

Constructing Theory for Participatory Management of Campus Environment by Analyzing Actual Conditions of Universities

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Abstract—Surveys were conducted at 175 Universities in Japan to investigate examples of how the university campus is managed by collaborating with various participants such as students, members of the faculty, and local inhabitants. The examples provided were divided into nine types by specifying the activities involved in campus management. Relationships between the campus management activities and actual conditions, such as; university's type: i.e. national, private, campus area, urbanization of the surrounding area and the social structure of participants were analyzed.

The management of participation including users and neighbors has been defined as Participatory Management of Campus Environment (PMCE). PMCE activities, such as the maintenance of facilities and preservation of nature were seen in about 40% of the universities and continuing development of such activities was observed as well.

Keywords—Campus Environment, Participatory, Campus Management, Collaborating.

I. BACKGROUND AND PURPOSE OF THE STUDY

THE management of a university campus has become more and more important for several reasons. The competition between universities to obtain students is becoming more intense, the birth rate is declining, and the continued use of old buildings rather than building new ones has become more common for environmental reasons. Pressure is being put on national and public universities to establish more suitable system of campus management with independent administrative agencies. In addition, private universities have to attract more students in order to survive in the 21st century. The Ministry of Education, Culture, Sports, Science and Technology has showed the necessity of new cost management and system management in order to make the universities maintain a standard for their campus environment. The importance of university management to realize "globalization", "cooperation with an area", and other matters are addressed, but the management stops with the spatial management and the cost management of a building.

However, it is thought that with prospective campus management we can create a good level of amenities, promote campus pride, lead to increased local contribution, and basically create an environment for education. This campus management would be possible by collaboration between students, school staff and local inhabitants rather than unitary management of the employees. Actually in America and European countries there are universities performing this kind

of campus management, where students, local government and citizens are genuinely concerned about the university campus. And now, in Japan, participatory management activities are increasing at various universities. However, systematic arguments and studies have not yet been conducted.

Therefore the management by participation, including campus users and neighbors is defined as Participatory Management of Campus Environment (PMCE) in this study. Surveys were conducted at 175 Universities in Japan to investigate examples the university campus is managed by collaborating with various participants such as students, members of the faculty, and local inhabitants.

It can be said that this study is the first one to systematically research campus management with PMCE by comparing examples from universities in Japan.

II. THE DEFINITION OF PARTICIPATORY MANAGEMENT OF CAMPUS ENVIRONMENT

It is the activity of various people, including not only the creators of the campus plan, but also the students and the staff of a university, as well as the area inhabitants, that create, use, and maintain a campus environment consisting of buildings, outside space and the surrounding nature, which also facilitates the education of and communication among participants, and contributes to the surrounding area.

III. METHODS

A. The Method of Investigation

Questionnaires were created based on a preliminary investigation and were distributed to 175 universities and people who are familiar with PMCE. Data was collected to clarify relationships between the characteristics of activities in PMCE and actual conditions, such as the campus area's attributes and participants. In case where PMCE has not been adopted by a university, the reasons for it not being adopted are answered.

TABLE I
SURVEY

	Contents
Investigation items	The presence of a PMCE example, contents of the example, an enforcement period, constitution and the roles of participants, the purpose / significance, the incentive / continuity, the place of activity, the effect of management, opinions / thoughts about participatory management
The investigation period	October, 2005 - December, 2005
Questionnaires recipients	175 schools □ 63 national schools, 46 public schools, 66 private schools □
Response rate	Recovery 100% □ 175 schools □

B. The Method of Analysis

Collaboration among various people including students, local inhabitants, and school staff is important for the management of a university campus, as mentioned in the purpose and background of this study. Therefore, interaction among participants was modeled to determine their system of collaboration, which allowed us to identify several patterns of collaboration. In addition, the size and the location (rural or urban) of universities were analyzed in order to clarify how PMCE activities are influenced by type of collaboration.

IV. PMCE IN JAPANESE UNIVERSITIES

A. Types and Conditions of PMCE

The universities which used PMCE include 37 national schools, 6 other public schools, and 23 private schools of the 175 universities that were investigated (63 national schools, 46 public schools, 66 private schools). Examples of PMCE activity were seen at 78 national, 9 public, and 43 private universities. In national universities about 60 % of schools use PMCE. However, only about 10% of other public universities use PMCE. The reasons for some schools not using PMCE include; it takes too much labor to practice it, such as holding workshops (16 schools); not having adequate staff to carry it out (15 schools); as well as other reasons.

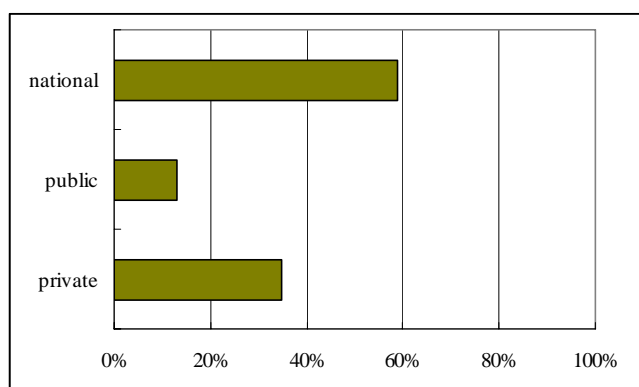


Fig. 1 PMCE activity observation rate

1. Activities

PMCE activities were classified into 9 types, as shown in Table II.

TABLE II
PMCE CLASSIFICATIONS

Types of activity	Concrete examples	#
Building repair	building renewal, construction and repair by members of the university community	16
Administration/ preservation of buildings	the space management, building conservation activities	5
Maintenance of open spaces/ streets	campus cleaning days, campus rangers (who clean the campus by themselves)	32
Care of open spaces/ streets	Establishment of flower beds, open space repair	21
Nature/ maintenance habitat	Forest/ wetland maintenance, biotope investigation	12
Environmental symbiosis	EMS, ecological campus project	15
Celebrations and other events	University firefly dances, Earth Day, Thanksgiving Day	5
Campus tours	Campus building sight-seeing, campus nature tours	19
Others	The naming of a street, Planting a rice field on the campus	2

These actions can be separated into several kinds: the maintenance and cleaning of an open space or a street by local inhabitants, students or the school staff is the most common action. The next most commonly practiced action is student/staff participation in an open space repair plan and the installation of flower beds. In these examples, various participants, such as students or local inhabitants, participated in the management of the university, whereas previously they did nothing outside of their normal duties. These examples suggest that PMCE has an affect in many areas.

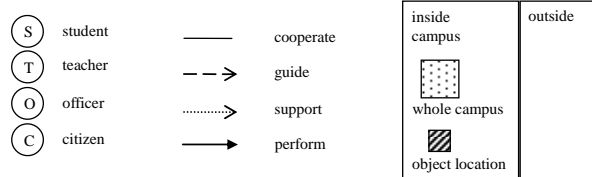
2. Collaboration Patterns

Clarifying interaction among participants in PMCE is thought to be one important feature for the theory of the construction of PMCE.

Therefore, participant-interaction data based on information provided by surveys from all universities was organized into diagrams. Making the interaction diagrams enables one to see the various interactions among participants at each university. Diagrams containing collaboration patterns, and specific examples of each, are shown in Table III, with rounded squares drawn around each example. The collaboration type being described beside it is highlighted by an oval. For example, at Ryukoku University in Table III # , the action that students performed was a campus tour. The staff recruited students interested in giving the tour and held classes on how to do so. In this kind of action, participants encourage other participants by teaching the importance, significance, and technology relating to an action, to other participants. This kind of action is defined as "Guidance". Likewise, when other examples were analyzed, they were similarly classified, as shown in # to in Table III. Among collaboration types, the guidance-cooperation type was the most frequent (37 examples), whereas the guidance type and guidance-support type were the next most frequent types, respectively. So it can be said that participants guiding other participants has a very positive influence on campus management. There were few examples of either participants acting alone, or participants acting with support but without guidance.

TABLE III
TYPES OF PMCE COLLABORATION BETWEEN PEOPLE

Type	Characteristic	Model	Example	Diagram
Independent-type (9 examples)	Performing alone without receiving either guidance or support		There were three examples in Fukui University, and, as for example 1, a student group named Beautiful Campus performs an activity independent model. They repair a firework fountain and build benches to improve the campus environment.	
Guidance-type (21 examples)	A participant encourages other participants by teaching the importance, significance and technology of an action to another participant		Students guide visitors to important cultural property at west Honganji of Oomiya campus at Ryukoku University, and a music group performed at Fukutsu campus. The staff guided the students.	
Cooperation-type (14 examples)	Working in the same role and working in the situation with more than one participant		There is a green campus project that consists of students, teachers, and staff at Keio University. They perform environmental awareness campaigns.	
Support-type (9 examples)	A participant assists informing a budget or the making of an organization that is necessary for activities other participants		A Tsukuba University workshop to remodel the school cafeteria and student waiting room were held. Students painted a ceiling with the guidance of a craftsman and chose a wall surface design by student competition.	
Guidance-cooperation-type (37 examples)	There are guidance-type and cooperation-type relationships between participants		A tree planting activity around a building was performed at Shimane University. A teacher recruited participants from a public lecture and neighborhood inhabitants for participation.	
Guidance-support-type (20 examples)	There are guidance-type and support-type relationships between participants		The preservation of modern architecture on campus was asked for in Tohoku University, and the cleaning and maintenance of a flower bed were performed. In addition, events such as concerts on campus were performed so that local inhabitants felt attached to the campus. Administration plans such as museums were suggested.	
Cooperation-support-type (16 examples)	There are cooperation-type and support-type relationships between participants		Students cooperated with staff to plant trees at bus stops at Gifu University, in open spaces, and along roads. Expenses were paid by the school.	
Guidance-cooperation-support-type (9 examples)	There are Guidance, cooperation and support type relationships between participants		A forest maintenance activity was performed at Kanazawa University. Kakuma-no-satoyama nature school has teachers, and coordinators as members. It cooperates with the kakuma-no-satoyama mate, which consists of students, teachers, staff and citizens, to conduct environmental maintenance.	



3. Analysis of Collaboration Types and Activities

Characteristics of collaboration types were observed in every action, including many guidance-cooperation type examples in Administration / preservation of buildings, and many guidance-cooperation type examples in Maintenance and repair of open spaces / streets. Though in all activities, it is thought that guidance is an important element, in Environmental symbiosis, Nature / forest maintenance and events, it is often the case that participants cooperate. When the objects of activities have to do with forests or the whole campus, various participants are necessary and it is possible for many people to participate.

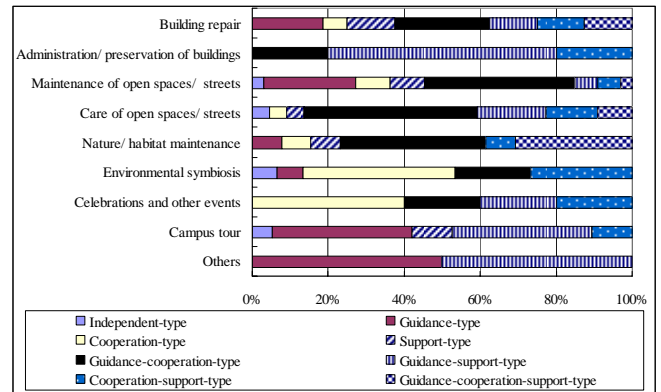


Fig. 2 The interaction of collaboration types and actions

4. The Relationship between Campus Area and Actions

The areas of campuses were categorized by area in intervals of 250,000 square meters, and the relationship between the area of a campus and the participants activities were investigated. Generally, smaller campuses had a higher number of actions. In campuses with areas under 250,000 square meters, there were many activities in open spaces / streets maintenance, campus tours, and environmental symbiosis. There are many open spaces / streets care and environmental symbiosis actions in mid-sized campuses. Additionally, on large-scale campuses more than 1,000,000 square meters in area, there were comparatively more activities involving nature / habitat maintenance.

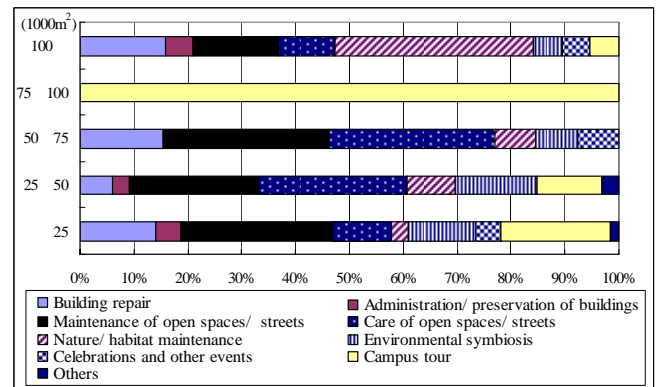


Fig. 3 The relationship of campus area and participant actions

5. The Relationship between the Surrounding Campus Environment and Participant Activities

Neighboring cities were classified as follows in order to analyze the influence of the environment surrounding campuses on PMCE activities. The environments were judged by inspecting an aerial photo.

Urban universities (campuses that are located in an urban area)

Partially rural universities (campuses that are partially in a rural area)

Rural universities (campuses located in a rural area)

As classified, there were 36 PMCE actions in urban universities, 46 PMCE actions in partially rural universities, and 48 PMCE actions in rural universities.

There were many examples of PMCE actions related to Nature / habitat maintenance in rural universities. There were also many examples of maintenance of open spaces / streets maintenance and environmental symbiosis in partially rural universities. In rural city universities, the ratio of a campus tours and open space / street maintenance was high. There were many examples of environmental symbiosis in partially rural universities. As for building administration / preservation, many examples were found in urban universities.

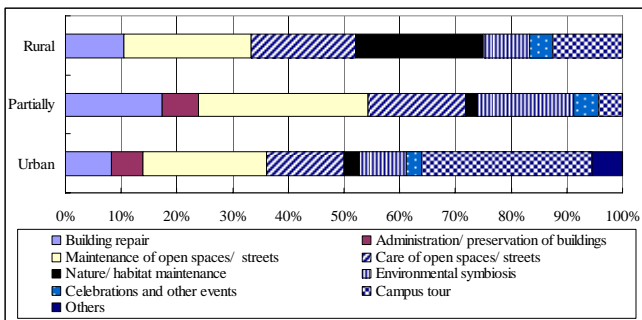


Fig. 4 The influence of the surrounding campus environment on PMCE activities

6. The Relationship between PMCE Establishment and PMCE actions

The number of new examples of PMCE actions after 1999 was calculated for each two year period, and there were a constant number of examples. PMCE actions increased after 2003. There were many examples of open spaces / streets maintenance actions before 1999, but gradually many more actions such as open spaces / streets repair or environment symbiosis have been increasing. This shows that conventionally participation between students and local inhabitants was limited to comparatively simple work, but that activities were becoming comparatively harder and more complex. In 2001-2003 many schools established nature / habitat maintenance projects.

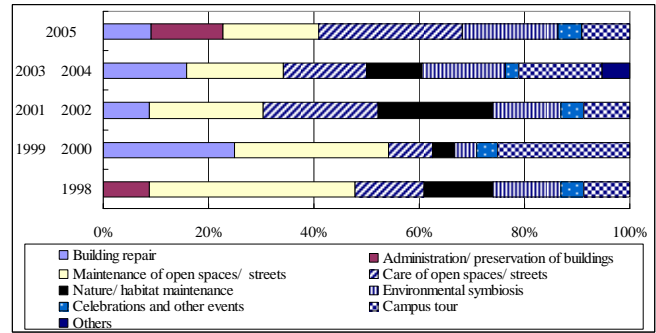


Fig. 5 The relationship between PMCE Establishment and PMCE activities

7. The Relationship of Inhabitant Participation and the Surrounding Environment

Inhabitant participation is seen in nearly half of the PMCE activity examples. Urban universities have the most examples of inhabitant participation. Rural universities have more participation than partially rural universities. This result is due to the high number of nature / forest maintenance actions, which inhabitants join in at rural universities.

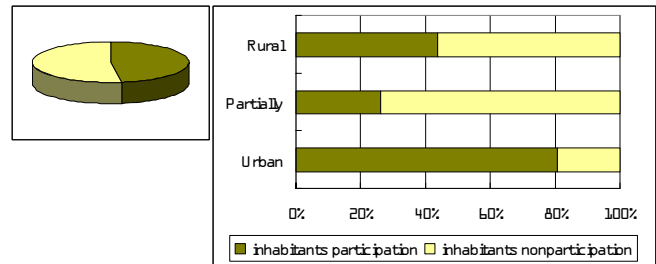


Fig. 6 The relationship of inhabitant participation and the surrounding environment

8. The Purpose / Significance of PMCE

The primary purpose / significance for performing PMCE was participant affinity for the campus, while the second-most influential factor was education through participation, and subsequently the third-most influential factor was the opening of campuses to the public. In examples of nature / habitat maintenance actions, people look forward to the practical education and the exchange among participants from the university and the local inhabitants. With campus tours, people can look forward to the opening of an area of the university and the participant affinity for the campus. Thus, each PMCE action had a different purpose / significance. By environmental symbiosis, each purpose had a similar ratio of purpose / significance.

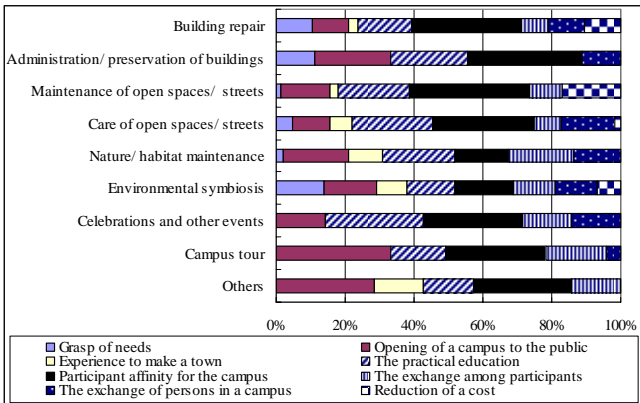


Fig. 7 The purpose / significance of PMCE

9. The Continuation of PMCE and Incentives to Use PMCE

The most common way of ensuring the continuation of PMCE is securing a maintenance budget, and raising the possibility of development (46 examples). Second is rewarding students with credits for participation (24 examples).

B. About Inhabitant Participation and Student Participation

Students participated in about 84% of PMCE activities examples and local inhabitants participated in about 47% of examples. This shows that both students and local inhabitants in particular play important roles in PMCE. Therefore we analyzed what kinds of actions are easy for both students and local inhabitants to participate in.

1. The Relationship of Inhabitant Participation and PMCE Actions

Most campus tours were given by the university staff and students (18 of 19 examples), but in one case, local inhabitants sponsored campus tours (Tohoku University). However, there were many examples where local inhabitants participated in nature / habitat maintenance actions. This shows that universities are willing to have inhabitants participate in the university management by opening a wide area of campus forest to the public. On the other hand, local inhabitants do not participate in the building repair very much.

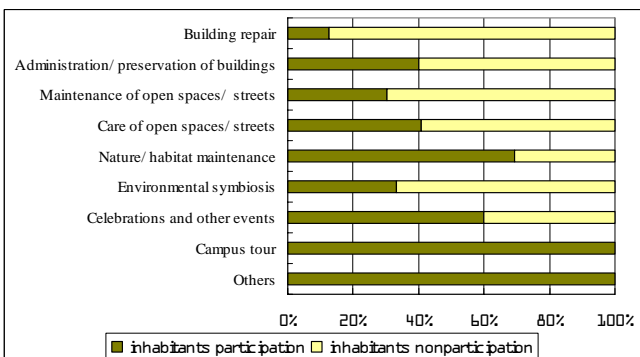


Fig. 8 The relationship of inhabitant participation and PMCE actions

2. The Relationship of Student Participation and PMCE Activities

A ratio of about 80% student participation was seen in all PMCE actions. Students participate in campus tours in more than 80% of PMCE action examples, maintenance of open spaces / streets, etc. On the contrary, the ratio of student participation in specialist tasks such as Administration / preservation of a building was only 60%, as it is more difficult for students to participate in this particular example of PMCE action.

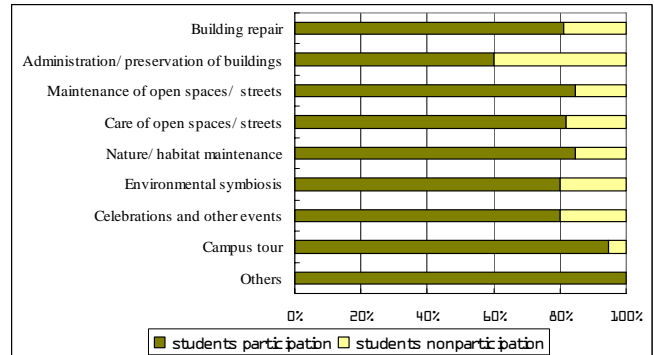


Fig. 9 The relationship between student participation and PMCE activities

C. Participation Stage

In order to analyze which stage of participation local inhabitants and students are involved in PMCE, PMCE processes were classified into three stages: planning, planning and enforcement, and enforcement.

1. The Relationship between Level of Participation and PMCE Actions

Generally, local inhabitants have a low level of participation in the “planning” stage. In administration / preservation of buildings, local inhabitants participated in both the “planning” stage and the “enforcement” stage.

On the other hand, the participation ratio for campus tours in the “enforcement” stage was high. In other PMCE actions, the “planning” and “enforcement” categories had the same level of participation.

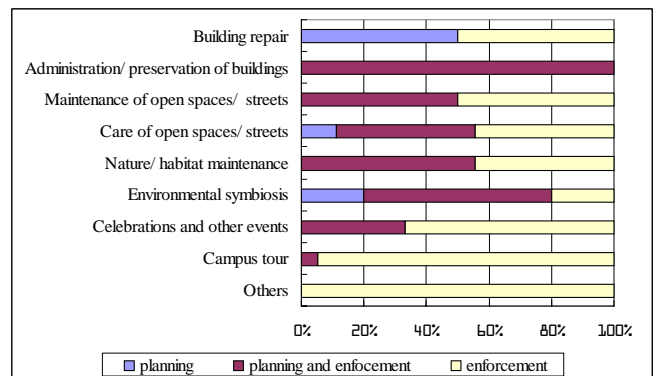


Fig. 10 The relationship of local inhabitant participation and PMCE actions

2. The Relationship of Student Participation Level and PMCE Actions

Students have the highest participation in nature / forest maintenance, campus tours, and environmental symbiosis in the planning and enforcement stage. In the repair of a building, open space / street maintenance students participate mainly in the enforcement stage. And in the building repair category and environmental symbiosis students participated mainly in the planning stage of the action.

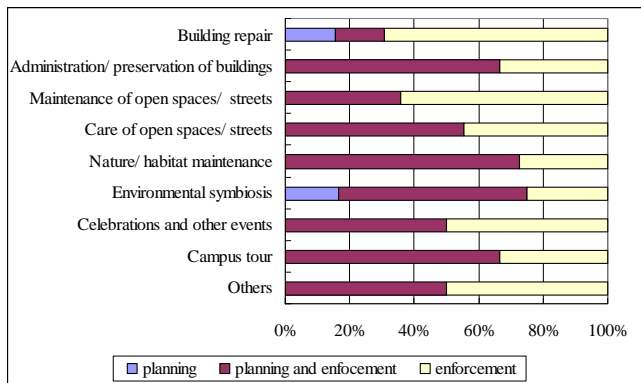


Fig. 11 Interaction of a participation stage of students and action contents

V. ANALYSIS AND CONSIDERATION OF PMCE

As a result of having investigated the present conditions of PMCE at universities nationwide, the following became clear.

Of 175 schools investigated, PMCE was observed in 66 of them; 130 activity examples in total. And most examples were observed in national universities (37 examples).

When classified by action contents, universities can be sorted into 9 types. For example, one of them is building repair, where students participate in a design competition and build by themselves. Another is nature / habitat maintenance where local inhabitants and students participate.

In large-scale campuses, there are many activities involving nature / forest preservation.

There are many examples of maintenance of open spaces / streets and environmental symbiosis in partially rural universities.

Characteristics of collaboration types were seen in every PMCE action, such as there being many guidance-cooperation type examples in Administration / preservation of a building, and many guidance-cooperation type examples in maintenance and repair of open spaces / streets.

In nature / habits maintenance and maintenance of open spaces / streets action examples, local inhabitant participation was high.

In examples of Administration / preservation of buildings actions, local inhabitants participated in both the planning stage and the enforcements stage.

Activities of PMCE are seen in about 40% of domestic universities. It is necessary for collaboration with various participants to start cooperation on a problem, to bring up new active groups. And this cooperation needs to be gentle, which

means that though each group continues its own actions, cooperation is necessary in solving campus problems.

In this study it can be said that the relationships of PMCE action and campus conditions. But the groups getting budgets were few, so the ways to support active groups are required study. However, there are groups without a budget performing actively. So consideration concluding independence of participants and consciousness is needed.

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