Effects of Recalling Place Memory on Promoting Cooperative Behaviors in Local Communities

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This study aimed to develop a theoretical model that explores the influence of recalling place memory on cooperative behaviors in local communities. 595 Japan residents (mean age = 49.75 years) participated in an online survey, in which they received three interventions: (1) positive memory; (2) neutral memory, and (3) negative memory. Participants were instructed to recall their place memories within local areas and provide ratings for their place attachment, emotional valence, perceived self-interest, and willingness to engage in cooperative behaviors (specifically, following local garbage disposal rules and participating in local pro-environmental activities) on a 7-point Likert scale. The collected data were analyzed using structural equation modeling(SEM) to confirm the fit of the hypothesized model. The results indicate that individuals who recalled positive-valenced place memories exhibited a higher willingness to engage in two types of cooperative behaviors. Several practical implications were derived from the findings, which contributes to community management and heritage conservation in general.

Key Words : *cooperative behavior, local communities, place memory, place attachme*

1. INTRODUCTION

In recent years, cooperative behaviors towards local communities have gained increasing significance, driven by societal changes such as population decline and aging. Addressing these challenges necessitates cooperative behaviors among community members. One of the most understandable definitions of cooperative behaviors is given by Fujii[1)], in which cooperative behavior is described as behaviors that contribute to increasing public benefit (or collective interest), while decreasing private benefit.

However, when a conflict between immediate self-interest and longer-term collective interests comes up, which can be called social dilemma, it will hinder the smooth formation of cooperative behaviors[2)]. Efforts to understand and predict why individuals act cooperatively have generated a considerable body of literature. Factors like interpersonal relationship[3)] were examined to be useful in promoting cooperative behaiovr in local communities. However, as an important property of a place, the role of place memory in promoting cooperative behavior within local communities has been overlooked. Understanding the cognitive processes underlying the promotion of cooperative behaviors through place memory raises fundamental questions: (a) what is the nature of the relationship between place memory and cooperative behaviors? (b) how is the conflict between self-interest and collective interest resolved in the process of promoting cooperative behaviors? and (c) how applicable is this model across diverse contexts? Does it exhibit similar efficacy in both urban and rural communities? Therefore, the aim of this study is to address these issues by establishing a predictive model for cooperative behaviors through a survey conducted in Japan.

2. HYPOTHETICAL MODEL

Fig.1 displays a hypothetical model, proposing that the promotion of cooperative behaviors that is mediated by place attachment and perceived

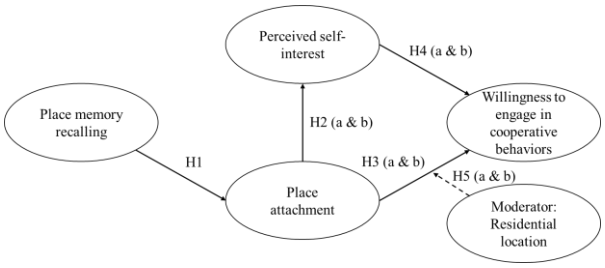


Fig.1 Hypothetical Model.

self-interest. In this study, we selected two cooperative behaviors, namely (a) following local garbage disposal rules and (b) participating in local pro-environmental events, based on Tyler & Blader's proposition of three types of cooperative behaviors that are crucial for group viability[4]. In addition, the proposed model also incorporates the moderating effect of residential location on the relationship between place attachment and cooperative behaviors.

3. METHODS

(1) Participants

A total of 575 adults (beyond 25 years old) who are residents in Japan participated in an online study. Approximately 48% of the participants are female. Participants were aged between 25 and 80 years (Mean age = 49.75 years, SD = 14.60). Nearly half the participants (N = 287) live in urban areas, while the others live in rural areas (N = 288). In this study, urban area refers to the 23 wards of Tokyo, and rural area refers to towns and villages with a population of less than 30,000 people located in Akita, Yamagata, and Iwate prefectures.

(2) Research design

In order to arouse different kinds of place memories (positive, neutral, and negative), three kinds of vignettes have been prepared. It is a between-subjects design, participants were assigned randomly into three groups: positive group, negative group and neutral group. Participants in the positive recalling vignette were asked to recall their favorite place in the local area and several events that happened in that place; participants in neutral vignettes were asked to recall their recent experience of shopping in the local supermarket and participants in negative vignettes were asked to recall their least favorite place in the local area and several events happened in that place.

180 out of 575 participants reported experiencing difficulty in recalling the associated memory. Among these participants, 69 were from the positive place memory vignette group, while the remaining respondents were from the negative place memory group. Consequently, we categorized place memory recall into five levels: positive memory recall, no positive memory recall, neutral memory recall, negative memory recall, and no negative memory recall. The sample sizes for each group are presented in Table 1.

Table 1 Sample Size of Each Group.

	Response in the text box	Participants	
		Urban	Rural
Positive	Successfully recalled	67	60
	Cannot recall	36	33
Neutral	Successfully recalled	67	74
Negative	Successfully recalled	60	67
	Cannot recall	57	54

(3) Procedure and Measures

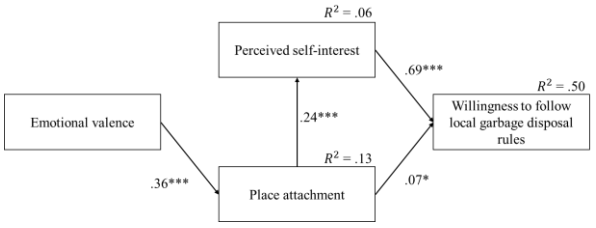
The respondents were asked to read a vignette shown to each group and write a short essay about the emotions they experienced. After that, participants were asked to complete an anonymous self-reporting questionnaire. In the questionnaire, emotional valence, place attachment, perceived self-interest about cooperative behaviors, and willingness to engage in cooperative behaviors were measured by a seven-point Likert scale (1 = strongly disagree; 7 = strongly agree).

4. RESULTS

(1) Models predicting participants' willingness to engage in cooperative behaviors

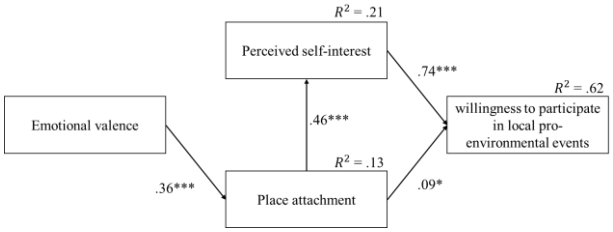
Fig.2 shows the results of the proposed path model for willingness to follow local garbage disposal rules. All the indices are within the acceptable range for a satisfactory model fit (χ^2/df = 1.340; CFI = .999; GFI = .998; RMSEA = .024; RMR = .048; TLI = .996). Consistent with theoretical predictions, a series of significant and positive associations were found between emotional valence and place attachment (path coefficient = .36, $p < .001$), and between place attachment and perceived self-interest (path coefficient = .24, $p < .001$), and between place attachment and willingness to follow local garbage disposal rules (path coefficient = .07, $p = .021$) and between perceived self-interest and willingness to follow local garbage disposal rules (path coefficient = .69, $p < .001$). These results indicate that emotional valence of place memory affected willingness to follow local garbage disposal rules through its effects on place attachment and perceived self-interests.

Fig. 3 shows the results of the proposed path model for willingness to participate in local



Note. Coefficients presented are standardized linear regression coefficients.
*p < .05, ***p < .001.

Fig.2 Path Analysis Model Predicting Participants' Willingness to Follow Local Garbage Disposal Rules.



Note. Coefficients presented are standardized linear regression coefficients.
*p < .05, ***p < .001.

Fig.3 Path Analysis Model Predicting Participants' Willingness to Participate in Local Pro-Environmental Events.

pro-environmental events. All the indices are within the acceptable range for a satisfactory model fit (χ^2/df = 5.032; CFI = .989; GFI = .991; RMSEA = .084; RMR = .116; TLI = .968). Consistent with theoretical predictions, a series of significant and positive associations were found between emotional valence and place attachment (path coefficient = .36, p < .001), and between place attachment and perceived self-interest (path coefficient = .46, p < .001), and between place attachment and willingness to participate in local pro-environmental events (path coefficient = .09, p = .003) and between perceived self-interest and willingness to participate in local pro-environmental events (path coefficient = .74, p < .001). These results indicate that emotional valence of place memory affected willingness to participate in local pro-environmental events through its effects on place attachment and perceived self-interests. Together, H1, H2, H3 and H4 were supported.

(2) Differences between urban and rural groups

Firstly, non-invariance tests were conducted on the model of willingness to follow local garbage disposal rules. The results are shown in Table 2, which indicate that there were no significant differences in path coeficients between the urban and rural groups. Because the χ^2 difference between baseline model (model 1) and the restricted model (model 2) is not significant ($\Delta\chi^2$ [8] = 2.136, p = .971).

Table 2 Multigroup Analysis for The Model of Willingness to Follow Local Garbage Disposal Rules.

Model	χ^2(df)	$\Delta\chi^2$(p-value)
Model 1: Unconstrained model	2.942(4)	
Model 2: Constrained all paths	5.258(12)	2.316(.971)

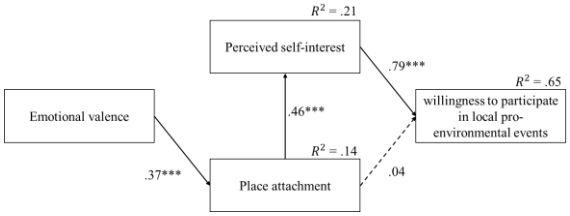
Table 3 Multigroup Analysis for The Model of Willingness to Participate in Local Pro-Environmental Events.

Model	χ^2(df)	$\Delta\chi^2$(p-value)
Model 1: Unconstrained model	9.950(4)	
Model 2: Constrained all paths	24.438(8)	**14.488(.006)**
Model 3: Constrained path: emotional valence -> place attachment	10.059(5)	0.110(.070)
Model 4: Constrained path: place attachment -> perceived self-interest	10.716(5)	0.767(.381)
Model 5: Constrained path: place attachment -> willingness to participate in local pro-environmental events	23.235(5)	**13.286(.000)**
Model 6: Constrained path: perceived self-interest -> willingness to participate in local pro-environmental events	11.686(5)	1.737(.188)

Then, non-invariance tests were conducted on the model of willingness to participate in local pro-environmental events. The results are shown in Table 3, which indicates that there was a significant difference in path estimates of urban versus rural samples, as evidenced by a significant χ^2 difference ($\Delta\chi^2$ [4] = 2.136, p = .006) between baseline model (model 1) and the restricted model (model 2). Additional χ^2 difference tests performed subsequently identified which paths differed. As shown in Table 4, when the path between place attachment and the willingness to participate in local pro-environmental events was constrained to be equal, there was a significant χ^2 difference ($\Delta\chi^2$ [1] = 13.286, p < .001).

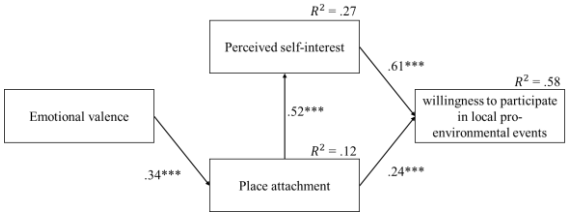
These results supported Hypothesis 5, which means the moderation of residential location exists in the process of promoting willingness to participate in local pro-environmental events.

A graphical representation of the estimated structural model for each group discussed above is provided in Fig. 4 and Fig. 5. As shown in Fig. 4, all but one path coefficient was found to be positive and significant in the urban group. In particular, the direct linkage between place attachment and the willingness to participate in local pro-environmental events was now considerably weakened and no longer significant at the .05 level. Fig. 5 displays parameter estimates for the rural group and shows that all of the hypothesized paths were significant in the direction anticipated. And the direct linkage between place attachment and the willingness to participate in local pro-environmental events was considerably strengthened and even significant at the .001 level .



Note. Dotted lines represent nonsignificant relations; bold lines represent significant relations. ***p < .001.

Fig.4 Standardized Path Coefficients of Path Analysis Models for Urban Group.



Note. Dotted lines represent nonsignificant relations; bold lines represent significant relations. ***p < .001.

Fig.5 Standardized Path Coefficients of Path Analysis Models for Rural Groups.

5. CONCLUSIONS

This study revealed that the emotional valence activated by a place memory indirectly predicted the willingness to engage in cooperative behaviors in local communities.

In this section, the three questions raised in the introduction are addressed. First, positively valenced place memories, shared within local communities, are verified as significant promoters of cooperative behaviors among residents within these communities. Second, the conflict between self-interest and collective interest is resolved through place attachment, wherein collective interest is transformed into self-interest through the process of self-expansion. And (c) the model predicting the willingness to follow local garbage disposal rules works similarly in rural and urban situations. However, the model predicting the willingness to participate in local pro-environment events exhibits variations between urban and rural areas. The difference lies in the relationship between place attachment and willingness to participate in local pro-enviornmental events.

Regarding to the difference between urban and rural communities, rural residents are driven not only by benefits but also by their deep attachment to the local environment in the context of pro-environmental events. It could be argued that rural residents exhibit a higher degree of altruism when compared to urban residents.

The findings of this study have significant implications for practitioners in the field of urban planning. The results of this study offer fresh insights into heritage conservation. Historical heritages which contain place memories of residents, can be expected to act as catalysts for cooperative behaviors in communities.

NOTES

Note 1) Residential location is defined as any area where structures in which people lodge or live are located and the grounds on which such structures are located. (https://www.lawinsider.com/dictionary/residential-location.)

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