

## Chapter #19

### **RICH EXPERIENCES IN NATURAL ENVIRONMENT IN CHILDHOOD CULTIVATE ATTACHMENT TO COMMUNITY**

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#### **ABSTRACT**

Japan shares the problem of urbanization. As governments provide inadequate public services to their citizens, mutual support among residents is necessary. This study aims to examine whether childhood experiences in the natural environment cultivate attachment to community when one becomes an adult. In 2014, an internet survey was conducted among residents of Kobe City and its suburbs. The sample size was 1,017, aged 18 to 90 years. Items input in the analyses were experiences with natural environment during childhood, importance of natural environment during childhood, and attachment to their community. Respondents were divided into four groups by gender and whether living in suburban or urban area. Multiple group structural equation modeling was conducted. The scores of the richness of natural environment of residents in suburban were higher than those of their counterparts in urban area. People who had lived in a rich natural environment in their childhood believed that natural experiences are important; those who held such beliefs correlated positively with attachment to community. This study suggests that living in a rich natural environment and having experiences in nature during childhood cultivate attachment to community when one becomes an adult. This finding implies that providing rich experiences in nature to children is important to cultivate attachment to community.

*Keywords:* childhood experiences in the natural environment, attachment to community, urban residents.

#### **1. INTRODUCTION**

As a civilized society, Japan faces the problem of urbanization, which is population concentration in metropolitan cities. Large cities in Japan often provide convenient places for old people. They provide a variety of facilities including hospitals, senior residences, department stores, theatres, and museums. At the same time, the public transportation systems are well developed in large cities. Old people can access these facilities through trains or buses. Local governments usually issue a special pass for the elderly, which enable them to utilize such facilities at discounted prices. In addition, the degree of ease of access is fairly high in large cities. These characteristics of large cities attract the elderly, and the aging population in cities is thus increasing.

#### **2. BACKGROUND**

When people get older, they need some support to live by themselves at their homes. However, the rate of households only comprising the elderly is increasing. They cannot expect daily support from their children living separately. At the same time, as local

governments provide inadequate public services to their citizens, mutual support among residents is necessary. The bonds among urban residents, however, have been weakening. An international comparative survey between Japan, the US, Germany, and Sweden shows that the ratio of the Japanese elderly who do not have someone to rely on is the highest among the four countries (Cabinet office, Government of Japan, 2015). Especially for the single households of the Japanese elderly, the ratio of those having infrequent interactions with others was the highest, though and the single household rate is the lowest in Japan among the four countries. It is obvious that the promotion of the networks and sense of community among urban residents is necessary.

An appropriate measure for evaluating the attachment to their community is the sense of community (McMillan & Chavis, 1986). The definition of the sense of community is: 'Sense of community is a feeling that members have of belonging, a feeling that members matter to one another and to the group, and a shared faith that members needs will be met through their commitment to be together' (McMillan & Chavis, 1986, p.9). They propose four elements of sense of community: membership, influence, integration and fulfilment of needs, and shared emotional connection. The Sense of Community Index II (Chavis, Hogge, McMillan, & Wandersman, 1986) consists of 24 items; however, its construct of four elements is not stable, especially for the Japanese (Sugawara et al., 2009). Sugawara et al. (2009), proposed three sub concepts: attachment to community, member connectedness, and sense of presence, with 11 items from the original Sense of Community Index. *Attachment to community* has four items: 'I think this community is a good place for me to live', 'I feel at home in this community', 'It is very important to me to live in this community', and 'I expect to live in this community for a long time'. *Member connectedness* has four items: 'People in this community share the same values', 'My neighbours and I want the same thing from this community', 'If there is a problem in this community, people who live here get it solved', and 'People in this community generally get along with one another'. *Sense of own presence* in the community has three items: 'I can recognize most of the people who live in my community', 'Most of my neighbours know me', and 'I have influence over what this community is like'.

Rubinstein and Parmelee (1992) proposed that attachment to a place, that is, to a geographic location, emotionally binds the elderly to the reflections of their past experiences. Katagiri and Sugawara (2010) demonstrated, using random sampling data of Japanese elderly people, that past residence in the community was correlated with higher scores in this Japanese version of Sense of Community Index. The old persons who had ever lived in the community showed higher scores on sense of community than who had never done so. Especially, the resident experience in their childhood was most the influential. This suggested that the past experience might influence people's sense of community. Among the available research on leisure activity, some findings have revealed a positive relationship between place attachment and past experiences (e.g. Song, Graefe, Kim, & Park, 2018). However, little research has been carried out using evidential data on people's sense of community considering their past experiences.

Factors related to the sense of community were explored intensively (Brown, Brown, & Perkins, 2004; Lewicka, 2011; Raymond, Brown, & Weber, 2010). Among these studies, we focused on those involving the natural environment. Suzuki and Fujii (2008) revealed that the contact level to regional environment and nature environment was positively correlated with place attachment.

Considering the importance of the past experience and contact with natural environment, it can be supposed that the rich experience in nature in their childhood should be correlated to the sense of community.

### 3. OBJECTIVES

The objective of this study was to examine 1) whether childhood experiences in the natural environment cultivate attachment to the community in adulthood, 2) the difference between urban and suburban residents, and 3) the difference between male and female residents.

### 4. METHOD

In 2014, an internet survey was conducted among residents of Kobe City and its suburbs. The number of the participants was allocated proportional to the ratio of composition of local population among the monitors of the internet research company.

Kobe City is located near Osaka, a metropolitan city. The Rokko Mountain separates Kobe City into north and south, the latter being more urban than the former. Kobe city (except for Kita-ku), Ashiya-shi, Nishinomiya-shi (except for Yamaguchi-cho, Najio-cho, and Namase-cho), and Amagasaki-shi were categorized into south (urban) area. Miki-shi, Kita-ku in Kobe-shi, Yamaguchi-cho, Najio-cho, and Namase-cho in Nishinomiya-shi were categorized into north (suburban) area.

The sample size was 1,017 (south = 879, north = 213; men = 499, women = 593), with ages ranging from 18 to 90 years.

Items included in the analyses were 1) richness of nature during childhood (natural environment), 2) the existence of a person who loved nature (interpersonal environment), 3) experiences with natural environment during childhood (past experiences in natural settings), 4) importance of natural environment during childhood, and 5) attachment to the community.

1) Respondents rated the richness of nature during childhood on a scale from '1: hardly rich in natural environment' to '4: very rich in natural environment'.

2) Respondents were asked if they had a person who loved nature (1) or not (0).

3) The experience with natural environment was assessed using three questions: 'Did you play in natural settings?', 'Did you have experiences of capturing an animal or a plant, collecting it, or breeding or cultivating it?', and 'Did you visit relatives or acquaintance in rural areas?' Respondents answered on a scale from 1 'never' to 4 'often'. The reliability of the three items was .717.

4) Respondents rated the importance of natural environment on a scale from 1 'not at all' to 4 'very important'.

5) Out of three sub-concepts of sense of community, we used *Attachment to community* as it was the most similar to the concept of *place attachment* cited in literature. *Attachment to community* was assessed using four questions: 'I think this community is a good place for me to live', 'I feel at home in this community', 'It is very important to me to live in this community', and 'I expect to live in this community for a long time'. The reliability of the four items was .898.

Education, marital status, and years of residence were also included as control variables. Education had seven response options including '1: junior high school', '2: high school', '3: vocational school', '4: college', '5: university', '6: graduate school (master)', and '7: graduate school (doctor)'. Marital status was a dummy variable with categories of '1: married' and '0: not married'. Years of residence was assessed as the duration for which they were living in that area.

Respondents were divided into four groups by gender and residential areas of north (suburban) or south (urban). Multiple group structural equation modeling was conducted.

## 5. RESULTS

Descriptive statistics of demographic characteristics are shown in Table 1.

*Table 1.*  
*Characteristics of respondents.*

		<i>N</i>	<i>%</i>
Sex	Male	499	45.7
	Female	593	54.3
Working status	Yes	718	66.7
	No	358	33.3
Income (in million)	Less than 2	466	42.9
	2-3.99	226	20.8
	4-5.99	175	16.1
	6-7.99	104	9.6
	8-9.99	56	5.2
	More than 10	59	5.4
Education	Junior high school	12	1.1
	High school	207	19
	Vocational school	101	9.2
	College	146	13.4
	University	526	48.2
	Graduate school (master)	82	7.5
	Graduate school (doctor)	17	1.6
Living alone	No	913	83.6
	Yes	179	16.4
Marital status	Married	716	65.6
	Not married	376	34.5
Own house	Yes	735	67.3
	No	357	29.6
Living area	South (urban)	879	80.5
	North (suburban)	213	19.5
Age group (in years)	20's	142	13
	30's	249	22.8
	40's	324	29.7
	50's	243	22.3
	60's	134	12.3
Years of residence	Range 0-65, Mean 13.25, <i>SD</i> 12.1		

Descriptive statistics of target variables are shown in Table 2.

*Table 2.*  
*Descriptive statistics of target variables: Comparisons between four groups (gender X area).*

		Male		Female	
		Urban	Suburban	Urban	Suburban
1. Natural environment (1 - 4)	<i>Mean</i>	2.71	2.87	2.60	2.91
	<i>SD</i>	0.89	0.86	0.97	0.96
2. Interpersonal environment (0-7)	<i>Mean</i>	1.50	1.62	1.60	1.69
	<i>SD</i>	1.50	1.60	1.52	1.53
3. Experiences with animals or plants (1 - 4)	<i>Mean</i>	3.21	3.25	3.06	3.06
	<i>SD</i>	0.94	0.95	0.95	0.88
4. Experiences of playing in the nature (1 - 4)	<i>Mean</i>	3.50	3.57	3.31	3.39
	<i>SD</i>	0.81	0.71	0.78	0.76
5. Visiting relatives in rural areas (1 - 4)	<i>Mean</i>	3.22	3.28	3.15	3.09
	<i>SD</i>	1.05	0.91	0.97	1.00
6. Evaluation of natural experience during childhood (1 - 4)	<i>Mean</i>	3.40	3.40	3.42	3.46
	<i>SD</i>	0.69	0.74	0.62	0.62
7. Attachment to community (4 - 16)	<i>Mean</i>	11.98	11.30	12.10	11.69
	<i>SD</i>	2.49	2.07	2.39	2.22

To examine the differences among the four groups, we conducted an ANOVA (Table 3).

We observed a significant main effect of geographic area ( $F(1, 1088) = 9.9, p < 0.01$ ) on *richness of natural environment during their childhood*, which was higher among residents in suburban areas than it was among residents of urban areas. We observed a main effect of gender on *experiences of playing in nature*. Male residents reported more experiences of playing in nature during childhood than female residents ( $F(1, 1088) = 8.47, p < 0.01$ ). Finally, urban residents showed a significantly higher score of *attachment to community* ( $F(1, 1088) = 12.21, p < 0.001$ ).

*Table 3.*  
*Results of ANOVA.*

		Male (n=499)		Female (n=593)	
		Urban	Suburban	Urban	Suburban
Richness of natural environment during childhood	<i>Mean</i>	2.72	2.87	2.60	2.91
	<i>SD</i>	0.89	0.86	0.97	0.96
Experiences of playing in nature	<i>Mean</i>	3.50	3.57	3.32	3.39
	<i>SD</i>	0.81	0.71	0.78	0.76
Attachment to community	<i>Mean</i>	12.09	11.30	12.17	11.69
	<i>SD</i>	2.51	0.71	2.41	0.76

Rich Experiences in Natural Environment in Childhood Cultivate Attachment to Community

Next, we separately calculated the correlations between target variables by gender (Tables 4 and 5). We found similar results expect when it comes to correlations between *attachment to community* and other variables. All of the correlations were weak but significant among males, but only two of the correlations (*attachment to community* with *interpersonal environment* and *evaluation of natural experiences during childhood*) were significant among females.

Table 4.  
Correlations among the target variables (male).

	1	2	3	4	5	6
1. Natural environment						
2. Interpersonal environment	.283***					
3. Experiences with animals or plants	.298***	.365***				
4. Experiences of playing in nature	.391***	.369***	.666***			
5. Visiting relatives in rural areas	.320***	.315***	.403***	.581***		
6. Evaluation of natural experiences during childhood	.365***	.356***	.451***	.561***	.372***	
7. Attachment to community	.220***	.171***	.241***	.296***	.184***	.377***

Note. \*\*\* $p < .001$

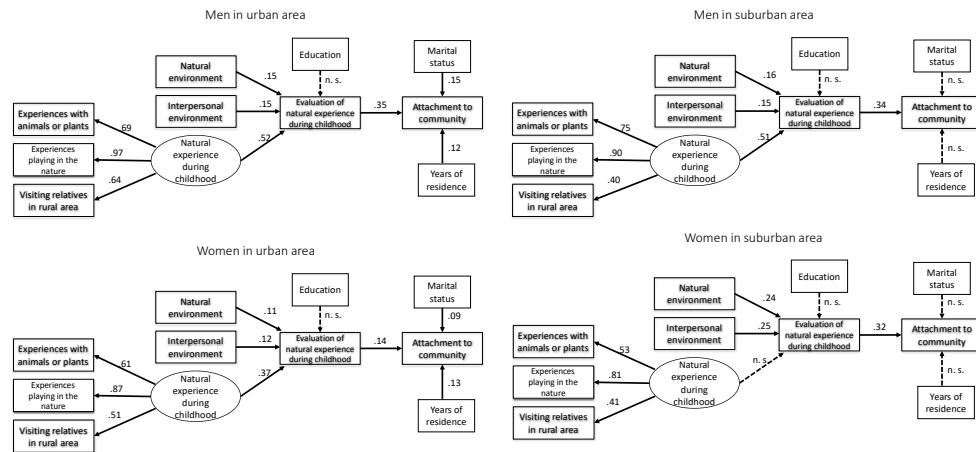
Table 5.  
Correlations among the target variables (female).

	1	2	3	4	5	6
1. Natural environment						
2. Interpersonal environment	.289***					
3. Experiences with animals or plants	.181***	.425***				
4. Experiences of playing in nature	.397***	.365***	.516***			
5. Visiting relatives in rural areas	.281***	.260***	.268***	.430***		
6. Evaluation of natural experiences during childhood	.281***	.293***	.309***	.356***	.229***	
7. Attachment to community	-.026	.089*	.012	.029	.009	.173***

Note. \*  $p < .05$ , \*\*\* $p < .001$

Finally, multiple group structural equation modeling was conducted among the four groups. Though the model fit did not reach a satisfactory level, we chose this model as it showed the lowest score of RMSEA (.059) (Figure 1).

Figure 1.  
Results of multiple group structural equation modeling.



Note. Solid lines represent significant relationships. Dotted lines represent non-significant relationships.

We observed similar structures in the four groups, however, with some differences as well. Generally, we observed that rich natural environment, interpersonal environment, and natural experiences during childhood related positively to the importance of natural experiences during childhood, as also to attachment to community in adulthood.

Natural experiences in childhood were not related to the importance of natural experiences during childhood among women in suburban areas. The relationship between the importance of natural experiences during childhood and attachment to community was the weakest among female urban residents. Marital status and years of residence were related to attachment to community among urban residents, though we could not find these relations among suburban residents.

## 6. CONCLUSION/DISCUSSION

This study suggests that living in a rich natural environment and having experiences in nature during childhood cultivate attachment to community when one becomes an adult. It also suggests that living in a rich natural environment is an important experience in childhood, as proposed by Rubinstein and Parmelee (1992). Simultaneously, this study indicates that attachment to the community is related to not only the current situation but also childhood experiences in natural environment. It implies that the sense of community (McMillan & Chavis, 1986) is cultivated in people from childhood. The results showed that people who grew up in a rich natural environment were interested in their environment as adults, but those who were surrounded by a poor natural environment in childhood tended to lose interest in their environment as adults.

However, the strength of the relationships was different according to the residential region (in urban or suburban areas) and by gender. It was suggested that attachment to community was related to previous childhood experiences more strongly among male than among female residents. One reason for this is that the duration of residence for males was higher than that for females. A second possible reason may be that the female residents are

currently more involved in their neighbourhoods, as women usually spend more time at home than men do. Husbands, on the other hand, stay away from the home for long stretches of time because of work. They may not cultivate an attachment to the community that they are living in as adults. This may result in the strong relationship between past experience and attachment to community for male participants.

Among suburban residents, marital status and years of residence were not related to attachment to community. This can be interpreted to mean that suburban residents are living in richer natural environments than urban residents, which leads to a stronger relationship between attachment to community and the natural environment and past abundant experiences in nature.

The rich natural environment in urban areas is disappearing nowadays. Naturally, the children living in urban cities cannot have ample experiences of playing in the natural setting. It is expected to further decline the sense of community among urban residents in the future. Moreover, the population inflow into urban cities will not stop.

## 7. FUTURE RESEARCH DIRECTIONS

This finding implies that providing rich experiences in nature to children is important to cultivate attachment to community. When the areas do not have naturally rich environments, it is better to take children to a natural setting and provide enough opportunities to be familiar with the natural environment, and enable them to understand the importance of nature. At the same time, urban city plans should attempt to ensure that cities are equipped with natural places.

As this study was cross-sectional and conducted through an internet survey, future research using random sampling with a longitudinal approach is needed.

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