responded to the items of attachment to neighbourhood, city and island, and all the items of identity with the neighbourhood, city and island.

## 2.2. Results

Owing to the irregular size of the three groups studied, we checked the homogeneity of the covariances for all items in the questionnaire. Box’s M test was statistically non-significant ( $F(741, 36; 666) = 1,083$ ), which elimi-

nated the fact that the possible differences might be due to group size.

We checked the non-existence of univariate outliers for all items, by following the criteria of not accepting typical scores above  $\pm 3$ . We also checked normal item distribution by means of the Kolmogorov–Smirnov test, which obtained a statistical value below 0.30, despite being statistically significant in some cases. We also carried out these checks for each level of the between-subject factor, with the same results.

Subsequently, we calculated the internal consistency for attachment item groups and for the identity item groups in relation to the different environments assessed (neighbourhood, city and island). Table 2 shows Cronbach’s  $\alpha$  values, which were higher than 0.94 in all cases. This allowed us to aggregate the items of each scale, obtaining the overall scores mentioned above.

We then calculated the mean scores of intensity of bond for identity and attachment to neighbourhood, city and island and for all three groups: natives, intra-island and extra-island. These scores are represented in Fig. 1.

The correlation between the measurements for length of residence in each environment and the degree of place attachment and identity is shown in Table 3. These correlations reveal the importance of length of residence in creating and maintaining bonds with place.

Table 2  
Cronbach’s  $\alpha$  coefficients for the scales of identity and attachment to the island, city and neighbourhood

Environment	Place attachment	Place identity
Island	0.96	0.96
City	0.94	0.94
Neighbourhood	0.95	0.94

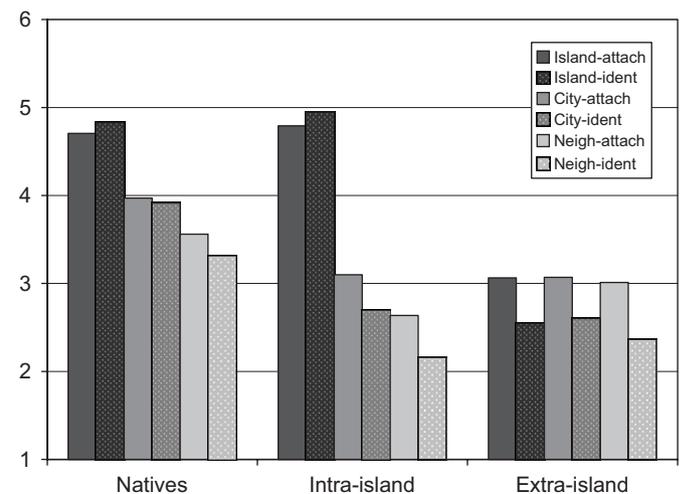


Fig. 1. Mean of place attachment and place identity according to origin for each environment.

Table 3  
Correlation coefficients between length of residence in each place with place attachment and place identity

	Length in neighbour	Length in city	Length in island
AttachNeighb	0.307**		
AttachCity		0.466**	
AttachIsland			0.673**
IdentNeighb	0.457**		
IdentCity		0.546**	
IdentIsland			0.759**

\*\* $p < 0.01$ .

A covariance analysis of repeated measurements was performed, in order to see whether there were significant differences between intensity of attachment and intensity of identity for each group (natives, intra-island and extra-island) and in each environment (neighbourhood, city and island). Since the three measurements for length of residence (neighbourhood, city and island) were correlated and produced effects of multicollinearity, only length of residence in the city was used as a covariable. Length of residence in the city was used as it had the highest correlations with length of residence in the neighbourhood (0.920\*\*) and the island (0.779\*\*).

The covariable length of residence was not significant in this study ( $F(1,127) = 3.01$ ;  $p > 0.05$ ). This result reveals that the differences observed are not attributable to the time that individuals have lived in their current residence and that the possible effects of the factors can be explained without recurring to this variable.

We found a significant triple interaction among the three factors: the two within factors, “type of bond” and “type of environment” and the between-factor “origin” ( $F(4,258) = 4.08$ ,  $p < 0.05$ ). To clarify the effect of this triple interaction, we performed a study of the interaction by means of a *a posteriori* comparisons, based on Sidak’s adjustments.

Comparing the two types of bonds, attachment and identity, for each environment in each group, when the reference environment is neighbourhood, we find significant differences between attachment and identity in the three groups analysed. For the native ( $t(49) = 2.70$ ,  $p < 0.05$ ), extra-island ( $t(64) = 9.24$ ,  $p < 0.05$ ) and intra-island groups ( $t(16) = 3.78$ ,  $p < 0.05$ ), place attachment is greater than place identity.

When the reference environment is the city, there are significant differences between place attachment and place identity in the intra-island group ( $t(16) = 3.12$ ,  $p < 0.05$ ), as in the extra-island group ( $t(64) = 6.58$ ,  $p < 0.05$ ). For both groups, place attachment is greater than place identity. For natives, there are no significant differences between identity and attachment to city ( $t(49) = 1.25$ ).

When the environment analysed is the island, there are significant differences between attachment and identity in the extra-island group ( $t(64) = 6.28$ ,  $p < 0.05$ ), with attachment being greater than identity. On the contrary, there are

no significant differences between identity and attachment to island either for the native group ( $t(49) = 1.20$ ) or for the intra-island group ( $t(16) = 1.19$ ).

Comparing the different groups reveals that intra-island individuals establish significantly more intensive bonds regarding the island than the extra-island group both for attachment ( $t(80) = 7.19$ ,  $p < 0.05$ ) and for identity ( $t(80) = 8.90$ ,  $p < 0.05$ ), although these groups establish similar bonds to the neighbourhood (for both attachment ( $t(80) = 1.57$ ) and identity ( $t(80) = 1.09$ ), and similar bonds to the city (attachment ( $t(80) = 0.20$ ) and identity ( $t(54) = 0.29$ )).

Intra-island individuals, on the other hand, have significantly lower bonds than natives regarding the neighbourhood (attachment  $t(65) = 3.89$ ,  $p < 0.05$  and identity ( $t(65) = 4.83$ ,  $p < 0.05$ ) and regarding the city (attachment  $t(65) = 3.47$ ,  $p < 0.05$  and identity  $t(65) = 4.19$ ,  $p < 0.05$ ), but not where bonds with the island are concerned.

Obviously, bonds of native individuals are significantly higher than those of extra-island individuals in all cases.

Comparing the different environments, we can observe that attachment to neighbourhood is lower than attachment to city for natives ( $t(49) = 2.84$ ;  $p < 0.05$ ) and for the intra-island group ( $t(16) = 2.58$ ;  $p < 0.05$ ). Also, attachment to neighbourhood is lower than attachment to island in both cases ( $t(49) = 6.18$ ;  $p < 0.05$  and  $t(16) = 8.78$ ;  $p < 0.05$ , respectively). Finally, in both groups attachment to city is lower than attachment to island ( $t(49) = 4.83$ ;  $p < 0.05$  and  $t(16) = 8.38$ ;  $p < 0.05$ , respectively).

Identity follows a similar schema. Identity with the neighbourhood is lower than identity with the city for natives ( $t(49) = 3.51$ ;  $p < 0.05$ ) and for the intra-island group ( $t(16) = 2.79$ ;  $p < 0.05$ ). Also, identity with neighbourhood is lower than identity with island in both cases ( $t(49) = 7.858$ ;  $p < 0.05$  and  $t(16) = 10.82$ ;  $p < 0.05$ , respectively). Finally, in both groups, identity with city is lower than identity with island ( $t(49) = 5.61$ ;  $p < 0.05$  and  $t(16) = 9.68$ ;  $p < 0.05$ , respectively).

In the case of the extra-island group, there are no significant differences for attachment or for identity between the three environments studied.

### 2.3. Discussion

The results obtained have revealed that attachment and identity behave differently in natives and non-natives. Thus, for the group of natives, as was to be expected, there are no differences between bonds with the island or city. However, this is not so for neighbourhood, where attachment is greater than identity. On the other hand, non-natives, as was to be expected, show a higher level of attachment than identity, except for persons who have moved within the same island (intra-island group), who demonstrate equal levels of identity and attachment to island.

Moreover, the response analysis of persons who have moved within the same island (intra-island group) reveals the dynamic nature of these bonds. Thus, these individuals behave in the same way as natives, vis-à-vis the island, since they share it with them and feel equally rooted (Hay, 1998a). There are more similarities with the extra-island group for city and neighbourhood, since attachment is always higher than identity because they also move within these environments.

Similar confirmation has been given to the hypothesis that establishes the existence of a higher degree of identity and attachment to city than to neighbourhood, coinciding with the results presented by Hidalgo and Hernández (2001), and even greater to island. This difference acquires greater intensity in native individuals and in persons who have moved within the island. For the extra-island group, there are no differences between the three environments, but there are between both types of bonds.

The fact that the covariable length of residence is not significant shows that, for this age group, the differences observed are not attributable to the time that the individuals have lived at their current residence and that the effects of the independent variables can be explained without recurring to this variable. This further confirms the basis of our research approach. This result does not imply that the length of residence is not related to the intensity of the bonds, since, as was to be expected (Taylor, Gottfredson, & Broker, 1984; Hay, 1998a), significant correlations were obtained with measurements of attachment and identity, but rather that the differences observed in this population can be explained by the differences established according to the participants' origin.

The results obtained refer to the bonds established by university students with the places where they live. They have either lived in these places for a long time or they have moved there from other places that share a very similar spatial and cultural framework of reference. Indeed, both groups from the same island (natives and intra-island) maintain similar attachment bonds, while those who have moved from other islands have fewer ties with the environments analysed. Furthermore, participants who have moved to the places analysed (intra- and extra-island) have done so voluntarily and temporarily in order to undertake a specific activity: study a university course. The reason for the move may mask the differences; in fact, "choice of residence" or "congruity with expectations" are variables that can be important in the relation with a place (Bernardo & Palma, 2005).

The need to reduce the role of symbolic and representational contents shared by all the participants, since they are from the same cultural, political and geographical community, calls for the analysis of other groups in which these characteristics are not present. In any case, it is advisable to repeat this type of analysis, with a view to understanding the range of its validity. The results obtained regarding the differences between attachment and identity, and between ranges of residence—particularly between city and neigh-

bourhood—require new research with different groups from those analysed in this work.

### 3. Study 2

In the previous study, both the native and the non-native groups were composed of Spanish people, born in the Canary Islands (but in different cities or on different islands). However, we have seen that belonging to a different city or island entails a decrease in the levels of attachment and especially in the levels of place identity. These results confirm previous studies in this line (Hay, 1998a, 1998b). In this sense, we considered what would happen with other non-Spanish residents: foreign immigrants who come to Spain to work. Thus, we decided to replicate the previous study, but, in this case, with a sample of immigrants.

In accordance with the results of study 1, we expected attachment to be higher than identity for immigrants, while the group of natives would not reveal significant differences between both kinds of bonds. We also expected significant differences between natives and immigrants regarding place attachment and place identity, with both bonds being greater for natives.

At the same time, comparing natives and immigrants would enable us to assess the extent to which preference for the island and the city versus the neighbourhood is due to sociocultural characteristics related to the participants or, whether it responds more to characteristics related to the physical environment analysed.

#### 3.1. Method

##### 3.1.1. Participants

The 161 persons participated voluntarily in this study. Seven participants were eliminated from the study either because they had left many questions unanswered or because their responses contained structural inconsistencies.

The final sample was composed of 154 individuals resident on the island of Tenerife. The 57% of the end sample were immigrants, mostly (90%) from Latin American countries (essentially from Cuba, 67%, and Venezuela, 19%), as well as from European countries (10%). The 43% of the end sample was composed of individuals born in Tenerife. The 37% of the total sample were men and 63% women. Most participants (75%) lived in flats at the time the study was undertaken. The 84% lived in the metropolitan area: Santa Cruz de Tenerife (43%) and La Laguna (41%), and 16% lived in other towns on the island. The three groups showed no significant differences in their responses to the questionnaire and all the places of residence were considered equal.

The average age of the immigrants was 35.9 years, with a standard deviation of 13.1. They had lived for an average of 5.8 years on the island, 4.7 in the city and 3.5 in the neighbourhood. For their part, the natives were aged 21.2

years on average, with a standard deviation of 4.3. They had lived an average of 21.4 years on the island, 18.9 in the city and 16.1 in the neighbourhood.

3.1.2. Design and instrument

A factorial design of repeated measurements was employed in this research. Two within-subject factors and one between-subject factor were analysed. Within-subject factors were “type of bond” (attachment and identity) and “type of environment” (neighbourhood, city and island). “Place of origin” (natives and immigrants) was the between-subject factor. The dependent variable was “intensity of bond”.

Therefore, the measurements were attachment and identity with neighbourhood, city and island. We also used three covariables to control the length-of-residence effect in each environment: length of residence on the island, length of residence in the city and length of residence in the neighbourhood.

The instrument used was the same as for study 1. Application to individuals was as in the first study—collectively, at university lectures. Immigrants’ questionnaires were collected at ethnic associations, immigrants associations and independent humanitarian organizations. The reason behind the research was explained and their collaboration was requested. They were subsequently provided with a questionnaire, which they completed in the presence of the researcher.

3.2. Results

We checked the non-existence of univariate outliers for all items, by following the criteria of not accepting typical scores above  $\pm 3$ . We also checked normal item distribution by means of the Kolmogorov–Smirnov test, which obtained a statistical value below 0.30, despite being statistically significant in some cases. We also carried out these checks for each level of between-subject factor with the same results.

Subsequently, we calculated the internal consistency of the attachment and identity scales for each of the different environments assessed. Table 4 shows the reliability indices obtained, which were higher than 0.94 in all cases. This allows us to aggregate the items of each scale.

We then calculated the mean scores of identity and attachment to island, the city and the neighbourhood for

Table 4  
Cronbach’s  $\alpha$  coefficients for the scales of identity and attachment to the island, city and neighbourhood

Environment	Place attachment	Place identity
Island	0.96	0.97
City	0.94	0.96
Neighbourhood	0.96	0.96

the two samples: natives and immigrants. These values are given in Fig. 2.

The correlation between the measurements of length of residence in each type of environment assessed, and the degree of identity and attachment to each place are given in Table 5. These correlations reveal the importance of length of residence in creating and maintaining bonds with place.

A covariance analysis of repeated measurements was performed, in order to discover whether there were significant differences between intensity of attachment and intensity of identity for each group (natives, intra-island and extra-island) and in each environment (neighbourhood, city and island). Since the three measurements for length of residence (neighbourhood, city and island) were correlated and produced effects of multicollinearity, only length of residence in the city was used as a covariable. Length of residence in the city was used as it had the highest correlations with length of residence in the neighbourhood (0.891\*\*) and the island (0.885\*\*).

The covariable length of residence was not significant in this study ( $F(1,144) = 3.32; p > 0.05$ ). This result reveals that the differences observed are not attributable to the time that individuals have lived in their current residence and that the possible effects of the factors can be explained without recurring to this variable.

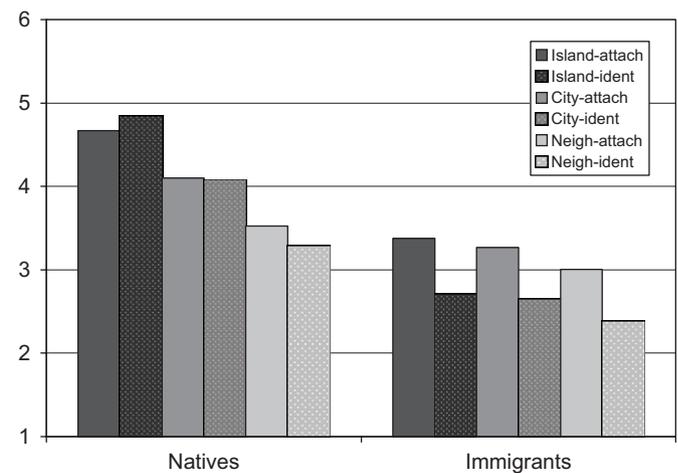


Fig. 2. Mean of place attachment and place identity of immigrants and natives for each environment.

Table 5  
Correlation coefficients between length of residence in each place with place attachment and place identity

	Length in neighbour	Length in city	Length in island
AttachNeighb	0.253**		
AttachCity		0.399**	
AttachIsland			0.545**
IdentNeighb	0.409**		
IdentCity		0.489**	
IdentIsland			0.692**

\*\*  $p < 0.01$ .

We found a significant triple interaction among the three factors: the two within factors, “type of bond” and “type of environment”, and the between-factor “origin” ( $F(2,144) = 5.65, p < 0.05$ ). To clarify the effect of this triple interaction, we performed a study of the interaction by means of *a posteriori* comparisons, based on Sidak’s adjustments.

Comparing the two types of bonds within the triple interaction, the simple effects reveal the existence of significant differences between attachment and identity for immigrants, with attachment being higher than identity for the neighbourhood ( $t(82) = 8.54, p < 0.05$ ), the city ( $t(82) = 8.09, p < 0.05$ ) and the island ( $t(82) = 8.02, p < 0.05$ ). On the other hand, for natives, the differences between attachment and identity are significant only for the neighbourhood ( $t(63) = 2.65, p < 0.05$ ).

If we compare the two groups, we find significant differences between immigrants and natives in all cases. Attachment to neighbourhood ( $t(145) = 2.74; p < 0.05$ ), city ( $t(145) = 4.72; p < 0.05$ ) and island ( $t(145) = 7.01; p < 0.05$ ), as well as identity with the neighbourhood ( $t(145) = 4.51; p < 0.05$ ), city ( $t(145) = 7.02; p < 0.05$ ) and island ( $t(145) = 10.11; p < 0.05$ ) is higher for natives than for immigrants.

When comparing the three environments, there is a noticeably significant difference between native and immigrant data. For the immigrants, the only difference between environments appears between the higher attachment to neighbourhood and the lower attachment to island ( $t(82) = 8.60; p < 0.05$ ). However, for the natives, all environments differ for both bonds. Where attachment is concerned, the bond to the neighbourhood is lower than to the city ( $t(63) = 4.41; p < 0.05$ ) and to the island ( $t(63) = 8.14; p < 0.05$ ). The bond to the city is also lower than to the island ( $t(63) = 6.11; p < 0.05$ ). Results for identity follow the same pattern. Identity to the neighbourhood is lower than to the city ( $t(63) = 5.36; p < 0.05$ ) and to the island ( $t(63) = 9.64; p < 0.05$ ). Identity to the city is also lower than to the island ( $t(63) = 6.67; p < 0.05$ ).

### 3.3. Discussion

When comparing the samples of natives and immigrants, results show that respondents’ feeling of place attachment and place identity behave differently in both groups. These differences are observed when comparing natives’ and immigrants’ scores and when comparing attachment and identity within each group. Thus, natives achieve moderately higher scores for both attachment and identity, which are higher than those for immigrants in all three areas studied. Nevertheless, while there is little difference between both bonds among natives, immigrants score higher for measurements of attachment regarding the three places studied (neighbourhood, city and island) than for measurements of identity. Indeed, mean scores for place identity in this sample are lower, while attachment levels are midway.

We have also been able to verify that the bonds developed by immigrants towards the different areas analysed follow the same pattern (island-city-neighbourhood) as for natives. The highest scores for place attachment are for island and city, and, to a lesser extent, for neighbourhood. This stable result leads us to consider that it may be due to characteristics related to the physical environment analysed. Future research should clarify which environment characteristics are related to the type of bond established and to the affective distinctiveness of place.

As it occurred in the first study, significant but moderate correlations were obtained between length of residence and attachment and identity measurements. However, when these measurements were entered in the covariance analysis, they were once again non-significant. This result highlights two issues: on the one hand, as has been frequently shown (Riger & Lavrakas, 1981; Taylor et al., 1984; Hay, 1998b; Bonaiuto, Aiello, Perugini, Bonnes, & Ercolani, 1999), the time persons have been living in a place influences their bond with that place; on the other hand, the differences between the degree of attachment and that of identity observed in our study are not due to the different lengths of residence of the individuals in the various groups. This is possibly related to the homogeneity of the variable “length of residence” within each of the groups analysed and to the low dispersion of the scores, owing to the short time that even the group of natives has lived in the place, given their youth. However, rather than a setback, this confirms that the effect of length of residence has been controlled, which was our aim. At the same time, it points to the need to carry out further research into the real role played by length of residence and the nature of the variables that may be regulating this relation (Brown et al., 2003).

### 4. Conclusions

As we expected, the results show that place attachment and place identity behave similarly in the case of natives born and raised in the same place but differently in the case of non-natives. We also confirm that natives establish more intense links, whether of attachment or identity, with the island, the city and finally, with the neighbourhood where they live. In the case of the extra-island group and immigrants, there are no relevant differences between the three environments studied.

Both studies reveal a set of equivalent results confirming that when place of origin and length of residence are taken into consideration and their effect is controlled, place attachment and place identity are distinguishable yet inter-related bonds. These results support the hypothesis that place attachment and place identity are constructs that, though occasionally linked, must be evaluated differently. And for this purpose, the questionnaire drawn up for this research has proven suitable. Nevertheless, this differentiation is frequently masked by the fact that persons construct

identity, among other factors, around places to which they are attached over a period of time. In this sense, natives reveal similar degrees of attachment and identity to the island and the city, which are places that represent strong, stable and comprehensible environments; however, identity and attachment are distinguishable where neighbourhood is concerned, since it represents an environment of greater mobility and is a reference for identity of little importance within the context of relatively small cities.

Using different samples has enabled us to consider that place attachment develops before place identity, at least in the case of the non-natives. Our results agree with earlier results (Knez, 2005), although existing investigations do not allow to determine the minimum time necessary to develop this kind of bond regarding places. Generally, most authors consider that place attachment and place identity develop after symbolic long-term experiences with places (for a review, see Giuliani, 2003). Even so, this author observes that it is possible to find some contradictory results, like Bahi-Fleury (1996), who do not find effects on attachment to the neighbourhood due to time of residence, or Harris, Brown, and Werner (1996) who conclude that not all forms of attachment demand a long-term interaction with place. Nevertheless, the nature of this study does not allow us to establish whether one of these bonds is part of another. All these questions may be interesting lines of research to clarify the relation between these concepts.

In both studies, the confirmation that neighbourhood arouses a weaker bond than city coincides with the results of the few studies that simultaneously analyse several spatial levels (Cuba & Hummon, 1993; Hidalgo & Hernández, 2001). For all the groups analysed in both studies, we have verified that island and city of residence are places of greater attachment and identity than neighbourhood. It is possible that certain characteristics of the places analysed, such as size of place and processes of neighbourhood spatial integration, may be connected to the role that they play. It is also possible that variables related to the nature of interaction with place, as indicated by Hay (1998a; 1998b) and Tuan (1974), may influence the development of attachment and identity, so that our individuals symbolically interact more with the city and the island than with the neighbourhood. In other words, the neighbourhood lacks symbolism, while the city and particularly the island are heavily charged with content and relevant meaning. These results question the tradition of considering neighbourhood as the preferred place of attachment (Guest & Lee, 1983; Cuba & Hummon, 1993; Mannarini et al., 2006). In any case, further research is needed to clarify this aspect by comparing bonds with cities and neighbourhoods to different development processes and different spatial structures.

Likewise, despite the fact that the results obtained are stable for all five groups analysed, the sociodemographic characteristics of our participants (mainly students) suggest the advisability of studying these processes with other

population types. In any case, we would like to emphasise the fact that it does not seem reasonable to attribute the differences found in both studies to cultural differences.

The magnitudes of identities for the groups of newcomers in both studies reveal that it is possible for these people to develop place identity, without necessarily entering into conflict with previous identities. In this sense, persons who move may generate throughout their interaction with the new place bonds different identity from those generated by natives. This distinction would be similar to that pinpointed by Hummon (1992) when differentiating between everyday and ideological rootedness. However, the instruments used in this study did not allow us to differentiate different types of place identity, and further research is needed in this area.

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### Appendix A. Supplementary data

Supplementary data associated with this article can be found in the online decision at [doi:10.1016/j.jenvp.2007.06.003](https://doi.org/10.1016/j.jenvp.2007.06.003).

### References

- Altman, I., & Low, S. (1992). *Place attachment*. New York: Plenum.
- Bahi-Fleury, G. (1996). *Histoire, identité résidentielle et attachment au quartier actuel*. Doctoral thesis, Paris, Université René Descartes.
- Bernardo, F., & Palma, J. M. (2005). Place change and identity processes. *Medio Ambiente y Comportamiento humano*, 6, 71–87.
- 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. (1990). The city as a multi-place system: An analysis of people-urban environment transactions. *Journal of Environmental Psychology*, 10, 37–65.
- 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 & Behavior*, 17, 539–565.
- Brown, B., Perkin, D., & Brown, G. (2003). Place attachment in a revitalizing neighbourhood: Individual and block levels of analysis. *Journal of Environmental Psychology*, 23, 259–271.
- Chawla, L. (1992). Childhood place attachments. *Human Behavior & Environment: Advances in Theory & Research*, 12, 63–86.
- Cuba, L., & Hummon, D. M. (1993). A place to call home: Identification with dwelling, community and region. *Sociological Quarterly*, 34, 111–131.
- 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. (1991). Towards an analysis of mental representations of attachment to the home. *Journal of Architectural and Planning Research*, 8, 133–146.

- Giuliani, M. V., & Feldman, R. (1993). Place attachment in a developmental and cultural context. *Journal of Environmental Psychology, 13*, 267–274.
- Guest, A. M., & Lee, B. A. (1983). Sentiment and evaluation as ecological variables. *Sociological Perspectives, 26*, 159–184.
- Harris, P. B., Brown, B. B., & Werner, C. M. (1996). Privacy regulation and place attachment: Predicting attachments to a student family housing facility. *Journal of Environmental Psychology, 16*, 287–301.
- Hay, R. (1998a). Sense of place in developmental context. *Journal of Environmental Psychology, 18*, 5–29.
- Hay, R. B. (1998b). A rooted sense of place in cross-cultural perspective. *Canadian Geographer, 42*, 245–266.
- Hernández, B., Hidalgo, M. C., & Diaz, L. (1998). Predictores de apego al lugar (Predictors of place attachment). In J. M. Sabucedo, R. García-Mira, E. Ares y, & D. Prada (Eds.), *Medio ambiente y responsabilidad humana. Aspectos sociales y ecológicos*, (pp. 39–46). La Coruña: Tórculo Artes Gráficas.
- Hidalgo, M. C. (2000). Estilos de apego al lugar (Place attachment styles). *Medio Ambiente y Comportamiento Humano, 1*, 57–73.
- Hidalgo, M. C., & Hernández, B. (2001). Place attachment: Conceptual and empirical questions. *Journal of Environmental Psychology, 21*, 273–281.
- Hummon, D. M. (1992). Community attachment: Local sentiment and sense of place. In I. Altman, & S. Low (Eds.), *Place attachment*. New 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.
- Knez, I. (2005). Attachment and identity as related to a place and its perceived climate. *Journal of Environmental Psychology, 25*, 207–218.
- 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.
- 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.
- Moore, J. (2000). Placing home in context. *Journal of Environmental Psychology, 20*, 207–217.
- 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., Fabian, A. K., & Karminoff, R. (1983). Place identity: Physical world socialization of the self. *Journal of Environmental Psychology, 3*, 57–84.
- Riger, S., & Lavrakas, P. (1981). Community ties patterns of attachment and social interaction in urban neighborhoods. *American Journal of Community Psychology, 9*, 55–66.
- 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 (Neighbourhood, city and island as attachment places and identity referents: A comparative study between immigrants and natives). 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.
- Stedman, R. (2002). Toward a social psychology of place: Predicting behavior from place-based cognitions, attitude, and identity. *Environment and Behavior, 34*, 561–581.
- Taylor, R. B., Gottfredson, S. D., & Brower, S. (1984). Neighbourhood naming as an index of attachment to places. *Population and Environment, 7*, 103–125.
- Tuan, Y. F. (1974). *Topophilia: A study of environmental perception, attitudes and values*. Englewood Cliffs, NJ: Prentice-Hall.
- Twigger-Ross, C., & Uzzell, D. L. (1996). Place and identity processes. *Journal of Environmental Psychology, 16*, 205–220.
- Vidal, T., Pol, E., Guardia, J., & Però, M. (2004). Un modelo de apropiación del espacio mediante ecuaciones estructurales (A theoretical model of appropriation of space tested by structural equations models). *Medio ambiente y comportamiento humano, 5*, 27–52.
- Valera, S., & Pol, E. (1994). El concepto de identidad social urbana: una aproximación entre la Psicología Social y la Psicología Ambiental (The concept of urban social identity: An approach between social psychology and environmental psychology). *Anuario de Psicología, 62*, 5–24.
- Wester-Herber, M. (2004). Underlying concerns in land-use conflicts—the role of place identity in risk perception. *Environmental Science & Policy, 7*, 109–116.
- Woldoff, R. A. (2002). The effects of local stressors on neighbourhood attachment. *Social Forces, 8*, 87–116.