A QUANTITATIVE SYNTHESIS OF PLACE ATTACHMENT RESEARCH: INVESTIGATING PAST EXPERIENCE AND PLACE ATTACHMENT

Erik A. Backlund
Graduate Research Assistant,
Department of Leisure Studies,
University of Illinois at Urbana-Champaign, 104 Huff Hall, 1206 South Fourth Street,
Champaign, IL 61820

Daniel R. Williams
Research Social Scientist,
USDA Forest Service, Rocky Mountain Research Station, 2150A Centre Avenue,
Fort Collins, Colorado 80526-1891

Abstract: Place attachment has received a great deal of attention as an independent variable in many outdoor recreation studies over the past ten years. These studies can not only related information about recreation behavior, but also provide insight into the nature place attachment. In this study meta-analytic techniques were used to synthesize and investigate the relationship between past-experience and place attachment. Data were collected from original data sets and the results of published studies. Results found that overall synthesized associations between common measures of past-experience and Place Identity and Place Dependence were weak to moderate. Test of homogeneity across the relationships were found to be significant, indicating a great deal of heterogeneity in the relationships across the studies. Results indicate that factors such measurement difference, sample selection, and study design may play a role in the strength of the associations reported in each study.

Introduction

Within the recreation literature, the place attachment concept has received a great deal of attention over the past ten years. The measures for the constructs of place identity and place dependence have been refined through extensive testing of their psychometric properties (Williams & Vaske, In Press) and applied to the understanding of leisure behavior and the management of recreation resources. For instance, place attachment has been employed to study recreation conflict (Watson, Niccoulucci, & Williams, 1994; Watson, Williams, & Daigle, 1991), management preferences (Williams, Patterson, Roggenbuck, & Watson, 1993; Warzecha & Lime, 2001), perceptions of wildfire (Hendricks, Chavez, & Phippen, 2002), and recreation specialization (Bricker & Kerstteter, 2000).

Despite this attention, little research has focused on the antecedent processes to place attachment (Kyle Graefe, & Manning, In Press). In the environmental psychology literature, some research has investigated how attachment develops. Korpela and associates (Korpela, 1992; Korpela & Hartig, 1996; Korpela, Hartig, Kaiser, & Furher, 2001) have been investigating the role of self-regulating behaviors as an antecedent to place identity. Other studies have examined the role of place in the identity process (Twigger-Ross & Uzell, 1996). In the recreation literature, there are a large number of data sets from applied settings that could yield information useful to gaining an understanding of how people become attached to places.

Most research on place attachment to recreation settings as acknowledged the influence of past-experience but few have specifically investigated the relationship. Measures of past-experience in places other than the home are unique to recreation data sets and two theories of experience could be employed using this data. Cognitive development theory (Williams, 1984) has already been employed to better understand how people develop preference and motivation in their recreation. The purpose of this paper is to use meta-analytic techniques to evaluate and aggregate data on the influence of past-experience on the development of Place Identity and Place Dependence in the outdoor recreation literature.

Past Experience

Tuan (1974) suggests that places are meaning centers based on experience. For instance, past research has shown that people can distinguish places on the basis of the behaviors associated with those settings. The behaviors are a component of the places' meanings (Genereux, Ward, & Russell, 1983). Use experience helps determine the ways a recreationist will perceive, evaluate, and act within a setting. The past experience acts as a frame of

reference through which the recreationist makes judgments about alternative resources and what is acceptable behavior in the setting (Hammitt, Knauf & Noe, 1989).

Past Experience and Place Attachment

Place attachment, as it has been applied in the context of outdoor recreation, has generally been investigated as Place Identity and Place Dependence. Place identity refers to a symbolic or affective attachment to a place. Place Dependence refers to a functional attachment to a place.

Place Identity, as it has been operationalized in the recreation literature, is an affective attachment to a place. Proshansky (Proshansky, Fabian, & Kaminoff, 1978) suggested that development of place identity would be based on an individual having more positively valenced cognitions than negatively valenced cognitions. But experiments in mere-repeated-exposure paradigm have shown that by simply exposing an individual to a stimulus, a preference for that stimulus will emerge (Zajonc 2001). The affect that accompanies repeated exposures to the stimuli do not depend on contextual or subjective factors but solely on a clear history of exposure (Zajonc 2001). Mere-repeated exposure suggests that the affective attachment to places represented by Place Identity is formed primarily on the basis of repeated exposure to place, whether that exposure is based on actually experiencing the place or only hearing or reading about it. Given the mere-repeated-exposure effect, past experience should be a powerful or at least stable predictor of place identity. Total variance explained may be low, but what would be important about the effect size of past experience predicting place identity would be that it is relatively stable (Prentice & Miller, 1992).

Place Dependence is rooted in transactional theory that suggests people evaluate places according to how those places meet functional needs. That is, people compare how well the place meets their functional needs based on evaluations of alternatives (Stokols & Schumaker, 1981). The ability to make these judgments depends largely on developing a frame of reference through experience. Past-experience provides a lens shaped by the activities and social groups of participation. So, it is plausible that the recreationist finds for his/her chosen activity, a specific setting meets her/his participation needs better than other specific settings.

Attention to the role of past experience in the development of place attachments has been minimal at best. In their seminal article on place attachment to recreation settings, Williams, et al. (1992) simply divided the respondents into two groups for item concerning previous visits and years since the first visit, less than three or three or more and ran ANOVAs on the groups. Moore and Graefe (1994) included frequency of visitation and months associated with the sites in regression models predicting place identity and place dependence scores with several other variables. In Bricker and Kerstetter (2000), past experience was integrated into a composite index of specialization. Finally, Williams and Vaske (In Press) divided visits in the past 12 months into three groups and test across the groups with an ANOVA. Other than Moore and Graefe (1994), little research has been published using past-experience with higher level of measurement statistics. The purpose of this paper is to specifically examine the role of past experience to the of place identity and place dependence across several studies using meta-analytic techniques.

Methods

Several data sets and codebooks were complied from the studies' original authors. Each was examined to identify common measures of past-experience. The two most common measures were the items, "How many years have you visited 'X'?" and "How many times have you visited 'X' in the past twelve months?" When original data sets were available Place Identity and Place Dependence were computed using the items according to Williams and Vaske (In Press). Other data was provided in the form of correlation matrices provided by the author. Finally data found in published studies were utilized if data was appropriate. Ten studies of recreationists and conservations volunteers from divers regions of the United States were included in the analysis. To be included studies, needed to have the ability to calculate or report the any of the relationships of interest. Namely, correlations between the past experience variables and Place Identity and Place Dependence and/or the correlation between Place Identity and Place Dependence.

To analyze the compiled data, relationships

between the variables of interest were synthesized and then test for homogeneity. First five relationships were synthesized following Rosenthal's (1991) procedures for mean weighted correlations, the four correlations between the common past experience variables and Place Identity and Place Dependence, as well as the correlations between Place Identity and Place Dependence. In this procedure, correlations are converted using Fisher's r to z transformation and then weighted by the sample size. Next to test for homogeneity in the relationships, a chi-square test was performed on the resulting mean weighted z scores. For display purposes the resulting z values are then converted back to r using Fisher's z to r transformation.

Results

Overall, correlations between the past experience variables measuring visitation over the past twelve months and the years visiting a site were moderate to weak with Place Identity and Place Dependence (Table 1). The strongest overall association was that between visitation over the past twelve months and Place Identity, r =. 25. The weakest association was that between years visiting the site and Place Dependence, r = .009. The overall correlation between Place Identity and Place Dependence was strong, r =. 69. The moderate to weak correlations between the past-experience variables should be expected. What is of more importance is the homogeneity of the relationships across the studies.

Table 1. — Test of homogeneity for the correlations between Place Identity and Place Dependence.

Study	Place Identity/Place Dependence		
	n	r	z_r
Appalachian Trail	1879	0.60	0.68
Chattooga Trout Anglers	188	0.61	0.70
Chattooga Whitewater	234	0.60	0.69
Desolation Wilderness	1404	0.64	0.74
Mt. Rogers	503	0.79	1.04
Shenandoah National Park	2104	0.70	0.86
Heritage Trail[1]	241	0.68	0.84
St. Marks[1]	421	0.50	0.55
Lafayette[1]	515	0.68	0.83
Vaske& Korbin[2]	182	0.88	1.36
Mean			0.83
Weighted Mean			0.79
X^2			155.26**

**p<.001

[1]From Moore & Graefe, 1994

[2] From Vaske & Korbin, 2001

Associations between past-experience variables and Place Identity were heterogeneous (Table 2). Five data sets included the appropriate data for the analysis of times visiting in the past year and Place Identity. Sample sizes for each ranged from 187 to 2058 for a total n = 4758. Z_r's ranged from 0.10 to .34, with M = 0.23 and a weighted mean of 0.26, X^2 = 16.42, p < .001. Five data sets included the appropriate data for analysis of year visiting the site and Place Identity. Samples sizes for each ranged from 187 to 1879 for a total n = 4067. Z_r's ranged from 0.03 to 0.34, M

Associations between past-experience variables and Place Dependence were also heterogeneous (Table 3). Five data sets included the appropriate data for the analysis of times visiting in the past year and Place Dependence. Sample sizes for each ranged from 185 to 2047 for a total n = 4743. Z_r's ranged from 0.04 to .36, M = 0.17 and a weighted mean of 0.14, X^2 = 37.22, p < .001. Five data sets included the appropriate data for analysis of year visiting the site and Place Dependence. Samples sizes for each ranged from 188 to 1879 for a total n = 4063. Z_r's ranged from -0.03 to 0.21 with M = 0.08 and the weighted mean of 0.009, X^2 = 14.51, p < .001.

Finally, the associations between Place Identity and Place Dependence across 10 studies were found to be heterogonous. Sample sizes ranged from 182 to 2104 for a total n = 7671. Z_r's ranged from 0.55 to 1.36 with M= 0.83 and the weighted mean of 0.79, X^2 = 155.26, p < .001 (Table 4).

Discussion

Recreation research has a vast body of data that can contribute to our understanding of the emotional and symbolic attachments and bonds people form to places. While most studies of recreationists' place attachment are focused on how differing degrees of Place Identity and Place Dependence change perceptions of management issues, the purpose of this analysis was to use some of this research to investigate what recreationists' attachment to the places they recreate can reveal about the nature of place attachment. The studies used in this analysis examined the same phenomena at a variety of spatial scales, activities, and regions of the country. What they held in common were similar consistent measures of the Place Identity, Place Dependence and a history of visiting a particular locale.

Table 2. — Matrix of weighted mean correlations, n, and k for each weighted mean correlation.

Variables	12 Months	Years associated	Place Identity	Place Dependence
Place Identity	0.25 n=4758 k=5	0.11 n=4067 k=5	—	
Place Depenence	0.14 n=4743 k=5	0.009 n=4063 k=5	0.69 n=7671 k=5	—

Table 3. — Tests of homogeneity for the correlations between past–experience variables and Place Identity.

Study	12/Place Identity			Years/Place Identity		
	n	r	z_r	n	r	z_r
Appalachian Trail[1]	1870	0.30	0.31	1879	0.03	0.03
Chattooga Trout Anglers[2]	187	0.34	0.34	187	0.33	0.34
Chattooga Whitewater[2]	236	0.26	0.26	236	0.25	0.26
Desolation Wilderness[3]	—	—	—	1368	0.15	0.15
Mt. Rogers[3]	401	0.10	0.10	397	0.15	0.15
Shenandoah National Park[3]	2058	0.24	0.24	—	—	—
Mean			0.23			0.17
Weighted Mean			0.26			0.11
X^2			16.42**			29.39**

**p<.001 [1]From Kyle et. al [2]First author's proprietary data [3]Second author's proprietary data.

Considering the findings from psychology and the theories behind Place Identity and Place Dependence, past-experience at a site should be predictive of these two dimensions of place attachment. Synthesis of the data sets revealed that the associations between the place attachment dimensions and past experience variables were weak to moderate at best. The strongest overall association was between Place Identity and visitation in the past twelve months. This suggests that simply being exposed to a place may account for some variation in the degree of reported Place Identity. This could also be a result the respondents having quicker access to range of thoughts, memories, and feelings about a certain experience in a place. Visitation in the past twelve months was also the strongest association with Place Dependence. While the overall association was weak, the frequency or infrequency of visiting a site should predict Place Dependence to some degree. Activity specialization or involvement are probably better predictors of Place Dependence of a site alone (as evidenced by Kyle et. al) because of the interaction between activity and place that are integral to the development of Place Dependence.

Across the data that was summarized, there was considerable variability in the correlations between the variables. Had the associations between the past-experience variables and Place Identity and Place Dependence been homogenous, this would have been evidence that while the associations are weak, past-experience is an important predictor of place attachment. Homogeneity between Place Identity and Place Dependence would have also provided further evidence to suggest that both are dimensions of a larger single construct, place attachment (Williams & Vaske, In Press). The heterogeneity of the associations indicates the presence of factors that increase of decrease the some correlations related to measurement, the sample, or possibly study design. To look into this further sample size and association strength were correlated and it was found that all the associations except for that between visits in the past twelve months and Place Identity were negative and

Table 4. — Tests of homogeneity for the correlations between past –experience variables and Place Dependence.

Study	12/Place Identity			Years/Place Identity		
	n	r	z_r	n	r	z_r
Appalachian Trail	1979	0.04	0.04	1879	-0.03	-0.03
Chattooga Trout Anglers	185	0.35	0.36	188	0.04	0.04
Chattooga Whitewater	234	0.13	0.13	234	0.21	0.21
Desolation Wilderness	—	—	—	1368	0.004	0.004
Mt. Rogers	398	0.12	0.12	394	0.08	0.08
Shenandoah National Park	2047	0.21	0.21	—	—	—
Mean			0.17			0.08
Weighted Mean			0.14			0.009
X^2			37.22**			14.51**

**p<.001

significant. This suggests the larger studies tended to produce weaker associations. These larger studies capture respondents with much more variation in both past-experience and attachment compared to smaller studies focused on one more homogenous user groups.

The findings of this study and mere-exposure paradigm, beg a certain question that would provide insight into the nature of place attachment especially as it relates to public lands. If being exposed to an attitudinal object will generate some affective response to that object, then could people who have never been to a place be attached to it? If so, this could mean that some of our attachment to places like National Parks, Wilderness areas, and National Forests stems not from direct experience of a place, but as a consequence of hearing others stories and memories of these places. Future research would do well to develop some way of investigating such a phenomena.
Applied research should also consider how place attachment manifests itself in natural resource planning. Place attachment is most likely related to the experience of reactance, negative affective response when perceived freedom is threatened (Brehm, 1966). This relationship could be important to understanding the psychology of public involvement.

Acknowledgments

This research was supported in part by funds provided by the Rocky Mountain Research Station, Forest Service, U.S. Department of Agriculture.
A thanks is also extended to Gerard Kyle for providing some of the data used.

References

Backlund, E.A. (2002). Resource substitutes, activity involvement, and place bonds of Chattooga National Wild and Scenic River trout anglers. Unpublished master's thesis, Clemson University

Bixler, R.D., & Backlund, E.A. (2002). Chattooga National Wild & Scenic River whitewater boater substitution study. Clemson University.

Brehm, J.W. (1966). A theory of psychological reactance. San Diego, CA: Academic Press.

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

Genereux, R.L., Ward, L.M.., & Russell, J.A. (1983). The behavioral components in the meaning of places. Journal of Environmental Psychology, 3, 43-55.

Hammitt, W.E., Knauf, L.R., & Noe, F.P. (1989). A comparison of user vs researcher determined level of past experience on recreation preference. Journal of Leisure Research, 21(2), 202-213.

Hendricks, W.W., Chavez, D.J., & Phippen, K.D. (2002). Placement Attachment in Big Sur: Observance-Influence of Fire Management Practices. In Abstracts of the 9th International Symposium on Society and Resource Management. Bloomington, IN: Indiana University, School of Health, Physical Education, and Recreation.

Korpela, K.M. (1992). Adolescents' favorite places and environmental self-regulation. Journal of Environmental Psychology, 12, 249-258.

Korpela, K.M. & Hartig, T. (1996). Restorative qualities of favorite places. Journal of Environmental Psychology, 16, 221-233.

Korpela, K. M., Hartig T., Kaiser, F. G., & Fuhrer, U. (2001). Restorative experience and self-regulation in favorite places. Environment and Behavior, 33, 572-589.

Kyle, G., Graefe, A. R., Manning R. E., Bacon, J. (in press). An examination of the involvement: place attachment relation among hikers along the Appalachian Trail. Journal of Leisure Research.

Moore, R. L., & Graefe, A. R. (1994). Attachments to recreation settings: the case of rail-trail users. Leisure Sciences, 16, 17-31.

Prentice, D.A., & Miller D.T. (1992). When small effects are impressive. Psychological Bulletin, 112(1) 160-164.

Proshansky, H.M., Fabian, A.K., & Kaminoff, R. (1983). Place identity: The physical world and socialization of the self. Journal of Environmental Psychology, 3, 57-83.

Rosenthal, R. (1991). Meta-analytic procedures for social research. Newbury Park, CA: Sage.
Stokols, D. & Shumaker, S.A. (1981). People and places: A transactional view of settings. In J. Harvey (Ed.), Cognition, social behavior, and the environment (pp. 441-488). Hillsdale, N.J.: Erlbaum.

Tuan, Y.F. (1974). Topophilia: A study of environmental perception, attitudes, and values. New York: Columbia University Press.

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

Vaske, J.J., & Korbin, K.C. (2001). Place attachment and environmentally responsible behavior. Journal of Environmental Education, 32 (4), 16-21.

Warzecha, C.A. & Lime, D.W. (2001). Place attachment in Canyonlands National Park: Visitor's assessment of setting and attributes on the Colorado and Green rivers. Journal of Park and Recreation Administration, 19(1), 59-78.

Watson, A.E., Niccolucci, M.J., & Williams, D.R. (1994). The nature of conflict between hiker and recreational stock users in the John Muir Wilderness. Journal of Leisure Research, 26(4), 372-385.

Watson, A.E., Williams, D.R., & Daigle, J.J. (1991). Sources of conflict between hikers and mountain bike riders in the Rattlesnake NRA. Journal of Park and Recreation Administration, 9(3), 59-71.

Williams, D.R. (1984). A developmental model of recreation choice behavior. In, Stankey G.H., & McCool, S.F. (Eds). Proceedings-Symposium on recreation choice behavior. (USDA Forest Service General Technical Report INT-184, pp. 31-37). Missoula. TM: Intermountain Research Station.

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.

Williams, D.R. & Vaske (In Press). The measurement of place attachment: Validity and generalizability of a psychometric approach. Forest Science.

Zajonc, R.B. (2001). Mere exposure: A gateway to the subliminal. Current directions in psychological science, 10(6) 224-228.

Pages 320-325 in:

Murdy, James, comp., ed. 2004. **Proceedings of the 2003 Northeastern Recreation Research Symposium**. Gen. Tech. Rep. NE-317. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northeastern Research Station. 459 p.

Contains articles presented at the 2003 Northeastern Recreation Research Symposium. Contents cover planning issues, communications and information, management presentations, service quality and outdoor recreation, recreation behavior, founders' forum, featured posters, tourism and the community, specialized recreation, recreation and the community, management issues in outdoor recreation, meanings and places, constraints, modeling, recreation users, water-based recreation, and recreation marketing.

Published by:

USDA FOREST SERVICE
11 CAMPUS BLVD SUITE 200
NEWTOWN SQUARE PA 19073-3294

July 2004

For additional copies:

USDA Forest Service
Publications Distribution
359 Main Road
Delaware, OH 43015-8640
Fax: (740)368-0152

Visit our homepage at: **http://www.fs.fed.us/ne**