A Cross-Cultural Investigation on the Effects of Physical Environment at University Dormitory on Social Interaction among Students

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문화적 배경에 따른 대학기숙사 물리적 환경이 학생들간 사회적 교류에 미치는 영향 비교연구

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Abstract University dormitories play an important role inboth the campus experience and academic achievement, as well as providing the students with their basic necessities. Further, there is ahigh demand to increase thecapacity in order to raise the retention rate and to invite more foreign students. Students' social interaction and sense of community (SOC) also play an important role in reducing the stress associated withstudying and home sickness and, consequently,the campus is a place that providespositive opportunities for their personal growth and adaptation into their peer group social culture. The purpose of this study is to investigate the effects of the physical environment of the dormitory facilities on the students' sense of community and social interaction in across-cultural background.The χ^2 analysis indicated that individual characteristics exist regarding SOC, however, there were no statistically significant differencesbetween the two cultural groups. The factors of SOC and physical environment were higher in the Korean student group than in the U.S. group. The regression analysis indicated that the U.S. students considered a physically comfortable environment as the primary issue for social interaction, while the Korean group placed more emphasis on afamily-oriented home environment. The linear analysis confirmed that satisfaction with the physical environment influenced the social interaction and SOC level. Finally, this study suggests that creating a homely environment is more important than the functioningof the institution in university dormitory planning.

요 약 대학기숙사는 재학생들의 다양한 기본적 욕구를 충족시키고 독특한 캠퍼스경험과 학업성취를 위해 중요한 역할을 하여왔다. 또한 학생 재학률 향상과 외국학생 유치를 위한 수용능력에 대한 수요가 커지고 있다. 학생들의 사회적 교류와 공동체 의식은 학업스트레스와 향수병을 경감하고 개인적 성장과 동년배 그룹의 사회문화 적응에 긍정적인 기회를 제공하는 데 중요한 역할을 한다. 본 연구의 목적은 대학기숙사의 물리적 환경이 상이한 문화적 배경을 가진 학생들의 사회적 교류와 공동체 의식에 어떠한 영향을 미치는 가 조사하는데 있다. 교차분석은 개인적 배경에 따라 공동체의식에 대한 통계적으로 유의미한 차이가 존재하나 두 개의 문화적 그룹에는 별다른 영향이 없음을 밝혀내었다. 공동체의식 요소와 물리적 환경에 대한 만족도조사 분석에서 한국학생그룹은 전반적으로 미국학생그룹보다 비교적 높은 평균값을 나타내었다. 다중회귀분석 에서는 미국학생들의 사회적 교류환경을 위해 쾌적한 냉난방과 같은 기능적 요소가 가장 중요한 것으로 분석된 반면, 한국학 생그룹은 가족지향적인 환경이 제일 중요한 것으로 나타났다. 다중 회귀분석결과를 통한 선형분석은 물리적환경의 만족도가 높아감에 따라 공동체 의식 및 사회적 교류환경 정도가 높아짐을 확증하였다. 마지막으로 본 연구는 대학 기숙사 계획에서 기관의 기능보다는 가정적 환경에 역점이 두어야 함을 제안하고 있다.

Keywords : University Dormitory, Social interaction, SOC (Sense of Community), Physical environment

1. Introduction

As university enrollment is on constant or decrease, caused by the diminution of birth rate and in some urban environment at an all-time competitive, so is the high demand for adequate campus dormitory to raise retention rate, to invite more foreign students and to attain higher successful graduation rates. Campus living in Korea is of great concern to many college students because the cost of their off-campus living are expensive and quality of residential environment is often poor, noisy, unhealthy and vulnerable to fire. Further, limited financial resources in many universities does not provide enough capacity of dormitory for students who wanted to move in. This phenomenon is also true of many universities located in urban cities in the U.S. States.

Benefits to on-campus housing possesses certain advantage over off-campus life in terms of social interaction and positive involvement with peers, faculty, and local communities [1]. In fact, dormitory physical facilities are playing an important role for all students involved from the stand point of academic, social and extra curriculum activities, while serving such basic needs as sleeping, studying, and eating establishment to students. Previous research found that on-campus students were more satisfied with college experience than were those who live off campus [2], and experienced greater personal growth and more intellectual and cognitive development [3, 4].

The lack of personal time, accessibility to leisure facilities, the pressure of exam preparation, even the narrow common area of dwelling unit, and different social profile led dormitory students to a limited engagement of social interaction and activities. The depth of students' integration and emotional engagement in both the academic and the social systems of a college or university can have a tremendous effect on their academic achievement [5]. In relation with this notion, numerous research have supported that Sense of Community (SOC) is a valuable component of students' social life, and it has been linked to increased psychological well-being, personal growth, and academic success [6, 7, 8]. In particular, students living in diverse cultural background might have different attitude toward their campus living environment and the relationship between their place and social environment was mediated in part by sense of community.

Therefore, the purpose of this study is to investigate the effects of physical environment of student' dormitory facilities on the sense of community and social interaction through cross-cultural background. The research findings will provide useful campus planning and design guidelines of dormitory for facility planners and university administrator.

2. Review of Literature

Most students who exclusively live on on-campus housing spend a limited amount of time in class rooms, library, student hall and lab, while most of their time is spent out side environment and much of it within the dormitory facility. Students living in university dormitory is unique experience and their social interaction and shared emotional connection are playing an important role in reducing the stress of studies, and home sickness, and has been a place of positive opportunities for their personal growth and adaptation into peer group social culture.

It appears that students in dormitory facility who face social and emotional problems may lead into low performance of their learning ability and academic achievement [9]. The interpersonal social environment either facilitate student learning or, if impoverished, inhibit the educational attainment and their non-academic activities [10].

In order to support this notion, certain level of sense of student community may contribute to the safe and soundness of community, thus making a better place to build strong personal connections among college

students, finally leading to greater personal intellectual growth [11]. Based upon the previous theoretical research findings of McMillan, D.W., & Chavis, D.M.(1986), sense of community which works as main research concept and unit of analysis, is defined as membership-sense of belonging (7 indices), fulfillment of needs (7), influence-social participation (5), shared emotional connection (6), along with satisfaction with physical environment (8). Further, it also argued that enhanced sense of community(SOC) was closely related with a variety of academic outcome variables, including student's performance on over-loaden exams [12]. However, it is unclear that interplay between sense of community and social participation is positively related in cross- cultural context [13].

On the other hand, many studies on domestic and oversea's educational facilities has shown that physical environmental qualities of class room, library, student hall and light retails, public rest room and housing has certain level of impact on the well-being of students [14, 15, 16, 17]. The lack of adequate facilities precludes the possibility of interpersonal growth among students [18]. Further, recent study on dormitory confirmed that there exists statistically significant relationship between physical environment and sense of community [11]. Therefore, it is concluded that social interaction and sense of community are closely related with physical environmental factors of dormitory, while there is no solid evidence that the different national contexts of student have the same as previous studies.

3. Data Collection and Methodology

In order to investigate the cross-cultural effects of physical living environment on social interaction and sense of community in university dormitory, survey instrument was developed based upon SOC indices of previous studies [19] and research concept. A five-point li-kert scale was employed to evaluate students' attitude and value in dormitory regarding

physical environment, social environment and sense of community in two locations; A university in Seoul and B university in Dallas, U.S. Survey on U.S. student group was performed during the winter season 2016, and 137 respondents, appropriate for analysis, were selected among 142 survey results.

Among 34 indices, survey index consists of thirty three closed questionnaires regarding physical, social and SOC concept, six questionnaire for personal information, six questionnaires for individual characteristics and one for open-ended question asking how physical or other environmental factors can promote social relationships among students in the residence hall living. For an extensive comparative analysis between Korea and US group, SPSS program was performed at C.L 95% ± 8.9%. for the collected data set.

Table 1. Physical Profile of Dormitory for Survey

Div.	A University in Seoul, Korea	B University in Dallas, U.S.
Accommodation Capacity	1,650	5,100
Number of Dormitory	4 building Blocks	8 Building Blocks
Student population	11,503	33,000
Overview of University Dormitory		
Interior view of Dwelling unit		

4. Empirical Results and Discussions

Analysis of the study is carried out two fold; one is what the demographic personal difference between two group is, and the other is whether difference exists between two group regarding the effects of physical environment on their social interaction and SOC. In

Table 2. Descriptive statistics of Korea [20] and U.S. Student Group in Dormitory

Div.	Frequency (%)		SOC (Mean)		χ^2 (p value)		χ^2 (p value)
	Korea	U.S.	Korea	U.S.	Korea	U.S.	Between two group
Gender	149 (100%)	137 (100%)	3.40	2.75	143.4	73.7	6.22
- Male	90 (60.4%)	103 (75.2%)	3.33	2.73	(p=.001)	(p=.047)	(p=.013)
- Female	59 (39.6%)	34 (24.8%)	3.52	2.79			
Grade	147 (100%)	137 (100%)	3.40	2.75			
- Freshman	68 (46.3%)	52(38.0%)	3.41	2.83			
- Sophomore	33 (22.5%)	58(42.3%)	3.35	2.69	567.04	235.8	14.86
- Junior	29 (19.7%)	21(15.3%)	3.44	2.73	(p=.000)	(p=.021)	(p=.005)
- Senior	13 (8.8%)	5(3.6%)	3.64	2.69			
- Graduates	4 (2.7%)	1(0.7%)	2.86	-			
Living period	149 (100%)	137(100%)	3.40	2.75			
- Less than 1 yrs.	99 (66.4%)	56(40.9%)	3.35	2.81	437.7	189.3	22.45
- ~2 yrs.	32 (21.5%)	61(44.6%)	3.61	2.68	(p=.000)	(p=.095)	(p=.000)
- ~3 yrs.	11 (7.4%)	17(12.4%)	3.41	2.74			
- more than 3 yrs.	7 (4.7%)	3(2.2%)	3.21	2.83			
Personality	149 (100%)	137(100%)	3.40	2.75			
- Initiative	20 (13.4%)	35(25.5%)	3.46	2.85			
- Optimistic	69 (46.3%)	41(29.9%)	3.47	2.80	544.5	329.8	29.14
- Conservative	8 (5.4%)	26(19%)	3.24	2.63	(p=.000)	(p=.001)	(p=.000)
- Practical	45 (30.2%)	22(16.1%)	3.36	2.68			
- Resigned	7 (4.7%)	13(9.5%)	3.05	2.51			

order to evaluate students' response of social environment and physical features on their dormitory in Korea and U.S., χ^2 analysis and ANOVA(Analysis of variance) were performed. Each factor of SOC in relation with social interaction was calculated by average means of group index such as membership, fulfillment of needs, influence, and shared emotional connection which is explored in McMillan's theory [19]. In order to verify appropriateness of each survey index, Cronbach's Reliability test was performed for two data set of group to secure the stability of 39 indices (α=.8925).

As shown in Table 2, the Chi square analysis shows that some demographic profiles of two group were statistically significant on the level of SOC at p=.01. Individual characteristics of Korean group reported gender, grade, living period, and personality were different on the sense of community and their social interaction, while U.S. group showed only living period was not statistically significant (p=.095). This might be interpreted that U.S. students are not usually staying at their residence and they visit their family during weekend by their private car. Overall, mean score of SOC of Korean group (M=3.40) was higher than U.S. group (M=2.75). The χ^2 analysis on the difference of

personal characteristics between two group indicated there exists statistical significance regarding gender(χ^2=6.22; p=.013) grade(χ^2= 14.86; p=.005), living period (χ^2=22.45; p=.000), and personality (χ^2=29.14; p=.000). This means that Korean student group are more satisfied with their social environment than U.S. group, where most of their daily activities occur campus area and frequent socializing among residents.
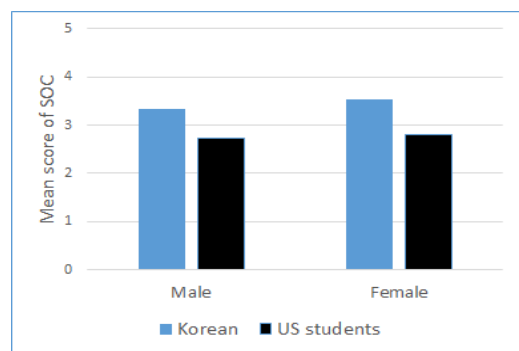
Fig. 1. Relationship between Gender by Nation their reported SOC(Sense of Community)

In an effort to examine the difference between the level of SOC, SOC(sense of community) of Korean and U.S. students group and attitude toward physical environment were indicated as following Table 3. The

Table of comparison shows distinctive difference between two group that the highest mean score of SOC of Korean group was 'Membership'(M=3.68), while U.S. student 'Satisfaction with physical environment' (M=3.40). This implies that Korean group considers sense of belong as important value in social environment and U.S. group regards dormitory facility as primary source for social interaction.

Table 3. Mean scores of Factors of SOC and Physical environment

SOC Factor & Physical environment	No. of survey index	Mean score	
		Kor [20]	U.S.
Membership	7	3.68	3.29
Fulfillment of needs	7	3.48	2.42
Influence	5	3.33	2.40
Shared emotional connection	6	3.11	2.89
Overall SOC	1	3.40	2.75
Satisfaction with Physical env.	8	3.58	3.40

On the other hand, Korean group reports 'Shared emotional connection' as the lowest Mean score(M=3.11) and U.S. group 'Influence' (M=2.40). This means that since Korea students have diverse needs, privacies, family background, and career goals, they might not need to share similar values among the peer group. For U.S. group, influence which is defined as the notion for a member to have certain level of influence over what the group orient is the least value in the spectrum of Individualism in American culture.

In order to explore what important physical element is to reinforce SOC in dormitory facility, multiple regression was performed by placing overall composite score of SOC on dependent variable for both group. As shown in above Table 4, the primary predictor in the formation of social environment and activities was 'heating and cooling performance' for U.S. student group and 'comfortable space like home environment for Korean group. Home environment of dormitory facility was common predictor for both student group, which implies that school administrator should

approach facility planning of university dormitory not to enforce institutional image but comfortable family-oriented home environment atmosphere.

Table 4. A stepwise regression analysis for physical environment for the facilitation of Social environment

Reg. Model	Predictors	Reg. co-efficients	Std. Error	Beta Weight	F	Sig.
U.S. Group	Index P3[***]	.428	.032	.184	34.61	.000*
	Index P6[***]	.281	.030	.115		
	Constant		.126	1.727		
	R^2=.339, Adj. R^2=.329					
Korean Group [20]	Index P6[***]	.250	.030	.553	40.96	.000*
	Index P1[***]	.108	.030	.221		
	Constant		.150	1.930		
	R^2=.454, Adj. R^2=.443					

* $p < 0.01$
** dependent variable: composite score of sense of community(SOC)
***
Index P3 Our residence hall provides good heating and cooling for every space.
Index P6 refers to "If I come in my dormitory, it's comfortable like our home."
Index P1 indicates "Overall, our dormitory is quiet place."

The analysis of curve line graph in Figure 2 validates such the results of regression that as the satisfaction with physical environment which is closely related to more social interaction rises, overall level of SOC(sense of community) indicate positive curve line according to the regression coefficient for both student group.
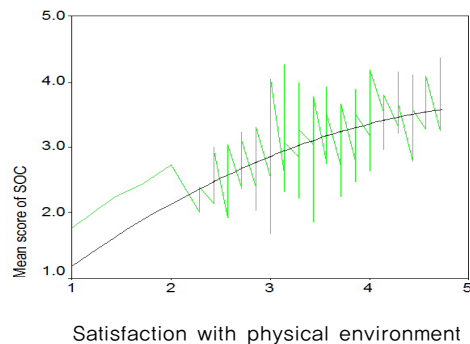
Fig. 2. Linear Regression of the relationship between physical environment of dormitory & Sense of Community(SOC)

5. Conclusion

University dormitory has been played an important role for unique campus experience and academic achievement, as well as providing such basic necessities as sleeping, studying, eating, and relaxation for college students. The concept of social interaction occupies an important issue within many environment-behavior studies and design professionals. The study focused on university dormitory from the perspective of social environment and cultural context, leading into testing the generality of influence of the physical features on social interaction and sense of community. Extensive review of literature illuminated the importance of social activities for students' personal growth and educational purpose in campus area. Many research supported the concept of SOC(sense of community) to promote social interaction. The Chi-square analysis on dormitory students in Korea and U.S. student group indicated that individual characteristics exist regarding SOC, however, there were no statistically significant results between two different cultural group. Factors attributing to SOC and satisfaction of physical environment showed Korean student group has higher level of value than U.S. group. Model of Regression analysis also indicated that U.S. students considered physically comfortable environment as primary issue for social interaction, while Korean group contended family-oriented home environment. This might be reinterpreted that the family bondage of Korean group under the influence of traditional cultural heritage is stronger than U.S. group emphasized on independent personal life by their family after formal rearing-up period before college education.

Further, linear analysis confirmed that satisfaction with physical environment influenced social interaction and SOC level. Finally the study reaffirms that when it comes to plan dormitory facility in campus area, it is important to emphasis on home environment in residential area rather institutional function.

The research has certain limitation to generalize the results because of the sample size, location of dormitory and the case of site. Although survey procedure are imperfect, the results in some way contribute to the future transformation of careful dormitory planning to strengthen potential of university campus to impact students' educational achievement and their personal growth.

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