Research on the structure of consciousness of people who maintain and manage parks

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Abstract

Due to population decline, unused vacant land is expected to increase in the region in the future. However, consciousness indicators of how to encourage maintenance and management are not clear. Therefore, the purpose of this study is to clarify the consciousness structure of people who maintain and manage park. As a result, it was proved that six consciousnesses (Interest in greening etc.) are related to the comprehensive consciousness index of park maintenance behavior.

Keywords: Consciousness structure, Maintaining managed, Covariance structure analysis

1. Introduction

In the future, population is expected to decline in Japan[1]. As a result, unutilized vacant land is expected to increase in each region. So, it is considered important to have local residents maintain and manage local spaces. National and local governments have also begun to encourage such behavior[2]. But consciousness indicators of how to encourage maintenance and management are not clear. In a previous study that addresses this issue, there is a study that focused on the nawabari theory. Nawabari theory is the belief that humans (like animals) exhibit territorialized consciousness and behavior. The research of theory is a direction that encourages maintenance and management. Kobayashi studied territorialized formation mainly from the hardware and provided directions[3],[4]. Fujitani et al. conducted a follow-up study and confirmed that human territorial behavior is also not easily influenced by the times. And software of consciousness was also found to have a significant impact on territorialized formation[5]. Sanbuichi et al. focuses on the software of consciousness and explores the relationship between territorialized behavior and consciousness[6],[7]. However, there is a lack of analysis of spaces that are used distantly and publicly. As a result, we have not been able to demonstrate a consciousness index that would encourage the maintenance and management of the space.

Therefore, the purpose of this study is to clarify the consciousness structure of people who maintain and manage park.

Jun Sanbuichi, Minoru Kumano, Toru Hiraoka

2. Research methods

This study follows the flow chart as shown in Fig. 1. First, select consciousness which seems to be associated with maintaining park. Given that a mix of consciousnesses influences the consciousness associated with maintaining park according to the existing papers[3],[4],[5],[6],[7](Include reference papers for that paper.), consciousnesses are preset for the purpose of this study(Fig. 2). Based on the preset consciousnesses, questions (evaluation items) are developed and the survey is conducted to people who maintain park. Factor and covariance structure analyses will be performed on all obtained data to demonstrate the existence of the preset consciousness and to quantitatively measure the importance of observed variables.

3. Research results

The survey was administered directly to the target population and direct responses were collected (June 14, 2008). The target audience is the people who maintain the park. (They are mainly volunteers who belong to "HANA MIDORINOKAI.") The obtained individual attributes of the respondents are shown in Table. 1. The next section will elicit conclusions from total 150 collected response sheets. The consciousness associated with maintaining park appear to be associated with consciousness of interest in greening, secure feeling in the social field, consciousness in city planning, expectation for human effects, resistance to the other people and resistance to tasks according to the reference materials and the transforming process of consciousness (desires to appeal and pride, keep holding, expand the territory, promotion factors, etc).

Fig.1 Research flow

Table.1 Individual Attributes of Respondents

Attributes	%	Attributes	%
Gender:		Years of residence:	
Male	41.9	3 years or shorter	1.6
Female	56.5	3 to less than 5 years	3.1
Non-responder	1.6	5 to less than 10 years	3.1
Age:		10 to less than 15 years	17.2
20s	1.6	15 to less than 20 years	57.8
30s	3.1	20 years or longer	17.2
40s	7.8		
50s	14.3	Distributed questionnaire sheets: 64	
60s	31.0	Effective collected response sheets: 64	
70s or greater	42.2	Effective response rate: 100%	

Fig.2 Consciousness assumed to be related to maintaining park (process of transforming consciousness)

The authors set up questions related to the above (Table. 2). The respondents were asked to answer the questions in 5-point scale: 1. No, I do not (not applicable), 2. Not so much, 3. I do not know, 4. Maybe, and 5. Yes, I do (applicable). In the obtained responses, those to the questions highly correlated each other will be compiled, and be subjected to the factor analysis to highlight the residents' sub-consciousness and establish the latent variables in the covariance structural analysis. Table 3 shows the definitions of factor loading, eigenvalue, cumulative contribution rate and factors in the factor analysis (after the rotation by the varimax method). Since Factor 1 is high in the factor loading with D1:" Maintenance of park helps greening and beautification of the community," D2:" The streets and the community will look better by maintaining park," and D3:" Maintenance of park activates community activities in the area," it is defined as the expectations for human effects. Similarly, Factor 2 is defined as the secure feeling in the social field, Factor 3 as interest in greening, Factor 4 as Resistance to activities, Factor 5 as consciousness of city planning and Factor 6 as resistance to other people (the number of factors is determined as six according to the transforming process of consciousness and the factor loading values). The results of the factor analysis are defined as the latent consciousness of the managing of park, and they are used as the latent variables in the structural model of the resident consciousness for the purpose of this paper. The upper variables are given to (the consciousness associated with) maintaining private garden, and the latent variables obtained in the factor analysis between the observed variables and the upper variables to build the structural model of consciousness (path chart) by taking the preset consciousnesses into account (see Fig.3). Table 4 shows the results of the covariance structural analysis in the structural model of consciousness. For the information, Amos5.0 (SPSS) is used for the verification of the parameters. The covariance structural analysis resulted in that the parameters meet a significant level of 1% or 5%. Furthermore, the values of GFI (Goodness of Fit Index: 0.825) and AGFI(Adjusted Goodness of Fit Index: 0.757) are relatively good. As a result, it was proved that six consciousness (Interest in greening, secure feeling in the social field, consciousness of city planning, Expectations for human effects, Resistance to other people and Resistance to activities) are related to the comprehensive consciousness index of park maintenance behavior.

Table. 2 Evaluation items for assumed consideration

No.	Code	Evaluation items
1	A1	I like have flowers and greens in my house.
2	A2	I like glowing flowers.
3	A3	I like seeing flowers and greens of others or other houses.
4	B1	I have many acquaintances in the area where I live.
5	B2	I am very familiar to the area where I live.
6	C1	I want to take up my opinion to the city planning.
7	C2	I want to attend a symposium regarding the city planning.
8	C3	I want to participate in the festival or events in my community.
9	D1	Maintenance of park helps greening and beautification of the community.
10	D2	The streets and the community will look better by maintaining park.
11	D3	Maintenance of park activates community activities in the area.
12	E1	I am not concerned about other people's behaviors and what they say.
13	E2	I like have chatting with people.
14	F1	I do not mind if I have to spend money more to maintain park.
15	F2	I do not mind if tasks to maintain park increase.
16	F3	I do not mind spending time to maintain park.

Table. 3 .Results of factor analyses of consciousnesses

| Name of variables	factor1	factor2	factor3	factor4	factor5	factor6
D 1	0.865	0.075	0.067	0.181	0.228	0.076
D 2	0.861	0.146	-0.024	0.240	0.032	0.122
D 3	0.733	0.108	0.104	0.065	0.155	0.179
B 1	0.060	0.853	0.104	0.125	0.123	0.124
B 2	0.100	0.839	0.146	0.119	0.164	0.018
A 1	-0.015	-0.060	0.706	0.194	-0.111	0.143
A 2	-0.043	0.084	0.639	0.110	-0.044	0.032
A 3	0.159	0.135	0.536	0.056	0.054	-0.048
F 1	0.198	0.118	0.199	0.682	0.039	0.036
F 2	0.378	0.081	0.269	0.679	0.082	0.261
F 3	0.026	0.208	0.204	0.440	0.224	0.498
C 1	0.033	0.169	-0.037	0.065	0.683	0.182
C 2	0.248	0.198	-0.064	0.063	0.595	-0.149
C 3	0.202	0.495	-0.036	-0.004	0.355	0.136
E 1	0.383	-0.007	-0.042	0.090	-0.106	0.454
E 2	0.282	0.200	0.086	0.082	0.127	0.416
Eigen value	2.581	1.915	1.412	1.320	1.167	0.864
Culumulative contribution rate	16.1%	28.1%	36.9%	45.2%	52.5%	57.9%
Definitions of factors	Expectations for human effects	Secure feeling in the social field	Interest in greening	Resistance to activities	Consciousness of city planning	Resistance to other people
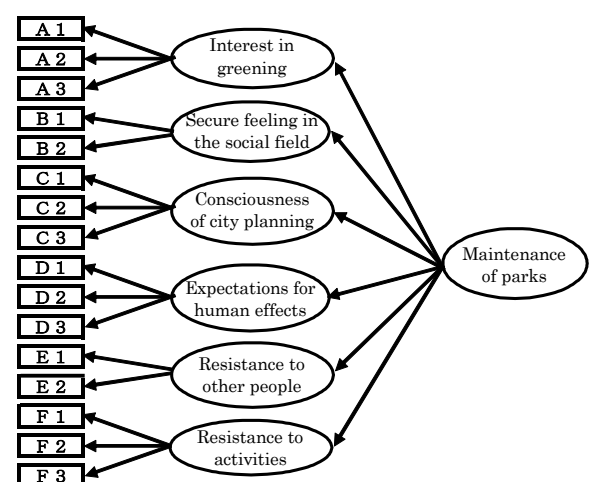
Fig.3 Structural Model of Consciousness of park (Path Chart)

Jun Sanbuichi, Minoru Kumano, Toru Hiraoka

4. Conclusion

This study is intended to draw indexes of the consciousnesses in the process to maintaining park, i.e., the process to create a social field, in the process through the survey of consciousness of the residents. The study hypothesized a transformation process of consciousness and conducted a questionnaire survey, factor analysis, and covariance structure analysis. The results revealed that actions to maintain the park are influenced by six consciousnesses (interest in greening, secure feeling in the social field, consciousness of city planning, Expectations for human effects, Resistance to other people and Resistance to activities).

The survey of residents' consciousness identified part of the process of creating a social field. However, clarifying the territorialization process of some spaces leaves many mysteries unsolved. It is important to conduct a comprehensive survey and discussion of attitudes in each space in the future, including those who maintain and manage close public spaces and those who maintain and manage remote private spaces.

Table.4 Results of covariance structural analysis of consciousnesses

Relation of each variable			Path coefficient	t-value	確率
Interest in greening	<---	Maintenance of parks	0.292	1.996	*
Secure feeling in the social field	<---	Maintenance of parks	0.684	2.491	*
Consciousness of city planning	<---	Maintenance of parks	0.464	2.448	*
Expectations for human effects	<---	Maintenance of parks	0.995	4.06	**
Resistance to other people	<---	Maintenance of parks	0.725	3.115	**
Resistance to activities	<---	Maintenance of parks	1		
A 1	<---	Interest in greening	1		
A 2	<---	Interest in greening	0.638	3.166	**
A 3	<---	Interest in greening	0.496	2.901	**
B 1	<---	Secure feeling in the social field	1		
B 2	<---	Secure feeling in the social field	0.978	4.237	**
C 1	<---	Consciousness of city planning	1		
C 2	<---	Consciousness of city planning	0.992	3.167	**
C 3	<---	Consciousness of city planning	0.802	2.995	**
D 1	<---	Expectations for human effects	0.967	11.287	**
D 2	<---	Expectations for human effects	1		
D 3	<---	Expectations for human effects	0.785	7.601	**
E 1	<---	Resistance to other people	1		
E 2	<---	Resistance to other people	0.856	2.612	**
F 1	<---	Resistance to activities	0.736	5.205	**
F 2	<---	Resistance to activities	1		
F 3	<---	Resistance to activities	0.657	4.662	**
GFI			0.825		
AGFI			0.757		

**:1% Significance level   *:5% Significance level

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