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Abstract

This study explored the place attachment of college students to their home environments, suggesting valid factors and variables to explain their place attachment, and identify place attachment characteristics in two student groups with different housing backgrounds and conditions. The major data collection method for this survey was through a questionnaire. This study uses two data sets, one from the U.S. consisting of 352 college students' responses and the other from Korea consisting of 418 college students' responses. Through exploratory factor analysis and confirmatory factor analysis, nineteen items under five place attachment factors were verified as valid sub-concepts that explained respondents' place attachment to their home environments. The five factors were respectively labeled Affection, Rootedness, Identity, Restful Home, and Activities Dependence. The analysis showed that students' different housing backgrounds and current housing conditions, based on their cultural differences, significantly affected their place attachment to home environments. Demographic variables such as gender, grade level, living with family (including parents), and type of current housing were significant determinants affecting college students' place attachment to home environments. The results of this study cannot be generalized for the two cultures due to the limited samples, but it is meaningful to explore the place attachment characteristics of two student groups who have culturally different housing backgrounds and conditions.

Introduction

Place attachment is generally defined as the psychological bonding between people and specific places (Hidalgo & Hernandez, 2001). Place attachment thus refers to a positive descriptive concept that helps to

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understand the relationships between people and their environments (Altman & Low, 1992). The concept of place is used to signify an experienced and meaningful spatial entity such as a room, a home, or a neighborhood ranging upwards on the macro-scale to a country or a continent (Low & Altman, 1992; Rubinstein & Parmelee, 1992).

While many places hold such psychological bonds with users, the concept of "home" plays a significant role in attachment to place (Low, 1992). "Home" represents a spatial entity with immediacy and identity-forming affective bonds brought about through a large commitment of time and connections with family and friends. Thus, the attachment to homes cannot be explained through any one single level measure—it should be measured multi-dimensionally through various factors or concepts, such as attraction, rootedness, identity, and place dependence (Hernández, Hidalgo, Salazar-Laplace, & Hess, 2007; Knez, 2005; Molcar, 2006; Pretty, Chipuer, & Bramston, 2003).

According to previous studies, place attachment increases with age, home ownership, and duration of residence (Brown, Perkins, & Brown, 2003; Hernández et al. 2007; Knez, 2005; Molcar, 2006; Pretty, Chipuer, & Bramston, 2003). These research studies, however, focused on independent adults or elderly people living in stable housing situations. Also, these studies did not examine place attachment to temporary home environments.

Moving away from home to attend a university may produce emotional disruptions because it introduces new and unstable, or transitional, residential environments. College students enter a stage of near-independent adulthood as they approach the end of their dependency upon their parents. This life stage may affect their current housing conditions. In the U.S., most live in rental homes or dormitories that will be close to their colleges, which means they are physically independent of their parents, but do not own their homes yet.

These housing conditions for college students are not common in other cultures. In fact, many Korean college students live with their parents in their parents' house while attending college. Even under these different housing conditions for college students, the place attachment to their home environments seems equivalently significant for them in many ways. According to Hess (1997, p.113), "positive place attachment to homes can

improve inter-personal relationships which can bring positive socialization while they are in such a transitional life stage from childhood to adulthood." While in their collegiate years, students are in an insecure housing situation, thus formation of positive place attachment to home environments in this life stage can positively affect their well-being. Therefore, it is meaningful to measure college students' place attachment to their home environment and examine significant factors that can improve their place attachment.

Additionally, the psychological aspects of home environments such as privacy, and perceptions of territoriality and personal space can be affected by cultural expectations (Altman, 1981; Rapoport, 1969). Thus, it is assumed that the different housing backgrounds of college students in the two countries may affect their place attachment to their current home environments.

Research Purpose

Based on this background and assumptions, the primary purpose of this study was to explore both U.S. and Korean college students' place attachment to their current home environments through identifying similarities and differences in their attachment characteristics, and to examine factors that explain their attachment. This study also analyzes demographic and housing variables related to place attachment and verifies the explanatory powers of those variables. The results of the study are expected to further develop place attachment theory.

Literature on Place Attachment to Homes

Individuals' attachment to "home" represents an evocative connection to a physical structure that is more than just a "house" or building. While a house is seen as the literal embodiment of its physical form, the word "home" is a much more evocative connotation (Game & Metcalfe, 1996; Rapoport, 1995). Past experiences of self and home become conceptualized as a place where personal meanings of home become attached to the conception of self (Feldman, 2000).

Voluntary relocations, such as going away to college, often accompany both positive and negative status changes. Anticipating these changes and preparing for them helps to create stability throughout the period of change. It

was discovered that prior to an initial move, students who had firm plans for the future more easily loosened attachments and obligations to their former home compared to those without firm plans (Seek, 1983). Individuals who perceived the move as completely voluntary were more likely to be prepared for a change in attachments, actively loosening old ties and instigating new ones. It is not uncommon for college freshmen to experience a period of "homesickness," and disruption of their sense of identity. Friends and family members that are left behind are not replaceable and long-standing attachments to place are not easily replicable. Relocators may cope by maintaining ties to their old home as they become familiar with the new place.

Home is strongly linked to individuals' identity in creating an attachment to place (Winstanley, Thorns & Perkins, 2002). Replicating one's previous home may represent the desire to relive past happy experiences, while simultaneously expressing personal taste and creating a sense of identity through social and place-specific interrelationships (Gutting, 1996; Winstanley et al., 2002). Personalization of spaces also represents an investment in place. When looking at second year university students, Vinsel, Brown, Altman, and Foss (1980) found a lower drop-out rate for students who displayed more personal items in their residence halls. Gender plays a part in this as well with females displaying more personal items and males taking a more defensive role in regulating boundaries with possessions (Kaya & Weber, 2003).

In general, college students may create life-long memories and attachments that are carried with them as they move away from high school into a university setting and from the university into the world of work. Moving from one place to another does not negate previous attachments but can enrich one's life experience. The experience a person has in a single place of residence should not be looked at in isolation but as a continuum where one place builds upon another and enriches one's self identity and connections to other people and places providing a holistic sense of place attachment.

To measure place attachment to home environments, past studies suggested multidimensional approaches. Harris, Brown and Werner (1996) explained place attachment to homes with three sub-concepts: home experiences, rootedness, and identity. The measurement in their study emphasized potential home-based attachments, which included positive evaluations, rootedness,

connection, activity, and identity. McAndrew (1998, pp. 414–415) explored college students' attachment to their home town and found it was connected with two items: "a desire to live in one's home town after graduation" and "a preference for living in rural areas." Rootedness was measured by "the desire for change" and "home/family satisfaction." The results showed that attachment was negatively related to desire for change, but positively to home/family satisfaction. Molcar (2006) defined place attachment to current residence. He basically used Stedman's (2002) measurement with a singular dimension that covered place identity, attachment, and place dependence, with modifications. While Stedman measured place attachment with nine items, Molcar (2006) explained the relationship between place attachment and one additional item which is "spiritual well-being." His study showed that place attachment was based on personal identity, and also differed depending on age. These previous studies suggest that place attachment to home environments should be measured multi-dimensionally by place identity, affection or rootedness, and place dependence or activity.

For measuring place attachment to home environments, home experience and rootedness were frequently indicated as important dimensions (e.g., Harris et al., 1996; McAndrew, 1998; Molcar, 2006). The home experiences factor included the meanings of relaxation, satisfaction, safe heaven, connection, and activity. The rootedness factor was the intention to return to, live in, or miss home. It was partly linked with the concept of affection and home experiences.

In addition to the dimensions for measuring place attachment, past studies indicated important variables that explain place attachment to the home environment: mobility, age, and length of residence. Molcar (2006) found that place attachment varied by age: older people had stronger place attachment than younger people. Hidalgo and Hernandez (2001) declared place attachment and duration of residence positively related.

Based on the review of literature, it is meaningful to explore college students' place attachment to their current home environments. Our study takes the multi-dimensional approach that considers place identity, affection, rootedness, and place dependence, as suggested by Harris et al. (1996), Molcar (2006), and Stedman (2002, 2006). Our study also explores the place

attachment of college students and examines any difference in their place attachment depending on their demographic and housing characteristics.

Research Methods

Measurement Tool

College students' place attachment to their home environments was investigated through a self-administered survey questionnaire. Past studies on place attachment provided the fundamental frame of measurement: place attachment should be measured using multi-dimensional factors including, but not limited to, affection, rootedness, place identity, place dependence, and home experiences. Many sub-items under these factors were identified, but 36 items identified as explanatory variables from the literature were finally selected (Harris et al., 1996; Kyle, Mowen, & Tarrant, 2004; Molcar, 2006; Stedman, 2006) for this study and 26 valid items were used for explaining the place attachment model (discussed later).

In addition, respondents' demographic and socioeconomic characteristics were identified including country, gender, age, grade level, major, living with family, residential type, and number of moves. These characteristics helped to understand the demographic and residential characteristics of respondents. The questionnaire was translated into both English and Korean. The English version questionnaire was approved by the Institutional Review Board (IRB) at Michigan State University (MSU) in April 2009.

Data Collection

Data from Korean college students were collected in May through June in 2008, and from U.S. students in May through July in 2009. The two subject cities selected for this research—Jeonju, the North Jeolla Province, South Korea, and Lansing, Michigan, U.S.—were comparable in size, were the capitals of their province/state, and both were home to a major university. College student participants were recruited from four universities located in the target area in Korea and from one university in the U.S. Because the targeted U.S. university is much bigger than the other universities in Korea, we included four universities in Korea to have similar student populations in both

areas. The four universities from Korea were Chonbuk National University with 26,000 students, Wonkwang University with 16,000 students, WooSuk University with 7,000 students, and Iksan campus of Chonbuk National University with 3,000 students. The university in the U.S. was Michigan State University with approximately 45,100 students.

We contacted professors of the four colleges in Korea via e-mail or telephone and explained the background of the research and the survey procedures to them. Once the instructors agreed to allow data collection with their students, researchers visited the classrooms to conduct the survey. The classes visited included those for majors such as women and family studies, child studies, interior design, architectural engineering, and landscape architecture. Considering the number of students in the four universities, we distributed 250, 120, 50 and 20 respectively to them. Students in each class were given general information on the research and questionnaire by researchers after the instructor left and they were asked to participate in the survey. Survey participation was voluntary and anonymous. Excluding incomplete questionnaires, a total of 418 valid questionnaires out of 440 were obtained from Korean college students.

The data collection process at Michigan State University was similar to that at the Korean universities. Researchers contacted course instructors and attended the classes to collect students' responses. Survey participation was voluntary and anonymous. A total of 352 valid questionnaires were obtained from MSU students.

Analysis Method

Initially, the students were categorized into two groups: U.S. college students and Korean college students. Then, their place attachment was analyzed through factor analysis. Exploratory factor analysis and confirmative factor analysis were employed to obtain valid factors. In this process, SPSS 17.0 and AMOS 5.0 programs were used.

The respondents were categorized further into subgroups depending on their geographic location and housing status. We categorized them into four subgroups: U.S. college students living with parents, U.S. college students living independently, Korean college students living with parents, and,

Korean college students living independently. Due to the unequal number of respondents in these subgroups, e.g., we had only three U.S. college students living with their parents, we discarded the analysis results based on these four groups. We therefore focused on the two groups of students: U.S. college students and Korean college students.

College student place attachment was also analyzed depending on their demographic variables, such as gender, age (grade level), and major, and housing conditions (i.e., housing types, living with parents, and parental homeownership). Any differences between subgroups were examined by t-tests and one-way ANOVA tests. Descriptive statistics including frequency and percentage results were also used to generally understand respondents' demographic and socioeconomic characteristics.

Findings and Discussions

Survey Respondents

Survey respondents consisted of two groups: U.S. college students and Korean college students. In both groups, female students were represented slightly more than male students. Comparing the distributions of students' grade levels between the two groups, the number of sophomore and junior respondents was similar in both groups while more freshmen were included in the Korean students and more seniors were included in the U.S students. The average age of U.S. college student respondents was slightly younger than that of Koreans, but there was no statistically significant difference. As Table 1 shows, overall demographic characteristics such as gender, grade level, and age were very similar in both subject groups. However, familial and residential backgrounds were different. The number of Korean students who lived with their family or parents was 336 out of 416 students (80.8%). By contrast, the number of U.S students who did not live with their family or parents was 326 out of 329 students (99.1%). This shows that U.S. students lived more independently of their parents than Korean students. The result of the chi-square test to verify any statistical difference in 'living together with family' showed a significant difference between the two groups (*chi-square = 472.443, df = 1, p < .001*).

Table 1. Characteristics of Respondents [frequency (%)]

Variables	Contents	Student Group		Total
		Korea	U.S.	
Gender (N=769)	Male	148 (19.2)	100 (13.0)	248 (32.2)
	Female	270 (35.1)	251 (32.6)	521 (67.8)
Grade level (N=769)	Freshmen	114 (14.8)	12 (1.6)	126 (16.4)
	Sophomore	90 (11.7)	85 (11.1)	175 (22.8)
	Junior	130 (16.9)	121 (15.7)	251 (32.6)
	Senior	84 (10.9)	133 (17.3)	217 (28.2)
Age (N=763)	20 years≤	118 (15.5)	179 (19.1)	297 (34.6)
	21-23 years	224 (29.4)	181 (23.7)	405 (53.1)
	24-26 years	67 (8.9)	13 (1.7)	80 (10.6)
	≥ 27 years	9 (1.1)	5 (.7)	14 (1.8)
	Mean	21.92	21.01	21.51
Family (N=745)	Live together	336 (45.1)	3 (.4)	339 (45.5)
	Do not live together	80 (10.7)	326 (43.8)	406 (54.5)
	Chi-square value = 472.443, df = 1, p < .001			
Number of moves (N=703)	None	122 (17.4)	19 (2.7)	141 (20.1)
	Once	107 (15.2)	46 (6.5)	153 (21.8)
	Twice	82 (11.7)	79 (11.2)	161 (22.9)
	3 times	43 (6.1)	90 (12.8)	133 (18.9)
	≥4 times	22 (3.1)	93 (13.2)	115 (16.4)
	Mean (SD)	1.36 (1.38)	2.86 (1.72)	
	t-value = -12.657, df = 624.810, p < .001			
Types of residences (N=727)	Dormitory or on-campus student housing	45 (6.2)	63 (8.7)	108 (14.9)
	Rental apartment or house	55 (7.6)	230 (31.6)	285 (39.2)
	Condominium (owned by parents)	215 (29.6)	-	215 (29.6)
	Single detached house (owned by parents)	88 (12.1)	13 (1.8)	101 (13.9)
	Others	5 (.7)	13 (1.8)	18 (2.5)
	Chi-square value = 379.497, df = 4, p < .001			

The number of moves during their college experience was also very different between the two student groups. U.S. students were more likely to be in the "moved more than three times" category, and Korean students were

more likely to respond to the "none" or "once" move categories. The mean value of moves was 2.86 times for U.S. students and 1.36 times for Korean students, thus U.S. college students more frequently changed residences. Also, there were differences in moves among 2nd, 3rd, and 4th year students; the number of moves increased with each year of college, and the U.S. students moved more frequently at each level than did the Korean students. The mean value of moves was 2.20 times for the 2nd year students, 2.54 times for the 3rd year students, and 3.82 times for the 4th year students in the U.S. college, while 1.19 times for the 2nd year, 1.33 times for the 3rd year, and 1.65 times for the 4th year students in the Korean colleges.

The housing situation in which students lived was also different between the two groups of students. Many students in both groups lived in multifamily housing, but, multifamily housing has different attributes in the two cultures. Multifamily housing units in Korea are usually owned by individual households; in the U.S., multifamily housing units are more likely to be rented. Therefore, even though many students in both groups were living in the same housing structure type, the tenure was very different. U.S. students rented and Korean students' dwellings were owned by their parents. The percentage of Korean students who lived in single-family houses was also higher than that of U.S. students. Rental apartments or dormitories were more common for U.S. college students as the primary residence. The housing characteristics of Korean college students reflect the fact that many of them lived with their parents.

Factors and Associated Variables that Explain College Students' Place Attachment

Students' responses to the 36 items in the survey questionnaire were analyzed using factor analysis, and 10 items of the 36 were excluded due to the low communality (<.50), inadequate MSA (<.90) in Anti-Image Correlation Matrix, or overlapped factor loaded. With the valid 26 items, 5 factors were confirmed: *Affection, Rootedness, Identity, Restful Home,* and *Activities Dependence.* Total variance explaining the results is 65.96% (see Table 2). The goodness of items for factor analysis was verified by KMO and Bartlett's test. The results showed that KMO was .937 which was an acceptable value. MSA was between .90 and .97.

Table 2. Exploratory Factor Analysis of Place Attachment to Home Environments in Two Groups[a]

Place attachment statements	Factors				
	1	2	3	4	5
Affection					
1. My house is my favorite place to be.	**.815**	170	-.038	.203	.156
2. For the things I enjoy most, no other place can compare.	**.735**	.202	.110	.064	.314
3. Everything about my house is a reflection of me.	**.681**	.091	.450	-.010	.171
4. I feel happiest when I am at my house.	**.673**	.218	.096	.311	.207
5. I enjoy going to my house more than any other site.	**.664**	.250	.039	.064	.305
6. I really miss it when I am away too long.	**.657**	.361	.061	.168	-.006
7. My house is an important part of who I am.	.613	.341	.311	.170	.076
8. It is the best place to do the things I enjoy.	.586	.138	.153	.321	.351
Rootedness					
9. I feel attached to my house.	.334	**.788**	.029	.147	.093
10. If I had to move soon, I would feel bad.	.182	**.763**	.108	.080	.201
11. I will miss my house when I move out.	.179	**.725**	.184	.254	.119
12. House means a lot to me.	.310	**.696**	.138	.241	.112
13. I feel a strong sense of belonging to my house and its setting/interior amenities.	.170	.642	.322	.153	.123
Identity					
14. Decoration in my house helps express who I am.	.124	.050	**.800**	.119	.217
15. Possessions in my house provide connection to my past.	-.019	.190	**.737**	.182	.067
16. My house's style reflects my identity.	.305	.075	**.715**	.057	.109
17. Decoration in my house reminds me of family/friends.	.158	.240	**.701**	.125	.107
18. I feel that I can really be myself in my house.	-.084	.107	**.619**	.398	.266
Restful Home					
19. I always feel welcome in my house.	.009	.134	.255	**.775**	.153
20. I enjoy the things I do in my house.	.121	.127	.202	**.730**	.223
21. My house is a place I can relax.	.343	.198	.002	**.692**	.036
22. I feel secure in my house.	.324	.261	.167	.549	-.001
23. I feel my home is a home to me.	.430	.409	.196	.548	.004
Activities Dependence					
24. I prefer my house over other's settings/amenities for the recreational activities that I enjoy most.	.286	.140	.194	.152	**.791**
25. For recreation activities that I enjoy most, the setting/interior amenities provided by my house are best.	.287	.161	.199	.185	**.743**
26. For what I like to do, I can't imagine any better than the setting and facilities provided by my house.	.256	.206	.293	.060	**.664**
Eigen-Value	4.81	3.60	3.43	2.98	2.35
Variance Explained	18.49	13.81	13.17	11.46	9.03

Extraction Method: Principal Component Analysis
Rotation Method: Varimax with Kaiser Normalization
[a] Rotation converged in 7 iterations

The five factors and the 26 valid items were reassured through the confirmatory factor analysis conducted by MLE (maximum likelihood estimates) and 20 items with higher than the 0.65 factor loading values were finally chosen. However, not all 20 items obtained from the first confirmative factor analysis were acceptable. After checking the modification index (M.I.), the *Affection* item three, "Everything about my house is a reflection of me," was deleted (refer to Table 2). Thus 19 items responding to the five factors were finally obtained and deemed acceptable (see Table 3).

Table 3. Confirmatory Factor Analysis for College Students of Place Attachment to Home Environments in Two Groups

Variables /items	Standardized Estimate	Estimate	S.E.	C.R.	Construct Reliability (AVE)
Affection					
1. My house is my favorite place to be.	.821	1.000			.964
2. For the things I enjoy most, no other place can compare.	.783	.948	.040	23.617	(.779)
4. I feel happiest when I am at my house.	.791	.914	.038	23.941	
5. I enjoy going to my house more than any other site.	.733	.899	.041	21.690	
6. I really miss it when I am away too long.	.704	.915	.044	20.595	
Rootedness					
9. I feel attached to my house.	.831	1.000			.984
10. If I had to move soon, I would feel bad.	.759	.994	.044	22.417	(.940)
11. I will miss my house when I move out.	.764	.986	.044	22.582	
12. House means a lot to me.	.769	.891	.039	22.766	
Identity					
14. Decoration in my house helps express who I am.	.797	1.000			.980
15. Possessions in my house provide connection to my past.	.699	.856	.047	18.394	(.926)
16. My house's style reflects my identity.	.647	.753	.044	16.980	
17. Decoration in my house reminds me of family/friends.	.768	.919	.046	20.146	
Restful Home					
19. I always feel welcome in my house.	.711	.993			.934
20. I enjoy the things I do in my house.	.792	1.000	.058	17.158	(. 827)
21. My house is a place I can relax.	.695	.772	.046	16.871	
Activities Dependence					
24. I prefer my house for the recreational activities.	.867	1.000			.983
25. For recreation activities, the setting/ amenities of my house are best.	.827	.957	.036	24.713	(.950)
26. For what I like to do, I can't imagine any better than my house.	.686	.768	.038	19.953	

The chi-square value for the model presented in Table 3 was 743.545 (*df* =*142, p <.001*), which was out of the acceptable range. However, the other values for goodness of fit model were acceptable. For instance, RMR (Root Mean square Residual) was .070, RMSEA (Root Mean Square Error of Approximation) was .075, GFI (Goodness of Fit Index) was .905, CFI (Comparative Fit Index) was .918, and TLI (Turker-Lewis Index) was .901. There was one exception: the value of AGFI (Adjusted GFI) was .873. To accept a model, RMR and RMSEA should range from .050 to .080, and GFI, CFI, and TLI should be over .90.

Though the model showed a low value in AGFI, 5 factors and 19 variables for place attachment to home environments were accepted because the other values were all significantly meaningful. Other evidence to support the validity of the model for showing place attachment factors and variables was that the constructed reliability value for all variables of place attachment was over .070, and AVE (average variance extracted) was over .50.

The five valid factors were labeled considering individual meanings and associated variables (or items). Factor 1 included such items as expressing home as the "favorite place," "no other place," "happiest place," the feeling of "enjoy going to my house," and "miss being away too long." They are related to affection or fondness to the home environments. Therefore, Factor 1 was labeled *"Affection."*

Factor 2 included the items expressing "attachment to individual houses," sad feeling about "moving soon," "missing homes when moving out," and "meaningfulness of homes." This factor explains that a home is a place for psychological returning and has a feeling of rootedness. Factor 2 was thus labeled *"Rootedness."*

Factor 3 included such words as "express who I am," "connection to my past," "reflects my identity" and "reminds me of family/friends." They were related to self-identity and personalization through home environments. Factor 3 was thus labeled *"Identity."*

Factor 4 included the expressions of "welcoming," "enjoying the things I do," and "a relaxing place." They were related to the meaning of rest at home. Factor 4 was thus labeled *"Restful Home."*

Factor 5, labeled as *"Activities Dependence,"* included such items as "prefer my house for the recreational activities," "my house is best," and "I

can't imagine any better." They were related to the activity plans or activity experiences at home environments.

Past studies regarding place attachment also suggested three or four dimensions (or concepts) to properly explain place attachment. The examples of these dimensions are affection, rootedness, identity, and dependence (Jorgensen & Stedman, 2006; Kyle, et al., 2004; Low & Altman, 1992). Our study also proposed multiple dimensions which consisted of five factors: *Affection, Rootedness, Identity, Restful Home, and Activities Dependence*. The five factors together adequately explain the nature of place attachment. A new factor that was mentioned briefly in previous studies but clearly identified in this study is *Restful Home;* three items in *Restful Home* in this study were also verified by previous studies that explored home experiences.

Considering the entire statistical evidence, it was determined that the five factors that explained college students' place attachment to their home environments were significantly valid. The associated items within these five factors were likewise verified.

Characteristics of Place Attachment to Home Environments in Two Student Groups

Rootedness, one of the five factors explaining the place attachment to home environments, was very similar between U.S. and Korean student groups. But, some factors of place attachment were significantly different between two student groups. *Affection* for Korean students was higher than that for U.S. students. *Identity, Restful Home,* and *Activities Dependence* of U.S. students were higher than those of Korean students.

The Korean students had generally higher scores in *Affection* to home environments than U.S. students, but they had lower scores than U.S. students in *Identity* through the home environment, *Restful Home* for comfortable relaxation, and *Activities Dependence* for recreational activities. The differences were examined by t-test and the results are presented in Table 4. These differences in place attachment between the two student groups seemed to be related to their different housing background and conditions, as presented earlier in Table 2.

Students' responses to each item also showed several different characteristics. For instance, Korean students rated "living together with family in their parents' homes" higher than U.S. students, which leads to the

assumption that Korean students have less control over their houses than do U.S. students who live independently of their parents. Korean students could thus not express *Identity*, *Restful Home*, and *Activities Dependence* very strongly. Conversely, most U.S. students lived away from their parents, and lived by themselves in rental houses. They were thus expected to better express their identity, invest their emotions in their houses, and plan their recreational activities at home without their parents' intervention. However, U.S. students seemed to have low *Affection* for their current houses because they move more often, or don't live together with family. These results supported the idea that the two student groups showed different characteristics in place attachment to their home environments. In particular, the *Affection*, *Identity*, *Restful Home*, and *Activities Dependence* of college students were significantly different from each other. It is inferred that these different characteristics are related to their different housing backgrounds and living conditions.

Table 4. T-test Analysis of Place Attachment [Mean (SD)]

Group	Affection	Rootedness	Identity	Restful Home	Activities Dependence
U.S. students	2.90 (.98)	3.33 (1.15)	3.51 (.97)	4.39 (.75)	2.87 (1.00)
Korean students	3.50 (.76)	3.42 (.92)	2.87 (.80)	4.06 (.75)	2.70 (.91)
t-value	9.326***	1.293	-9.890***	-6.102***	-2.498*

*p < .05 *** p < .001

Explanatory Variables for Place Attachment to Home Environments

As many previous studies have shown, demographic and housing characteristics can affect individuals' place attachment to home environments. Explanatory variables that significantly affected individual student's place attachment to home environments were explored and discussed to assess similar and different characteristics in two student groups.

As Table 5 shows, gender, grade level, living with family including parents, current housing type, and the frequency of moves during college were explanatory variables for place attachment, but age was not. The age of college students in the two groups was mostly distributed between 20 and 26 years,

and overall age distributions were almost identical between the two groups (see Table 2). There was no significant difference between the two groups in terms of age effects on place attachment characteristics. Gender was a significant variable to explain students' *Identity* to the home environment. Male students showed lower Identity for their home environments than females did. Grade level was a significant variable to explain *Affection* and *Identity*. Freshmen showed high scores in *Affection*, but sophomores showed slightly lower scores in *Affection*. The *Identity* scores of juniors and seniors were higher than those of freshmen and sophomores. It was found that if the grade level were higher, students' *Identity* scores were higher.

Students' *Affection, Identity, Restful Home*, and *Activities Dependence* were different depending on whether they lived with their family or not. *Affection* was slightly higher in students who lived with their family, but *Identity, Restful Home*, and *Activities Dependence* were slightly lower in such students. The housing type was not a strong explanatory variable, but it is a meaningful variable for explaining students' Affection, Rootedness, and Identity to their home environments. Students living in condominiums or detached houses had higher *Affection* and *Rootedness* and lower *Identity*. Students living in rental apartments showed higher *Identity*. In most cases, the condominiums or detached houses they lived in were their parents' properties. These results suggest that students would more strongly express their identities when they could control their home environments by themselves, even if they did not own the environments. The number of moves was negatively related to *Affection* and *Rootedness*, but slightly positive to *Identity*. Frequent moves mean unstable housing conditions and so *Affection* and *Rootedness*, emotions related to fondness or "missing," occur negatively.

Conclusions and Suggestions for Future Studies

This study explored college students' place attachment to their home environments with both U.S. and Korean student groups to examine variables that significantly explained their place attachment to their current home environments and to discuss characteristics of their place attachment affected by their own housing backgrounds and conditions.

Results showed that the place attachment of college students to their home environments was effectively measured by multi-dimensional concepts

including *Affection, Rootedness, Identity, Restful Home,* and *Activities Dependence.* The five sub-concepts (or factors) proposed by this study were initially derived from previous studies. Most studies reported that place attachment should be measured by affection, identity, and place dependence (the latter being labeled *Activities Dependence* in this study). In addition to these three dimensions, two sub-concepts were presented by many past studies, i.e., rootedness and home experience (labeled *Restful Home* in this study). Our study confirmed these five sub-concepts (or factors) through both explanatory and confirmatory factor analysis methods and correlation coefficients. One unique factor suggested for explaining students' place attachment to their home environments is *Restful Home,* which described individuals' emotional calmness at home. We thus expect the five factors and associated items will propose a better measurement tool to explore college students' place attachment to home environments.

Table 5. Analysis of Place Attachment by Demographic and Housing Variables [Mean (SD)]

Variables	Affection	Rootedness	Identity	Restful Home	Activities Dependence
Gender:					
Male	3.17 (.91)	3.43 (1.02)	3.04 (.86)	4.22(.76)	2.80 (.96)
Female	3.26 (.04)	3.35 (.05)	3.23 (.04)	4.21(.03)	2.80 (.04)
t-value	-1.286	.987	-2.656**	.188	.368
Grade level:					
Freshman	3.52 (.88)	3.46 (1.01)	2.99 (.84)	4.12 (.84)	2.91 (1.02)
Sophomore	3.16 (.95)	3.42 (1.00)	3.09 (.94)	4.18 (.74)	2.76 (.96)
Junior	3.18 (.91)	3.38 (1.02)	3.22 (.92)	4.2 (.72)	2.73 (.94)
Senior	3.17 (.91)	3.29 (1.08)	3.29 (.98)	4.26 (.79)	2.77 (.93)
F-value	12.681**	2.624	9.199*	1.670	2.590
Living with:					
Family	3.47 (.78)	3.41(.92)	2.83 (.79)	4.06 (.76)	2.68 (.91)
No family	3.04 (.97)	3.36 (1.11)	3.42 (.96)	4.33 (.74)	2.85 (1.00)
t-value	6.599***	.752	-9.105***	-4.957***	-2.372*
Type of house:					
Dormitory	3.21 (.96)	3.41(1.06)	3.35 (.79)	4.27 (.73)	2.85 (.99)
Apartment	2.96 (.94)	3.17 (1.09)	3.34 (1.00)	4.24 (.78)	2.78 (.97)
Condominium	3.54 (.74)	3.49 (.89)	2.90 (.82)	4.09 (.75)	2.78 (.94)
Detached house	3.41 (.86)	3.59 (.97)	2.90 (.94)	4.24 (.79)	2.65 (.96)
Others	3.26 (.98)	4.04 (1.17)	3.43 (1.04)	4.42 (.66)	2.96 (1.11)
F-value	4.221***	27.460***	35.519***	4.836	2.901

*p < .05 **p < .01 ***p < .001

Table 6. Correlation Coefficients between Place Attachment Factors and Number of Moves

Variables	Affection	Rootedness	Identity	Restful Home	Activities Dependence
Number of moves	-.181**	-.187**	.114**	.071	.024

**p < .01

Various aspects of college students' place attachment were different between the two groups of students in our study. Many other previous studies showed that demographic and housing variables are related to place attachment. However, comparing place attachment of two different student groups living in different countries is rarely found. Our study thus examined differences between the two student groups because of their different housing and demographic backgrounds. It was found that their housing backgrounds and current housing conditions affected the characteristics of place attachment to their homes. The results are limited in the ability to generalize the effect of culture on the different place attachment characteristics because the samples of this study were restricted to the college students from one city area in each country. Nonetheless, it is meaningful to suggest a valid place attachment model having five significant factors with these two culturally different student groups.

Gender, grade level, living-together-with-family, and type of housing affected college students' place attachment to home environments. Among the five factors, there was a significant difference in Identity between female and male students. Females showed higher identity to their home environments than males did. The grade level was a significant variable for explaining *Affection* and *Identity*.

Students who lived with family or parents in homes that their parents' owned, and moved less frequently during collegiate years showed high *Affection* and *Rootedness* in place attachment. These characteristics were similar for most Korean students that had fewer moves and more parentally derived housing conditions. Considering the results from the Korean survey and students' housing characteristics there, it is concluded that *Affection* and *Rootedness* of place attachment can be increased by stable housing conditions.

In contrast, those who did not live with their family or lived at rental apartments by themselves had high *Identity, Restful Home,* and *Activities Dependence.* These characteristics were similar for most U.S. students that had independent housing conditions and frequent moves.

In conclusion, college students' place attachment to their home environments was influenced by housing conditions (i.e., whether stable or temporary), control of housing conditions (i.e., whether dependent or independent of their family), and demographic characteristics (i.e., gender and grade level). These housing related characteristics contributed toward significant differences in place attachment between Korean and U.S. college students.

There were several limitations in this study. This study mainly focused on housing background and current conditions between U.S. and Korean students to analyze their place attachment. This study did not explore individual students' cultural backgrounds or other information relevant to cultural differences. To generalize the differences in place attachment between the two groups, further studies with large subject groups or exploring comparable housing situations of diverse respondents are needed. Research subjects were limited to college students, so further studies would need to include various age groups in other life cycles to generalize the place attachment measurement model this study proposed. The interrelationships between place attachment and those housing related aspects need to be reviewed to further generalize the model having five factors proposed by this study.

The present research indicated strong needs of future studies that will examine how place attachment to residential environments influence college students' social and academic living in the collegiate years. In fact, some universities are rethinking the traditional dormitory model for housing students by creating Neighborhood Concepts in an effort to make on-campus student living a more community-life experience. This new concept seeks to provide a variety of student services from across campus in one location. The hub of the neighborhood is a centralized engagement center which may include: lounge areas with different spaces for studying, dining, lounging and gaming, coffee shops, and Wi-Fi connection. This provides an opportunity to interact with people from other places and learn about their cultures and traditions in a safe environment. Various campus resources are also brought

into the center, such as, academic advising, writing center assistance, health care services, and tutoring. Students are able to gather not only to socialize, but to study, get academic assistance, or even see a health care provider (Arizona State University, 2011; Michigan State University, 2011). Similarly, there are several student-centered communities such as the Youth Housing Project or Edu Housing Project in Korea. Improving the sense of community for students through a Neighborhood Concept may positively affect the perception of place attachment that individuals have for their home environment within the university setting.

Housing stability or independent control of housing conditions which were verified as important variables for college students' place attachment need to be empirically examined in future studies. Future studies need to additionally consider human behavioral aspects to measure individuals' place attachment to their home environments while place attachment in this study was based on individual students' perceptions and opinions investigated by a survey.

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