An Experimental Study on the Multigenerational Workshop for Sustainable Society

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Abstract

Making sustainable society has been one of the most important policies at present. Sustainability should be built from the points of view based on the community. Public participation is fundamental process for implementation of environmental planning. Especially, taking future generation part in this process could make plan feasible. Then, this study focused on the workshop approach as one method that makes collaboration between adults and children.

Two series experimental workshops were carried out in Yakushima Island, one of the World Natural Heritages in Japan, to clarify the effect of the collaboration of different generations. In the first meeting, participants perceived the relationship between the nature and their life through the nature games. In the second, economical and social problems were mainly discussed by each group. While Yakushima attract a great deal of tourists, residents have faced serious problems such as luck of employment opportunities, depopulation of the young ages, waste problem and so on.

So that it could be cleared the effect of the collaboration of different generations, workshops were divided into three groups; children only, mix of children and adults, adults only. Analyzing workshop products and questionnaire researches, the effect of the multigenerational workshop is revealed as follows; (1) a lot of multiple opinions which are produced by the workshop has been shared among the different generations, (2) Children tend to complain of their environmental situation, so that plural dialogues for the learning process should be continued, (3) some of children belonging to mixed group changed their awareness such as judgment for reduction of public constructions through the interactive information exchange.

Thus collaborative workshop is one of a noticeable way to build capacity which enables young generations participate in the planning process.

Keywords: Workshop, Citizen Participation, Capacity Building, Sustainable Society, World Natural Heritage, Yakushima Island

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1. Introduction

Making sustainable society has been one of the most important common policies as international issue at present. Sustainability should be built from community based points of view. Public participation is fundamental process for implementation of environmental planning since multiple stakeholders including local residents could have dialogues toward building social consensus in this process. Consensus building in the planning process is placed in following fundamental framework of planning theory. The framework established here is the series of decision making processes: Defining the problems ? Policy ? Plan ? Project, and building consensus at each phase is important (Figure 1).

The framework of planning theory tried to be adapted to making sustainable society project named 'Yakushima Island Project' in Japan. It was set up not only forums for discussion to define the problems but also workshops for learning process to solve them and stakeholder meetings for establishing the foundation toward building social consensus in the Yakushima Island. Since it is local residents, stakeholders, who build consensus, 'heartware' design is one of the most important factors in the planning process. Especially, one of the requirements for achieving a sustainable society is taking future generation part in this process to make plan feasible.

Therefore, the structures which increase local residents' awareness of a need for sustainable society were proposed as 'multigenerational workshop' at second year in this project. Then, this study aims to clarify the effect of multigenerational workshop as one method that makes collaboration between adults and children.

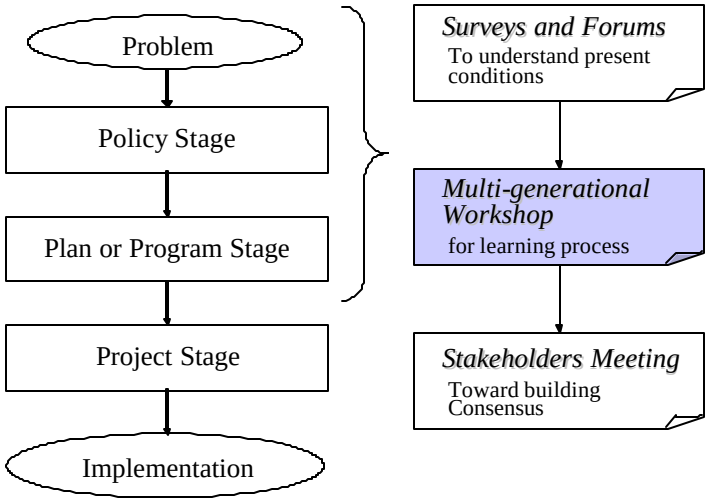

Figure 1. Research Scope

2. Overview of Yakushima Island

Yakusihma Island, located in the south of Japan, has a valuable virgin forest which has been one of a World Natural Heritage since 1993. Yakushima has an area of 503 square kilometers of which majority was covered several mountains whose height is almost two thousand meters above sea level. There are about 14 thousand people who live in each village located in near the coast. While Yakushima attract a great deal of tourists, residents have been in the face of serious problems such as luck of employment opportunities, depopulation of the young ages, waste problem and so on. Especially, now that tourists eventually run to a considerable number estimated more or less 180 thousand people a year, residents are worried about a change for the worse of the environment both of the Nature and their life.

3. Method

3-1. Framework of analysis

Figure 2 shows the framework of analysis. The composition of participants in the workshop is changed as three groups that are children only [child group], mix of children and adults [mixed group], and adults only [adult group] in order to observe the effect of the collaboration of different generations. One group is nearly composed of ten people. The number of participants is 81 persons including 57 children on the first meeting, 70 people including 52 children on the second meeting. As a result, there are set 4 groups of child group, 3 groups of mix group, 1 group of adult group.

In order to evaluate the effect of the collaboration of different generations, both workshop products and questionnaire researches were analyzed. A workshop product

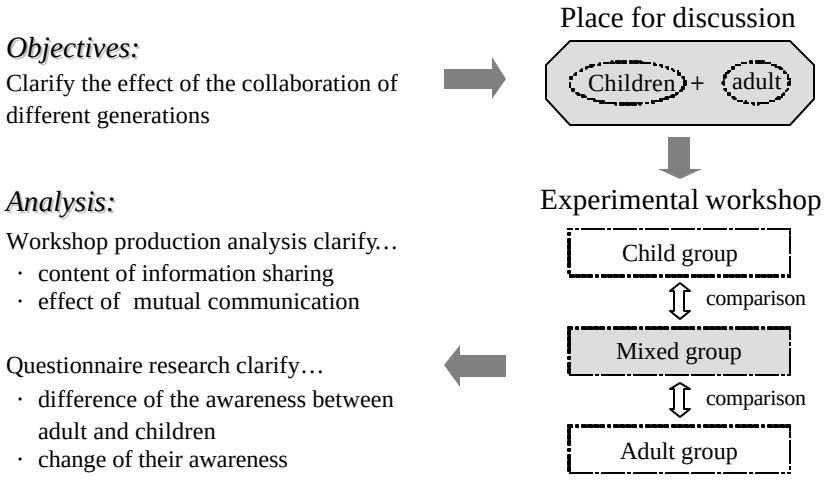

Figure 2. Framework of analysis

analysis grasps the contents of opinions from participants which are shared among the participants in order to reveal the effects of mutual communication. To put it concretely, these effects mean the difference of awareness between adults and children as well as plural groups.

Questionnaire researches of all participants were conducted four times in total before and after each workshop. This research aims to reveal the difference of awareness between adults and children in the first place. In addition to the above, the second purpose aims to understand the changes of their awareness compared a result before workshop with after one.

3-2. Place, date and participants of the workshop

Experimental two series workshops were carried out in Yakushima Island as shown Figure 3. Workshops was held for three subjects; junior high school students in Yaku-chou town, junior high school students in north Yaku-chou town and high school students in north Yaku-chou town. The first meeting of the workshop was held on 29

Nature Game:
Perceive the Nature with the senses

Presentation:
Learn relations the Nature with their life

Group Session:
Discussion with labels

Plenary Session:
Share the productions of each groups

Figure 3. Scenes of the Workshops

September, 5 and 6 October 2002. The second was held on 3, 9 and 10 November 2002. The same member took part in the both meetings at an interval of nearly one month.

The residents of Yakushima were called together as participants by cooperation of a school board, NPO and official report which was advertised by administration. Therefore, participants of children were gathered from six junior high schools and a high school which covered all of the schools except elementary schools located in Yakushima. However it is not easy to gather participants in these meetings, 57 children are gathered in consequence. On the other hand, it was still harder than children to gather adults for participants. Accordingly, there were gathered 24 adults who were belong to a farmhouse, junior high school and a NPO. Considered these composition of participants, group constructions are as follows; four child groups, three mixed groups, one adult group.

3-3. Design process and procedure

Design of workshop process and procedure should be carefully developed based on objectives. Since Yakushima residents sincerely hope to improve their quality of life, workshop process has to be composed of two factors. One of the most important factors is the natural environment covered most part of the island because they could have natural sources such as mineral water as well as timbers to create a job in the past. Additionally, the nature of Yakushima has attracted so many tourists since registration

Table 1. Workshop Program

	1st meeting		2nd meeting
12:00	Registration, Lunch, Questionnaire 1	13:00	Questionnaire 3
13:00	Nature Game 1: "Self-introduction"	13:15	Group session 1: "Inspection mapping"
13:45	Nature Game 2: "Field Bingo"	13:45	Presentation: "Current state of industry in Yakushima"
14:30	Nature Game 3: "Beat of Trees"	13:50	Group session 2: "Discuss on current state of industry in Yakushima"
15:05	Tea break	14:15	Presentation: "State of industry with GIS"
15:15	Nature Game 4: "Design of woods"	14:30	Tea break
16:05	Presentation: "Relation of Nature and Life through the water"	14:40	Group session 3: "Discuss on Tourism in Yakushima"
16:20	Group session: "Think about current state of Yakushima"	15:10	Group session 4: "Design tourism suitable for Yakushima
17:15	Questionnaire 2	16:20	Presentation : "Our Yakusihma Tours"
17:30	Closing	16:50	Questionnaire 4
		17:00	Closing

as World Natural Heritage that it has been indispensable property for them.

On the other hand, the economic and social environment is another important factor for the residents as well. They often have to need funds for children's education because most students leave the island for education beyond the high school. According to preparatory hearing which was conducted before workshop on several residents, they often mentioned to the importance of their economical factors as well as the natural one. According to these concepts, workshop process is designed as Table 1 and follows.

1st meeting [Sep.-Oct. 2002]
Step 1: To perceive scarcity value of the Nature
Step 2: Free discussion with current state of Yakushima

2nd meeting [Nov. 2002]
Step 3: Discussion with industry, identify priority
Step 4: To propose the 'Yakushima tours' as future tourism

In the first step, participants play the nature game in the forest in order to perceive scarcity of the natural environment (See nature game, Figure 2). One of the nature games is named of 'Field Bingo' in which discovered various items in the nature such as carcasses of insects, nuts, vinyl garbage and so on are filled in the bingo card. Participants could be relaxed before oral discussion as well as enjoy playing the nature games. The next, in the step 2, they got information of the relation between the Natural and their life through the function of the forest such as water purifying, water storage, landslide prevention. Based on above, 'Rediscovery of Yakushima' was discussed and identified problems.

In the step 3 on the 2nd meeting, they reviewed products of the 1st meeting with 'Inspection Mapping', in which participants placed their opinion labels on the Yakushima Map. Next, they got information about industry such as current state of basic industry, money flow of each industry and so on. Moreover, they discussed with merits and demerits of each industry and vote what was the most important in Yakushima. The last, in the step 4, they discussed with tourism and proposed their ideal 'Yakushima Tours'. According to this process, program is scheduled as shown Table 1.

Since one of the important factors of the workshop is the facilitator who coordinates the workshop, persons charged with expediting the proceedings of Nature games are qualified for facilitator. Therefore, advanced rehearsals are conducted in order to control the influence of facilitators' characters. Furthermore, facilitators took charge of different groups by rotation over both meetings.

4. Workshop products analysis and consideration

4-1. Analysis of products

718 opinions were mentioned from participants in the workshop, so that participants could exchange a lot of information. Regarding to the first meeting, there could be classified two types which were related to natural environment that amounts to 257 opinions and economic/social environment that amounts to 305 opinions. Generally, the former included positive opinions that mean praise for the riches of Nature in Yakushima. The latter was occupied negative opinions that were dissatisfaction with high prices, traffic system, manners of tourists and so on (Table 2). Therefore, it is identified for the participants to improve their economical and social environment.

On the second meeting, participants discussed on industry in Yakushima and clarified the important industry judging from priority. Table 3 shows that most of opinions are related to agriculture or tourism result in typing 176 opinions mentioned from participants. It is almost the same results as voting. Thus, participants could identify issues from their points of view.

Table 3 also shows the three types of these opinions which were produced by child group and mixed group. Three types of the classification are shown below; positive aspect of state understanding [type 1], negative aspect of state understanding [type 2],

Table 2. Content of opinions at 1st meeting

Content			Number of opinions			Total
Nature	Rich of the Nature	Beautiful sea, mountain, river	64	181	257	562
		Various Recreations	22			
		High quality water and air	72			
		World heritage, etc.	23			
	Animals and Plants	Rich variety	47	56		
		Harm by monkey	9			
	Weakness	Handicap of climate	9	12		
		Natural disaster	3			
	Crisis of the Nature	Violation of the Nature	8	8		
Econ/ Social	High price, Luck of commercial facilities	High price	39	80	305	
		Inconvenience of shopping	41			
	Dissatisfaction of the traffic system	Dissatisfaction of public traffic	31	59		
		Inconvenient accessibility	10			
		Road, etc.	18			
	Social system	Depopulation	10	137		
		Defectiveness of social system	15			
		Waste problem	112			
	Satisfactory respect	Kindness, rich of food culture	29	29		

and idea of measures [type 3]. As a result, it is cleared that there are a large number of opinions that amounts to 149 opinions (84.7%) related to positive or negative aspects of state understanding [type 1 or type 2] such as "slump in the fishing industry caused by water pollution", "There are a lot of useless constructions".

On the other hand, there are not many opinions that are categorized type3 amounts to 27 opinions such as "promoting chemical free farm products", "standardization for quality of eco-tour guidance", "promoting renewable energy" and so on.

4-2. Analysis of comparison with each group

As compared these opinions with each groups from Table 3, opinions classified type2 (negative state understanding) from child group (58 opinions, 64%) are in excess of those from mixed group (50 opinions, 50%). Judging from the total amount of opinions from participants, children are better than adults. However, opinions classified type 3 (idea of measures) from child group (2 opinions) is less than those from mixed group (16 opinions). In the mixed group, type 3 opinions were proposed from not only adults but also children (8 opinions). Consequently, it could be considered that adult's way of thinking influenced on children's by learning effective through the information exchange between adults and children.

Table 3. Type of opinions

Industry / Voting	The number of opinions: Child Group	The number of opinions: Mixed Group	Total	Example of opinions
Agriculture 137	8 12 / 0	3 5 / 6	34	?Type3?Farm Tourism(2) ?Type3?Promoting chemical free farm products
Forestry 67	3 7 / 0	3 4 / 2	19	?Type2?Difficult to grow by registered to World Heritage ?Type3?Promoting a project of preserve (4)
Fisheries 69	7 9 / 0	2 5 / 0	23	?Type2?Exhaution of the ocean resource ?Type3?Processing for oneself
Tourism 114	7 10 / 2	9 9 / 4	41	?Type1?Activation of the island ?Type3?Standardization for quality of eco-tour guidance
Construction 27	2 13 / 0	0 5 / 4	24	?Type2?Useless project(4) ? Destruction of environment(3) ?Type3?Public residence by Japanese cedar cut in this place
Others 32	3 7 / 0	1 6 / 0	17	?Type2?Luck of public servant ?Type3?Promoting renewable energy
Subtotal 446	30 58 / 2	18 34 / 16	158	Type1 Type2 / Type3 = State (positive) State (negative) / Idea of measures
Total	90	68		

5. Questionnaire results analysis

5-1. Awareness of the environment and local vision

Questionnaire researches were conducted before and after 2 series workshop (total 4 times). Table 4 is the result of the questionnaire carried out at the first time. Concerning awareness or action of the environment at the first research, the answers for "awareness of the nature [Question No.1-3]" and "sustainable society [Q-No.13]" shows a tendency to be supportive. However, the respondents' answers for "urbanization [Q-No.7]" and "changing into tourist resort [Q-No.8-10]" shows a tendency to be oppositive. This tendency is shown as a significant difference [P-value<1%] between awareness of adults and that of children. Or, adults are much more reluctant to urbanize or change into resort of Yakushima than children. Moreover, the answers for the opportunities to discuss on the environmental problems and local visions [Q-No. 16-17] shows lack of children's experience compared with that of adults. Accordingly, it is necessary to provide the opportunities for children to take part in this process. Hence, opportunities to consider how to make sustainable society should be offered to children in the environmental education at junior high school.

Table 4. Comparison of the awareness on the future visions*

Evaluation items				Mean **		a ***	
				child	adult		
Awareness and Action for the environment	Awareness	Q1	Abundance of the Nature	0.75	0.91	0.0151	?
		Q2	Safety of the water	0.50	0.23	0.0571	
		Q3	Importance of the Nature	0.94	0.98	0.2665	
	Action	Q4	(Whether or not) to throw garbage away?	0.36	0.84	0.0000	?
		Q5	To save water?	-0.13	0.02	0.3578	
		Q6	To keep segregated disposal?	0.59	0.70	0.3985	
Future vision of Yakushima	Environment	Q7	Urbanization(high building)	-0.46	-0.89	0.0000	?
		Q8	Changing to Tourist resort	-0.26	-0.57	0.0086	?
		Q9	Tourist resort(to build a theme park)	-0.21	-0.86	0.0000	?
		Q10	Tourist resort(widen a western road)	-0.18	-0.75	0.0003	?
	Economic or Industry	Q11	To impose a tax for built environment	-0.04	0.07	0.4986	
		Q12	Development of a service industry	-0.43	-0.48	0.6541	
		Q13	Material and economic independence	0.30	0.89	0.0000	?
	Society	Q14	Succession of Yakushima's traditional	0.75	0.95	0.0036	?
		Q15	Reinforcement of local relationship	0.59	0.39	0.0776	
Communication opportunities		Q16	Dialogue of environmental problem	-0.18	0.68	0.0000	?
		Q17	Dialogue of future vision	-0.18	0.64	0.0000	?

* population=81 ***a= significant difference: ? = [a<0.01], ? = [a<0.0 5]

** -1= oppositive < the mean value < 1= supportive

5-2. Vision of Yakushima industry

In order to clear the difference of opinions change between a child group and mixed group, the judgment for "reduction of public constructions" was took notice in detail. Generally, children are more opposed to reduction of public constructions than adults because a lot of residents engage in the construction industry (Figure 4). Moreover, lack of employment is serious problem in the remote island. But they might not know that public constructions in Japan are open to criticism from all quarters.

While it was not clarified the opinion change of children belonging to child group, it was remarkable that children belonging to mixed group had changed supportive opinion into oppositive one. It could be considered that adult's doubt in respect of public constructions influenced on children's awareness through the dialogue in the workshop.

5-3. Satisfaction level of the participation

Table 5 shows both of adults and children were satisfied with workshop on the whole. Especially, nature games showed not only highest level of the satisfaction for the children but significant difference from the satisfaction level of adults [Question No. 2]. On the other hand, adults were not satisfied with the time schedule of the discussion [Q-No. 5]. In relation to the matter, some of the adults complained lack of time for discussion. Although it was important for children to participate in the workshop with fun, adults hope to pursue an argument to its logical conclusion. It was cleared that the requirements for the workshop were difference between adults and children. Therefore, it is to be solved as next research subject for making more collaborative workshop.

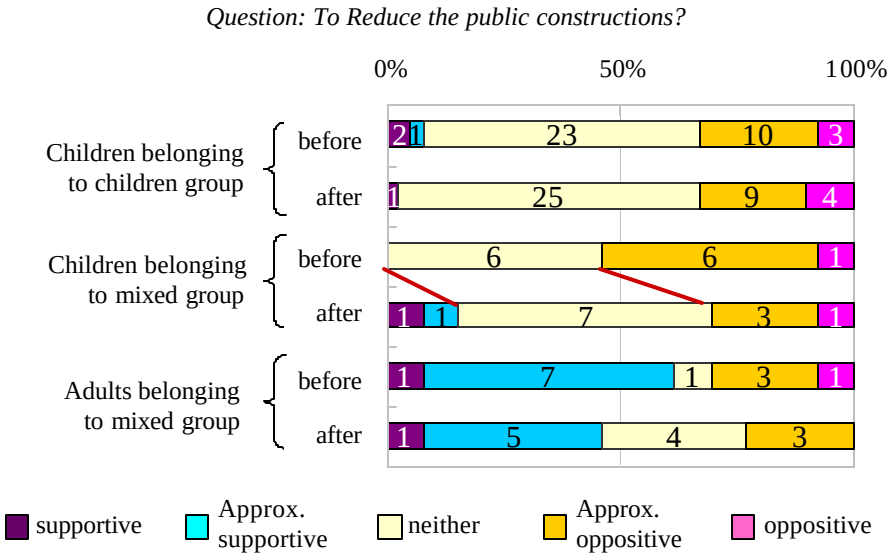

Figure 4. Opinion changes of children

Table 5. Satisfaction level of the participation*

Evaluation items (After the workshop)			The mean**		a ***	
			child	adult		
General evaluation	Q1	Workshop	0.61	0.50	0.204	
	Q2	Nature game	0.73	0.50	0.048	?
Opportunities to remarks	Q3	Easiness to remark	0.56	0.47	0.458	
	Q4	Using labels(KJ method)	0.63	0.61	0.822	
Proceeding	Q5	Schedule of discussion	0.38	-0.04	0.017	?
	Q6	Facilitater(nature game)	0.63	0.44	0.193	
	Q7	Facilitater(discussion)	0.66	0.47	0.139	
	Q8	Theme of the workshop	0.58	0.44	0.189	
Effect of communication	Q9	New recognition	0.38	0.57	0.045	?
	Q10	Changes of awareness	0.13	-0.04	0.191	
	Q11	Motivation to participate	0.68	0.58	0.229	

* population=68 ***a= significant difference: ? = [a < 0.0 5]

** -1= oppositive < the mean value < 1= affirmation

6. Concluding Remarks

This paper discussed on the effect of multigenerational workshop. Analyzing workshop products and questionnaire researches, the effect of the multigenerational workshop is revealed as follows. A lot of multiple opinions numbered over 700 labels such as the Natural environment, vision of the Yakushima, positive and negative factors of each industry were produced by the participants. These opinions has been gradually cleared as well as shared among the different generations. Workshop approach is one of the effective methods to relax participants for some reasons. First, workshops are carried out several small groups which are consisted of 5 or 10 people. Small group meeting makes participants active to have an animated discussion since Japanese are not necessarily practiced formal discussions. Additionally, workshops have a lot of experienceable methods as well as dialogue. It is important for the children to give pleasure to participate in order to keep their motivation.

While children were more satisfied with schedule of the discussion than adults, only a few opinions related idea of measures were proposed. Although children group produced more opinion labels than mixed one, most of the opinions were state of the environment. They must have sharp eye for their environment close to them. But it might be difficult for children to pursue an argument to its logical conclusion. This negative aspect of the children should be covered by adults or would be improved through the plural participations. Workshops carried out in Yakushima were only two series for the limitation of cost and time, continuous dialogue is indispensable factor for the learning process. This suggestion is all the more true of building consensus as next step for making sustainable society.

On the other hand, some of children who belonged to mixed group not only suggested some alternatives but also changed their awareness such as judgment for reduction of public constructions. Children are so flexible that they can change their way of thinking. It is one of the effects by the collaborative workshops through the interactive information exchange.

Acknowledgements

This article is a product of the research project 'Establishment of Sustainable Society of Yakushima Island Model' financed by Ministry of Education, Culture, Sports, Science and Technology spending three years from April 2001 to March 2004, Japan. The research group was lead by Dr. Motoyuki Suzuki, former vice-rector of United Nations University, including Kagoshima University, Tokyo Institute of Technology, Toyohashi Institute of Science and Technology and so on. Additionally, we would like to acknowledge all cooperators who helped to carry out the workshops.

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