Journal of City and Development, 2020, Vol. 2, No. 1, 18-21
Available online at http://pubs.sciepub.com/jcd/2/1/3
Published by Science and Education Publishing
DOI:10.12691/jcd-2-1-3

An Evaluation of Users' Place Attachment and Identity in a Recreational Urban Setting

Sarah E. Mount*

Department of Kinesiology & Health Education, University of Texas, Austin, Tx 78705
*Corresponding author: smount2@ewu.edu

Received November 21, 2020; Revised December 22, 2020; Accepted December 29, 2020

Abstract The validity of Williams and Roggenbuck's [1] *place attachment* scale has been examined in numerous studies and the results indicate that it is a valid instrument for measuring *place dependence* and *place identity* in a variety of settings. The purpose of this study is to expand previous construct validity research on items related to the latent variable identified as *place identity* on a recreational resource in an urban setting. Participants included 126 trail users (58% female, 42% male, age 20-66) who completed an online survey designed to measure individual perceptions of trail characteristics and patterns of use. A single-factor confirmatory factor analysis (CFA) was performed with goodness-of-fit tested using chi-square. When performed using the Maximum Likelihood method, the test was not significant, $\chi^2(2) = 4.74$, $p = .09$. When performed using the Generalized Least Squares method, the test also was not significant, $\chi^2(2) = 4.54$, $p = .10$, thus failing to reject the null hypothesis that the data do not fit the model. The results suggest that the 4-item place identity scale may be a valid measurement tool for use on recreational spaces in urban settings.

Keywords: *place attachment, place identity, biophilic cities, urban planning, recreation*

Cite This Article: Sarah E. Mount, "An Evaluation of Users' Place Attachment and Identity in a Recreational Urban Setting." *Journal of City and Development*, vol. 2, no. 1 (2020): 18-21. doi: 10.12691/jcd-2-1-3.

1. Introduction

Urban planners are increasingly focused on the design of biophilic cities which incorporate more green space, walking trails, community gardens, tree canopies, and green roofs [2]. Educators, social workers, recreation specialists, and healthcare providers are making a widespread effort to harness the recuperative benefits of biophilic places. A biophilic city is more than just design; the residents are also actively engaged in experiencing and caring for the natural environments contained in their city and may ultimately develop emotional connections with those areas [2].

The notion that an individual can emotionally bond with a particular place was explored as "place attachment" nearly 40 years ago by a number of researchers [3,4,5]. Place attachment refers to the capacity for humans to bond to their environment. This concept grew out of the biophilia hypothesis [6], which suggests that humans possess an innate need to affiliate with natural environments. According to this evolutionary theory, humans may hold an unconscious tendency to occupy open, low-risk environments to which ancestors may have fled when retreating from a threat [7]. This desire for biocentric places may have persevered into the genetic makeup of modern humans, resulting in nature's ability to provide restorative qualities [8,9].

Place attachment can apply to a variety of settings, not only natural environments as designated in the biophilia hypothesis. Place is simply defined as "that of a meaningful location" [10]. As such, researchers have examined attachments to homes, seasonal homes, neighborhoods, countries, recreational resources, sacred sites, and athletic arenas [10]. Recreational resources have been the target of place attachment research and include locations such as forests, sea coasts, mountains, and fishing streams [11,12,13,14].

Williams and Roggenbuck's [1] *place attachment* scale has been validated for measuring *place dependence* and *place identity*. *Place dependence* refers to a connection between an individual and a particular place based on the ability of that place to satisfy activity needs [15]. *Place identity* is described as "those dimensions of self that define the individual's personal identity in relation to the physical environment" [16]. *Place identity* reflects the degree to which a particular setting supports one's self-identity and is a central aspect of an individual's life. Research shows place dependence and place identity to be highly correlated. However, some studies show that certain dependent variables can influence this relationship such as experience history [14] and recreation skill level [17].

Some researchers interested in the cultural aspect of place argue that the Williams and Roggenbuck scale may be inadequate and thus added new dimensions to the scale that might further express an individual's attachment to

place. These dimensions include social bonding [18], place rootedness [14], and nature bonding [19]. Despite this effort to establish a more comprehensive instrument to measure place attachment, the place dependence and place identity scale continue to show high construct reliability and validity [19].

Place identity was chosen as the focus for this study because it was considered the most interesting predictor of place attachment for this population with the greatest potential for further analysis with other variables in the study. Although place dependence is likely to be prevalent among these trail users, it is also somewhat expected that a trail for running would be highly appreciated and its users highly dependent on it for exercise. The place dependence items were omitted in the interest of keeping a lengthy survey shorter. The inclusion of the *place identity* items on the survey afforded the opportunity to test the 4-item scale in this particular setting and with this population. In addition to providing information about place affiliation among trail users, there is only one other study known to analyze the psychometric properties of place attachment to a trail, conducted by Kyle, Graefe, & Manning [13] on the Appalachian Trail. Their results showed high correlation among items, factor loadings > .72 on all items, and an overall Chronbach Alpha = .87. The purpose of this study is to expand previous construct validity research on items related to the latent variable identified as *place identity* by examining a recreational resource in an urban setting.

2. Methods

2.1. Setting

Lady Bird Lake runs through the city center of Austin, Texas and is surrounded by an urban trail nearly 10 miles in length. This crushed granite urban trail is a recreational resource for the community and is utilized by walkers, runners, and cyclists.

2.2. Participants

Participants (n=126) that subscribe to the *Trail Foundation Newsletter* and completed the online survey.

2.3. Measures

2.3.1. Online Survey

A 44-item survey included a 4-item scale developed by Williams and Roggenbuck [1] to examine place identity. The online survey served 3 purposes: 1) collect subjective ratings of trail characteristics 2) collect individual patterns of use and 3) examine the goodness-of-fit of the place identity model in the context of an urban trail. It is the aim of this report to focus on the survey's third objective. The online survey contained 42 questions with an estimated completion time of 15 minutes. Trail characteristics examined fall under the travel study constructs of density, diversity, design, and access [20]. Place identity was attained using a 5-point Likert-scale, 1 = Strongly disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly agree. The four items were:

1. This trail means a lot to me.
2. This trail is a special place.
3. I identify strongly with this trail.
4. I feel no commitment to this trail.

Item 4 was reverse-coded before computing the total, which consisted of the average of the four items.

3. Results

One-hundred twenty-six respondents rated all four items (58% female, 42 male, age 20-66). The individual scale items contained several low outliers, as noted here: #1 (3 outliers), #2 (5), #3 (1), and #4 (3). All outliers were replaced with values three standard deviations below the means for their respective items. Table 1 shows descriptive statistics for the four items after outliers were replaced.

Table 1. Descriptive Statistics for Scale Items and Total

	M	*SD*	Skewness		Kurtosis	
			Statistic	*SE*	Statistic	*SE*
This trail means a lot to me.	4.82	.41	-2.00	.22	2.41	.43
This trail is a special place.	4.85	.41	-2.54	.22	5.09	.43
I identify strongly with this trail.	4.53	.74	-1.30	.22	.32	.43
I feel no commitment to this trail (reverse-coded).	4.77	.45	-1.64	.22	1.26	.43
Total	4.74	.43	-1.65	.22	1.52	.43

All four items as well as the total demonstrated excess negative skew indicating that their distributions' peaks were skewed toward the upper end of the scale. In addition, all items except #3 demonstrated excessive positive skew, indicating that their distributions were excessively narrow and high rather than round and bell-shaped. Neither square-root, natural log, nor inverse transformations on the individual items nor total score reduced skew or kurtosis. Cautious interpretation is therefore warranted. However, it was expected that users of the trail, some of whom subscribe to an electronic trail newsletter, would show high scores for place attachment. Regardless, the data appears to violate the assumption of normality. Table 2 shows the correlations among the four items.

Table 2. Correlations among Scale Items

	2	3	4
1	. 62	.73	.55
2		.58	.48
3			.65

N = 126.
All correlations significant at $p < .001$.

A single-factor confirmatory factor analysis (CFA) was performed on the scale. (Note: An exploratory factor analysis was not performed, due to the fact that the scale has been validated in previous research and the construct analyzed was the sole construct of interest.) Due to the limitations of the software used (SPSS), a principal component analysis (PCA) was run setting the number of factors to 1 and choosing the Maximum Likelihood and Generalized Least Squares extraction methods, which yields equivalent results to a CFA. Goodness-of-fit of the model was tested using chi-square. Chronbach's alpha for

the scale was .84. When performed using the Maximum Likelihood method, the test was not significant, $\chi^2(2) = 4.74$, $p = .09$. A chi-square value of between 3 and 5, as obtained here, is adequate for rejecting the hypothesis that the observed data do not fit the proposed model (though $\chi^2 < 3$ is preferred). The non-significant *p*-value also supports the notion that the data fit the model adequately. When performed using the Generalized Least Squares method, the test also was not significant, $\chi^2(2) = 4.54$, $p = .10$, thus suggesting that a rejection of the hypothesis that the data do not fit the model. Table 3 shows the factor matrix and factor score coefficient matrix for the GLS method. Factor loadings are illustrated in Figure 1.

Table 3. Factor Matrix and Factor Score Coefficient Matrix

	Factor Matrix	Factor Score Coefficient Matrix
#1	.84	.32
#2	.70	.15
#3	.88	.46
#4	.71	.16

N = 126. Generalized Least Squares extraction method used.

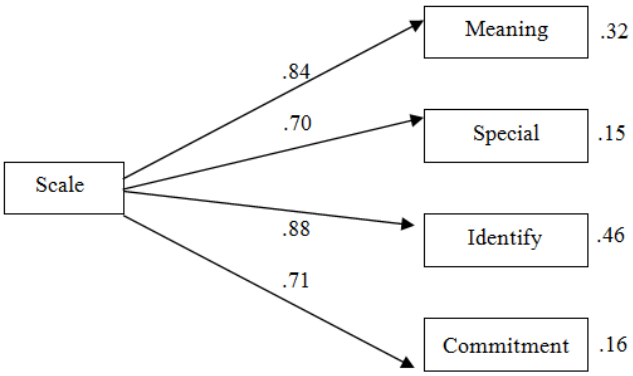

Figure 1. Factor loadings

4. Discussion

The results of this study show that the scale items "This trail is a special place" and "I feel no commitment to this trail" loaded less strongly than the other two measures of place identity ("This trail means a lot to me" and "I identify strongly with this trail"). However, they were still significant and strong contributors to place identity (factor loadings > .70). Based on recent literature regarding biophilic cities, future research may benefit from investigating the factor loading of commitment on biophilia.

There are a number of limitations associated with this analysis. The sample size is on the low end of what is acceptable for a confirmatory factory analysis (5 responses per item or 150, whichever is larger). Also, because place attachment was not a primary aim of the overall study, only one factor was included in the model. An exploratory factor analysis was not included because for this reason and because prior studies have validated the scale.

Place attachment refers to the relationship between people and place. This is not an easy construct to measure. Researchers have struggled to define a common theoretical concept of place attachment and are consequently challenged to develop an instrument that adequately measures the construct across a variety of settings. The results of this confirmatory factory analysis support the validity of the place identity model on a recreational resource in an urban setting and concur with the results of the prior psychometric study that utilized trail users [13].

5. Conclusion

Outdoor recreational areas in urban settings are becoming more important as people move away from suburbia and back to city centers. The design of these cities and the recreational opportunities that they offer can enhance quality of life through a variety of benefits. Prior research suggests that the benefits of place attachment vary depending on the type of place to which an individual becomes attached. Scannel and Gifford [21] examined the benefits associated with different categories of places and reported that *outdoor areas* were associated with the benefits of relaxation, memories, and access to activities. Many outdoor recreational areas, including the urban trail of interest in this study, include elements of nature which provide biophilic benefits. Connection to nature has been identified as an important aspect of place attachment for some people, especially those whose time spent in nature is connected to their perceived identity [21]. Future research should examine the degree to which the *place identity* construct of Williams and Roggenbuck's [1] *place attachment* scale is associated with the natural features of urban trails in order to guide future planning of recreational areas in urban settings.

References

[1] Williams, D. R., & Roggenbuck, J. W. (1989). Measuring place attachment: Some preliminary results (Abstract). In Proceedings of the National Recreation and Parks Association Symposium on Leisure Research, 1989. San Antonio, TX (October, 1989).

[2] Beatley, T., Newman, P. (2013). Biophilic Cities Are Sustainable, Resilient Cities. Sustainability, 5(8), 3328-3345.

[3] Stokols, D., & Shumaker, S. A. (1981). People and places: A transactional view of settings. In. J. Harvey (Ed.). Cognition, Social Behavior and the Environment. Hillsdale, NJ: Erlbaum, pp.441-488.

[4] Taylor, R., Gottfredson, S., & Brower, S. (1984). Neighborhood naming as an index of attachment to place. Population and Environment, 7(2), 103-125.

[5] Altman, I., Low, S. (1992). Place attachment, human behavior, and environment: Advances in theory and research. New York: Plenum Press.

[6] Wilson, E. O. (1984). Biophilia. Cambridge, MA: Harvard University Press, 1984.

[7] Joye, Y. (2007). Architectural lessons from environmental psychology: The case of biophilic architecture. Review of General Psychology, 11, 305-328.

[8] Kaplan, S. (1995). The restorative benefits of nature: Toward and integrative framework. Journal of Environmental Psychology, 15, 169-182.

[9] Berto, R., Barbiero, G., Barbiero, P., & Senes, G. (2018). An Individual's Connection to Nature Can Affect Perceived Restorativeness of Natural Environments. Some Observations about Biophilia. Behavioral Sciences, 8(3), 34.

[10] Lewicka, M. (2011). Place attachment: How far have we come in the last 40 years? Journal of Environmental Psychology, 31(3), 207-230.

[11] Smaldone, D., Harris, C., & Sanyal, N. (2005). An exploration of place as a process: The case of Jackson Hole, WY. Journal of Environmental Psychology, 25(4), 397-414.

[12] Kelly, G., Hosking, K. (2008). Nonpermanent Residents, Place Attachment, and "Sea Change" Communities. Environment and Behavior, 40(4), 575-594.

[13] Kyle, G., Graefe, A., Manning, R., & Bacon, J. (2003). An Examination of the Relationship Between Leisure Activity Involvement and Place Attachment Among Hikers Along the Appalachian Trail. Journal of Leisure Research. 35. 249-273.

[14] Hammitt, W., Backlund, E., Bixler, R. (2006). Place Bonding for Recreation Places: Conceptual and Empirical Development. Leisure Studies, 25(1), 17-41.

[15] Williams, D. R., Patterson, M. E., Roggenbuck, J. W., & Watson, A. E. (1992). Beyond the commodity metaphor: Examining emotional and symbolic attachment to place. Leisure Sciences, 14, 29-46.

[16] Proshansky, H. M. (1978). The city and self-identity. Environment and Behavior, 10, 147-169.

[17] Bricker, K. S., & Kerstetter, D. L. (2000). Level of specialization and place attachment: An exploratory study of whitewater recreationists. Leisure Sciences, 22, 233-257.

[18] Kyle, G., Graefe, A., & Manning, R. (2005). Testing the dimensionality of place attachment in recreational settings. Environment and Behavior, 37(2), 153e177.

[19] Raymond, C., Brown, G., & Weber, D. (2010). The measurement of place attachment: Personal, community, and environmental connections. Journal of Environmental Psychology, 30(4), 422-434.

[20] Cervero, R. & Kockelman, K. (1997). Travel demand and the 3Ds: Density, diversity, and design. *Transportation Research Design*, 2(3), 199-219.

[21] Scannell, L., Gifford, R. (2017). The experienced psychological benefits of place attachment. Journal of Environmental Psychology, 51, 256-269.