Proposal of a Method to Evaluate and Promote a Degree of Community Activation

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ABSTRACT

The purpose of this study is to propose a method to evaluate and promote community activation. In this study, first, we propose a method to visualize and evaluate the status of the activity level of the community as a whole. The proposed method observes "Degree of Participation (DoP)" and "Degree of Contribution (DoC)" of community members. DoP is an indication of the depth of the relationship with the community, and DoC is the number of roles the member plays. Furthermore, this study proposes that DoC should be high according to the height of DoP to activate the community. We evaluated five communities, such as non-profit organizations (NPO) and a project team inside an active company, and verified our method. We also interviewed individuals involved in the community and confirmed the validity. By using the proposed method, we confirmed that community stakeholders can consider approaches to activate their community and that our tool is effective for activating the community.

Keywords: Community Activation, Degree of Participation (DoP), Degree of Contribution (DoC), Community Manager.

1. INTRODUCTION

Creating new values for customers is important, because consumers' needs are diverse and product or service lifecycles are becoming shorter (JOIC, 2018). Chesbrough (2003) states that "Open Innovation combines internal and external ideas into architectures and systems whose requirements are defined by a business model" (p. xxiv). Engagement with open innovation is an indispensable strategy for today's corporate management, especially in a highly changing competitive environment (JOIC, 2018). Large companies have a vertical integration model that depends on their own resources, which is a

development of existing technology and business. However, it is no longer possible to develop products and technologies that meet market needs in a short period of time and to continue to generate revenue over the long term. In Japan, the rate of implementation of open innovation activities by Japanese companies is lower than that of European and American companies. In this situation, many Japanese companies may lose domestic and foreign markets (Ministry of Economy, Trade and Industry, 2016).

"Formation of a community" which consists of members inside and outside the organization is one of the factors for successful innovation (JOIC, 2018). However, research is lacking on what kind of community is most effective and on how to create an active one.

Therefore, in this study, we assume that the community that leads to the success of open innovation is one that is highly active. A high degree of community activation means that community members are autonomously active, and they make voluntary contributions to the community. These are insights garnered through observation in multiple co-working spaces. A highly active community is one where members interact with each other through effective communication. It is important that the communication is both formal and informal, including business planning but also casual conversations among members. These interactions can lead to new ideas, and thus, a high level of activity is necessary for robust communication.

In this paper, we describe the previous study in Section 2 and the preliminary survey and results in Section 3. We explain the proposed method in Section 4. In Section 5, we provide the results of the proposed method and discuss its implications. We will conclude in Section 6.

2. PREVIOUS STUDIES

The types of communities are defined in Table 1, which is modified from Sakakura et al. (2015). The orientation axis of the community focuses on the formation of a relatively narrow local community that may have a specific theme and target region; the functional axis of the base is the interchange, such as a salon or tea ceremony. It depends on whether the meeting location is a place of residence or an activity-based location, such as a co-working space or a business space. The community analyzed in this study is a theme-type and activity-based community.

Table 1. The types of community

	Local community	Theme type community
Residence type	A place focusing on community formation in a relatively narrow area.	A place with a specific theme, such as a child rearing salon or a dementia café.
Activity-based type	A place for serves as a base for town planning activities.	**[This study]** A community that conducts activities specialized in certain fields such as social enterprises and community business, non-profit organizations, and civil society organizations.

Sakakura et al. (2015) analyzed the consciousness and behavioral changes of individuals belonging to a community; however, they do not show how community activation will increase as a whole. McMillan and Chavis (1986) proposed community evaluation through the "sense of community" indicator. However, this theory is based on the connection with the region to the last, it is not for theme-type and activity-based community. Therefore, it is difficult to evaluate community activity following this model. In other research, Herawati et al. (2014) measured the success of rural tourism, based on regional resources, on the empowerment of the community; however, this study aimed at improving community welfare rather than increasing community activation. Kawanishi et al. (Kawanishi et al., 2017) suggested community capital as a framework that represented elements of a good community. Community capital modifies the idea of social capital to examine smaller communities rather than societies. However, the evaluation method of their study was based on questionnaire data of members of the community. It is difficult to collect data from all members in the theme type and activity-based community because the motivation and background of the members are different.

Therefore, this study proposes a method to evaluate by observation and to activate theme- and activity-based communities. The novelty of this study is the creation of a method to generate a "highly active community" that is the basis for open innovation that promotes broad and creative communication and allows for evaluation by observing community members. We assume that stakeholders involved in community management

use this method. Therefore, it is important to visualize the entire community from a macro-level perspective.

3.   PRELIMINARY SURVEY AND ITS RESULTS

The first author has visited and observed over 10 co-working spaces in Japan since 2016. By listening to the owners, the first author argues that the "community manager" is important in a co-working space. A "community manager" is the person responsible for developing relationships between community members through face-to-face interactions with users, hosting various events, developing online networks, and so on (Fraiberg, 2017).

There are cases where community managers are stipulated as staff but the role is not clearly defined. During our research, we noticed that, in some cases, a member might perform the same behavior as the community manager. On behalf of the community manager, they connected with users on a voluntary basis In this way, the observation also shows that the community has become more active as it has more people who have a role as a community manager.

One example is the co-working space "HIMITSU-KICHI" in Kitakyushu City, Fukuoka Prefecture (JIGYOKOSO, 2018). Indeed, in this location, much collaboration emerged and new ideas were established. The environment fostered activities beyond typical co-working tasks. For example, the food event "Kitakyushu Food Festival," the Internet television broadcast "Kitakyu-women Project," and "Kitakyushu Test" are carried out by volunteers in the co-working space. People from all over the country, not only from Fukuoka prefecture, visit frequently. The first author interviewed a total of seven people in December 2016, including conducting two weeks participation observation among the owner, staff, and users. Seven people acknowledged their role as community managers according to the depth of their involvement in the space; they contributed greatly to the revitalization of the location.

Based on survey results, the first author obtained insight into the mechanisms of the community and realized that it is important for each member of the community to be optimally balanced in their involvement and roles. In particular, it is ideal for members with a high sense of belonging to the community to be responsible for more community management. Balance between engagement and community roles is important because members who have lower involvement relative to their role in the organization will benefit less from the community overall. The motivation of that member may then be lowered. On the other hand, if the depth of involvement in the community is greater than required by the role, that person's relationship with other members is unbalanced due to

members who do not contribute at the same high level.

The reason why it is necessary to balance a high value is that in the case of low value, the community's overall activating power is considered to be weak. In other words, since the number of roles of the community management is small, this will not lead to voluntary activities.

4.   PROPOSED METHOD

The method proposed in this study measures the degree of activity of the entire community by quantifying the depth of involvement and the role each of the members plays, whether they are balanced or not. Based on the results, we propose a model for roles should be given in a community and how a community may become activated.

"Degree of Participation (DoP)" is the index that measures the depth of the relationship with the community; the index which measures the role that the members play is called "Degree of Contribution (DoC)." Activity can be expressed using DoP and DoC, because as mentioned in Section 3, each member is responsible for some aspects of the role of community manager, depending on their characteristics and their depth of involvement in the space.

We describe the guidelines for creating indicators of DoP and DoC and how to use the method in the following section.

4.1.   Creation of indicators

### 4.1.1.   Identify the role (function) of community manager

Both DoP and DoC are based on the role and behavior of the community manager, so we clarified the role (function) of this position. First, we defined the lifecycle for community members within the organization. Based on Kim (2000), Visitor, Novice, Regular, Leader, and Elder were chosen in ascending order of DoP. Figure 1 shows a diagram of the lifecycle modified by the author with reference to Kim (2000).

Figure 1. The lifecycle of the community

Next, we conducted a context analysis of a community manager (Martin, 1994) and

community member and community manager using case analysis (Walden et al., 2015) in each lifecycle. As a result of this analysis, in the case of Visitor, Novice, Regular, we decided to set two stages according to the difference between community manager and members. Furthermore, from these analysis results, 18 functions of the community manager were derived. The result of the context analysis is shown in Figure 2, the functions list of the community manager is presented in Table 2.
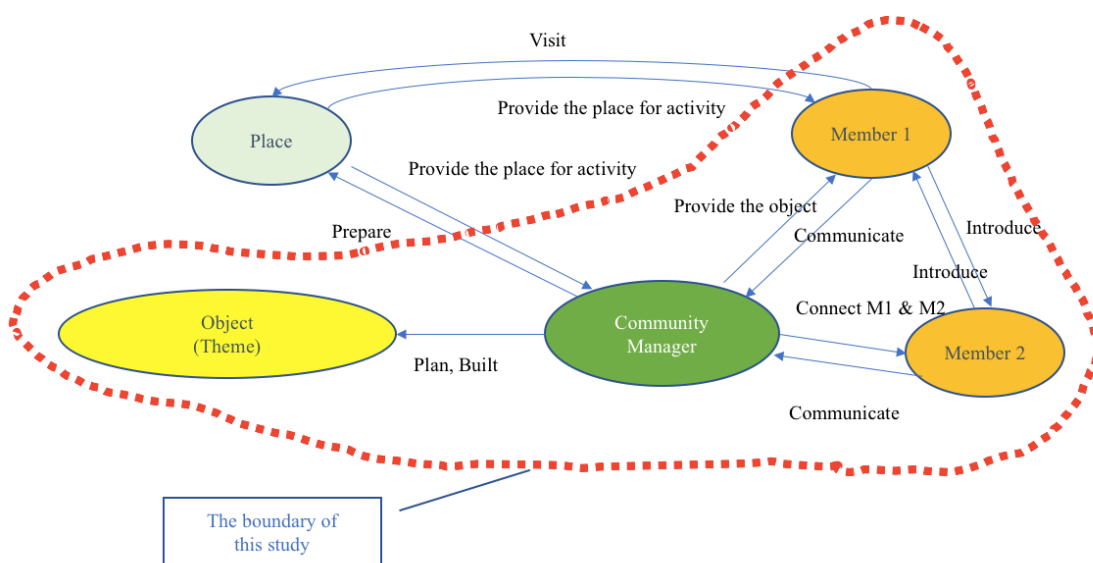
Figure 2. A community manager context analysis

4.1.2.   Establishing DoP in the community

To assess the depth of community involvement, we used the use case analysis results of community members and community managers mentioned in the previous section. The researchers analyzed the level of community members' experiences by examining how members increase their sense of belonging to the community through interactions with the community manager and by then defining that process step by step. Each name of the level uses the categories from the lifecycle.

In addition, a community model was created so that community members' experience level was visually easy to evaluate. This tool is based on the "F2LO model" (Uemura et al., 2012), originally designed for analysis of a workshop.

The minimum unit of community is represented by community manager (C: Community Manager), two community members (M: Member), and themes and project contents (O: Object) handled by the community. Community members are community

managers and the other members and the themes dealt with in that community, we can evaluate the depth of the community members' interaction with the community. The community model is as shown in Figure 3.

Table 2. Functions list of the community manager

#	Necessary Function
1	To entertain visitors
2	To introduce himself/herself to the community members
3	To introduce community events and provide community outreach
4	To be cordial with first-time visitors
5	To provide required materials
6	To grasp ongoing projects
7	To elicit member information
8	To store member information in a database
9	To promote communication among members
10	To present theme (Object)
11	To be knowledgeable about relationships between members
12	To request cooperation from members
13	To provides a safe place for members
14	To listen to members' troubles
15	To provide required information
16	To connect people
17	To facilitate
18	To plan and design themes / events

4.1.3. Establishing DoC in the community

High contribution to the community was decided based on the number of community manager roles indicated by each member (as described in Section 4.1.1). In communities with high activity, community members naturally adopt some aspects of the role of community managers and make contributions towards community activation. Regarding the role (function) of the community manager, there are differences in the importance and difficulty of the various aspects of the role, but they are not considered here for simplicity. The greater the number of roles possessed, the higher the contribution degree was determined to be.

4.2.   How to use the method

The method is used in the following six steps.

[STEP 1 Range setting]

Determine members to be surveyed. It is desirable to include all community members in the survey; however, if the number is large or community members are not clearly identified, set the scope of the investigation at this stage and set the boundary inside and outside the community.

[STEP 2 Checking DoP]

Confirm DoP for community members in each community. We use the index of DoP (community model according to experience level) and identify which stage each member is at.

[STEP 3 Checking DoC]

Confirm DoC of the community members. In this step, w use the index of DoC (the function of the community manager), and we count the number of roles each member has in that community.

[STEP 4 Mapping]

The DoP derived in STEP 2 and the DoC derived in STEP 3 are mapped on the evaluation sheet.

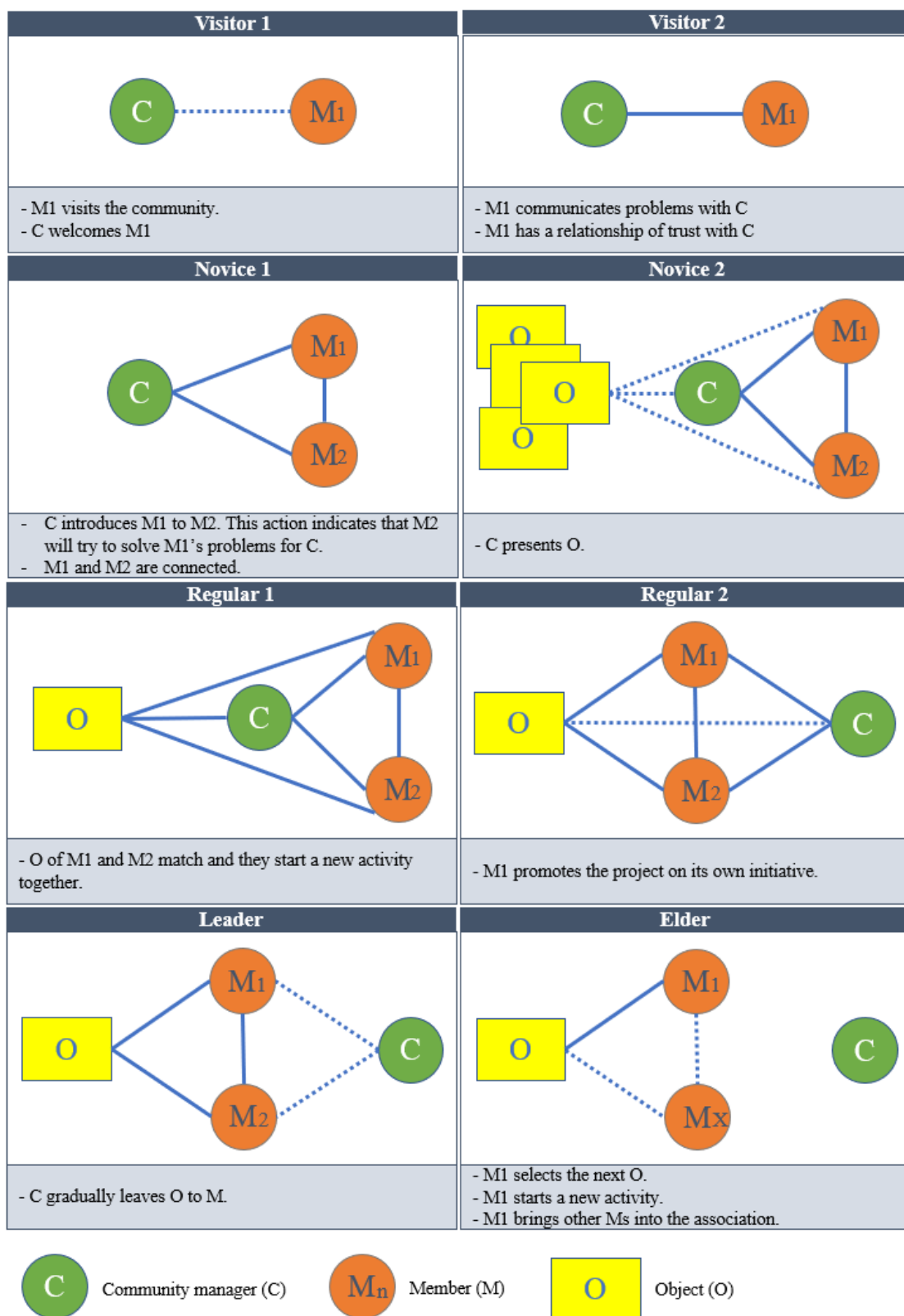**[STEP 5 Evaluation]**

Evaluate the entire community based on the mapping of the members onto the evaluation sheet.

[STEP 6 Suggestion]

While looking at the result of the evaluation sheet, we propose what kind of role (function) is given to which members and whether the whole community will be active.

Figure 3. Community model according to experience level

5.　EVALUATION RESULTS AND DISCUSSION

We applied the proposed method described in Section 4 to the five communities that are actually working in Japan and evaluated the state of community activation. Based on the evaluation results, we interviewed community managers within each community. Evaluation results and considerations are described below.

5.1.　Evaluation results

(1) Community 1

This community is a project team composed of volunteer members from multiple companies. It is sponsored by a non-profit organization (NPO). Their goal is to evaluate from multiple perspectives how to eradicate bicycle accidents; idea generation will ultimately lead to idea execution. There are nine members. The members volunteered for the project. They initially cooperated and focused on one theme from the early stage, but the degree of activity gradually declined during the meeting. There was little opportunity for all members to gather at the conference, and the project's tasks were biased towards specific members.

<Evaluation results>

The evaluation result is shown in Figure 4. Although the DoP of all members is high, DoC remains at a low level. This group is composed of volunteer members who have gathered in order to achieve a goal, so it is deeply involved in the larger community. However, it seems that members did not know how to deal with the stagnation of activities. In the future, the number of roles for the entire community should be increased in order to act proactively. Currently, the number of roles within the community as a whole is small, and it does not led to voluntary activities.
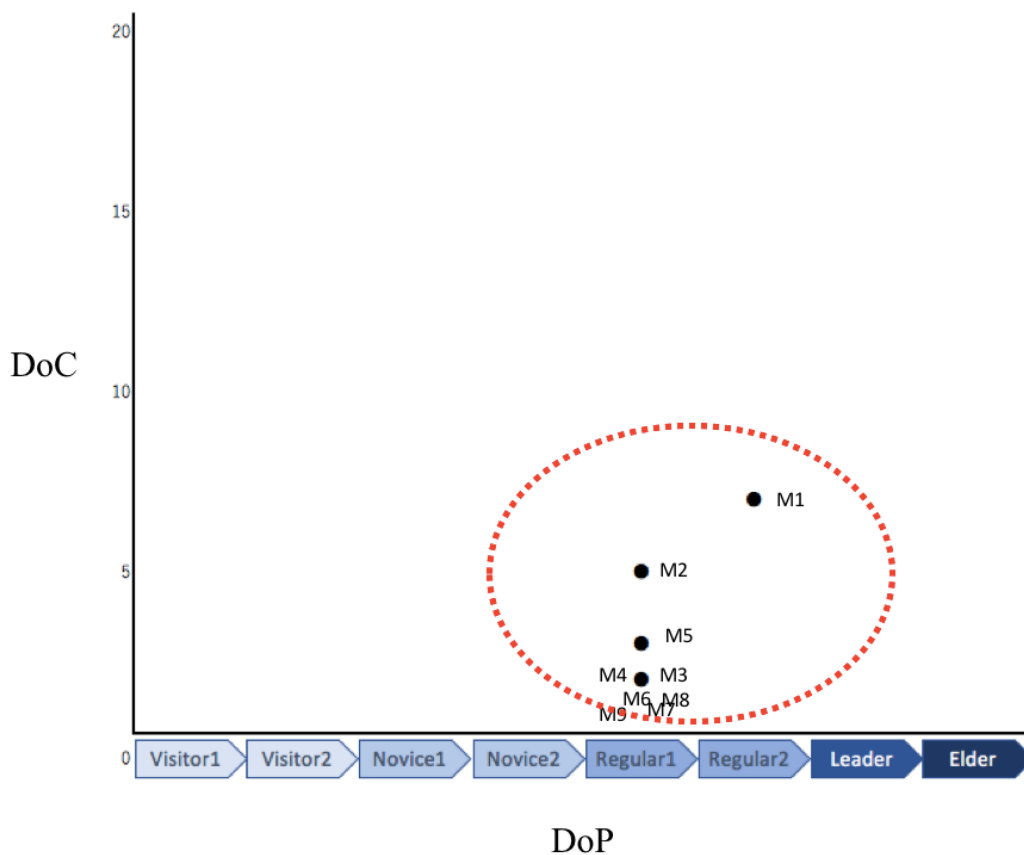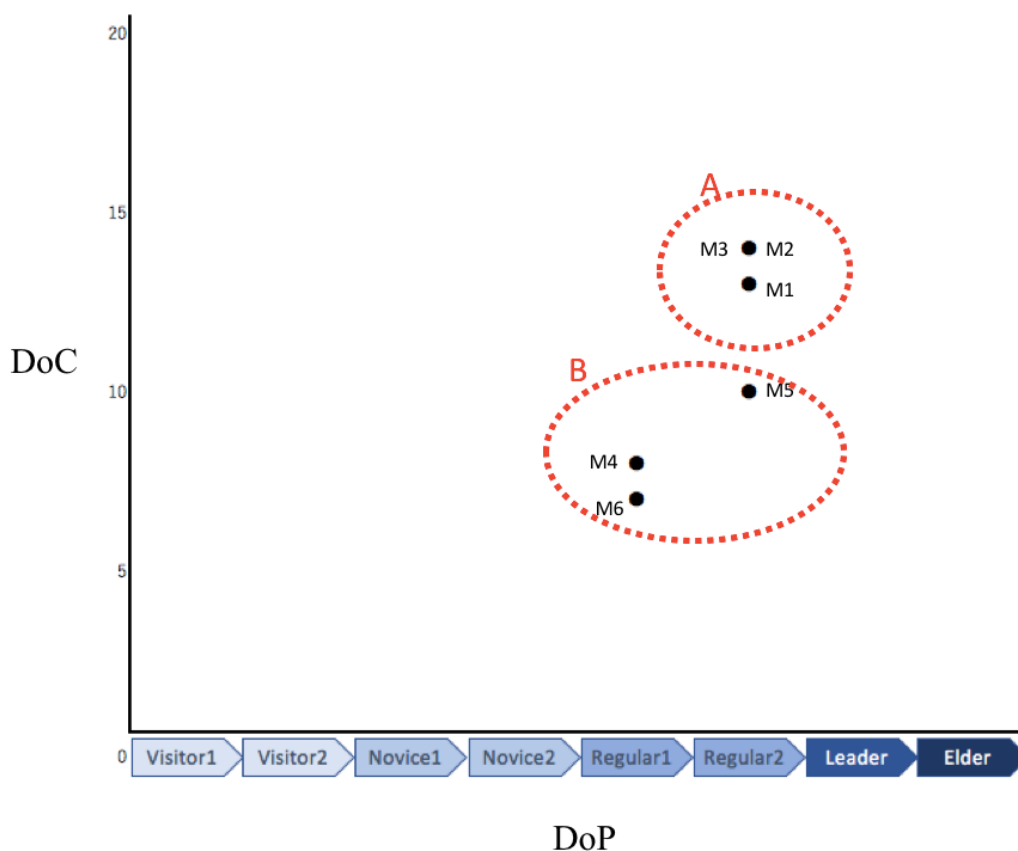
Figure 4. Community 1

(2) Community 2

This community is an NPO based in Tokyo. It aims to create a place for people to gather for learning. There are six members. It has continued activities for about three years, and the relationship between the members is good. We were able to observe the philosophy of the NPO's activities. There is some degree of activity such as being able to cooperate with each other on new projects. Several members are not able to demonstrate their power in the community due to constraints of time and location of activity.

<Evaluation results>

The evaluation result is shown in Figure 5. DoP is high, and DoC is moderate. There are two groups represented: Group A is balanced at the high position; Group B is not balanced between DoP and DoC. Actually, it is divided into two groups that engage in voluntary activities and groups that do not. Group A is working on voluntary activities more than group B. Therefore, we should consider how Group B members play a role in the future and lead to voluntary activities. This is because the number of roles need to

increase to balance DoP and DoC.

Figure 5. Community 2

(3) Community 3

This community is an NPO headquartered in Yamanashi Prefecture. They are engaged in activities to support women's entrepreneurship. There are 12 members; they began four years ago. There are two full-time staff; the community is active and voluntary activity continues. Relations among members are also good, and each member cooperates with their respective goals.

<Evaluation results>

The evaluation result is shown in Figure 6. There are many members who are balanced with high values of DoP and DoC in the community, 75% of members (Group C). This represents an active situation. In the future, the task of maintaining this state and improving the DoC of the members with low values (Group D) will be a problem. This is because the ideal condition is that the community members as a whole are balanced with high values of DoP and DoC.
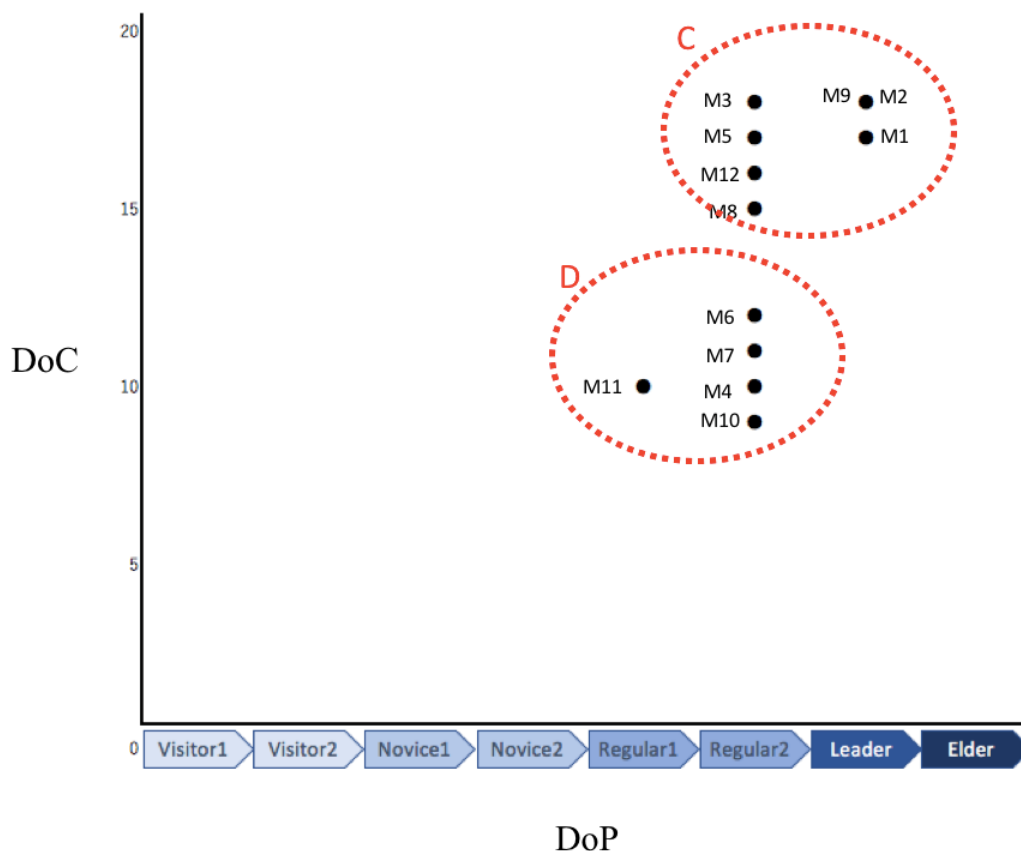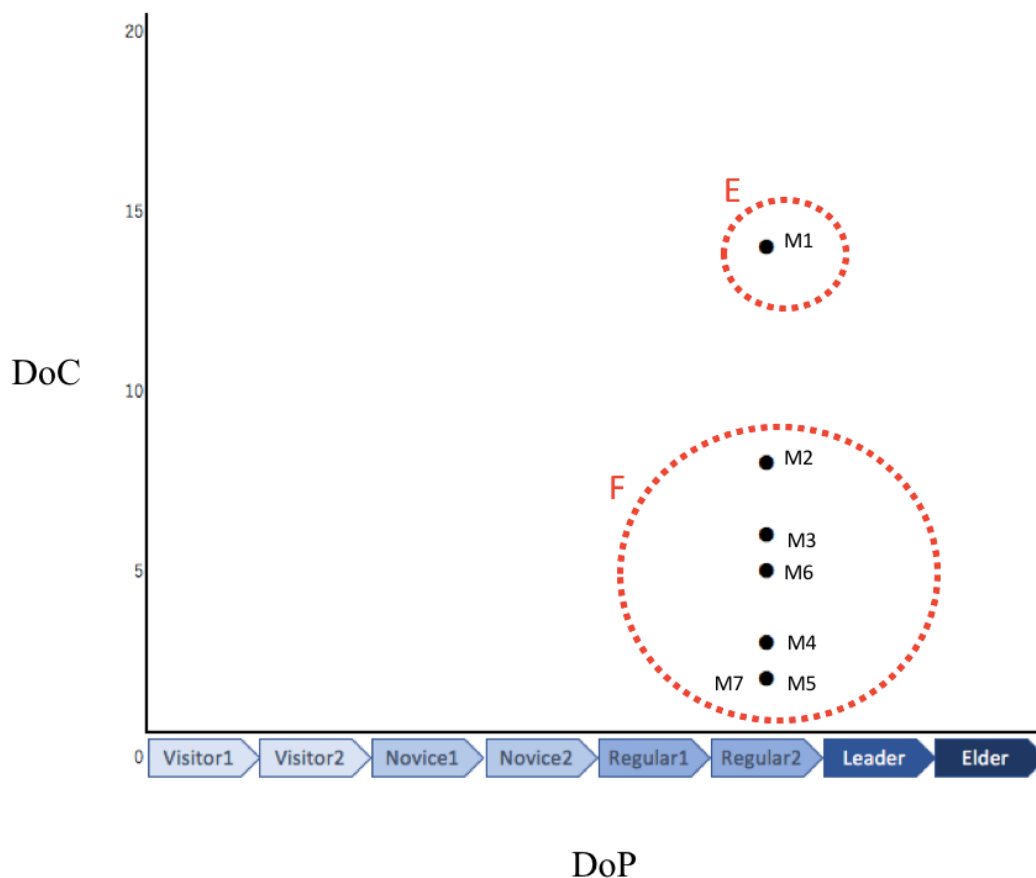
Figure 6. Community 3

(4) Community 4

This group is a project team for innovation comprised of volunteer members from within a company. They are studying ideas for new business. There are seven members. While they have their own business, they are also participating in the project team, so their time to work on the project is limited. Activity is low as a whole, as is communication between members.

<Evaluation results>

The evaluation result is shown in Figure 7. DoP in the community is about the same degree between members, but the DoC varies from person to person. Most of the members do not have balanced DoP and DoC. Most have a low level of DoC except for one member who leads the team (E). Actually, regarding progression towards leadership of specific members, the evaluation shows that the community is in a good state.
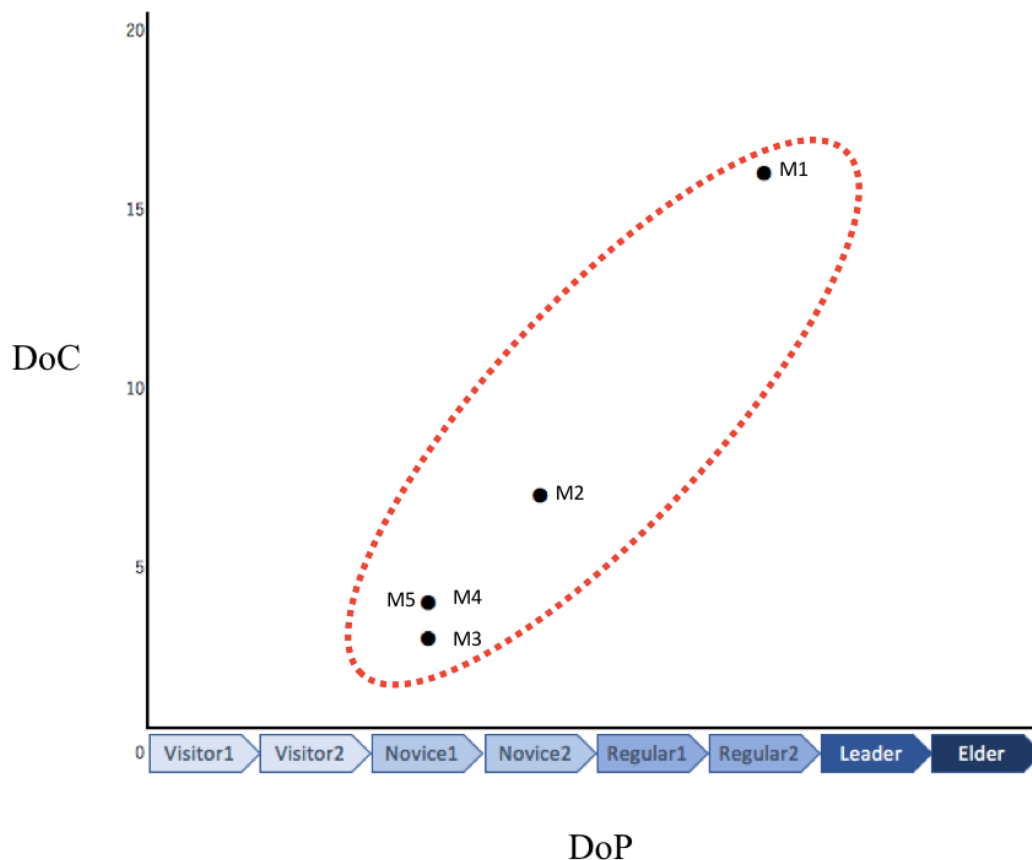
Figure 7. Community 4

(5) Community 5

This community meets bimonthly and is comprised of regional individuals. The number of regularly participating members is five. It is not an activity-based type of community as targeted by this study; it is a place-type community. However, it was included in the evaluation for comparison.

<Evaluation results>

The evaluation result is shown in Figure 8. DoP is at the level of "Regular 2," and DoC exceeds 15. M1 is in a high position for both. On the other hand, M4 and M5 are at a low level of DoP and DoC. Although there are differences in height between members, they are balanced and in an appropriate state, respective to each person. Because it is a place-based community, it is not necessary for everyone to have a common DoP and DoC, and any member can function in the acceptable state.

Figure 8. Community 5

5.2.   Evaluation of method by community manager

We interviewed people who are community managers in each region about the validity of the method to evaluate and promote a degree of community activation using the above results. The main interview perspectives are: (1) understanding of method (2) visibility of community state (3) optimal role sharing proposal (4) opinion.

The results are summarized below for each interview.

(1) Understanding of method
   - I can understand measuring DoP and DoC and seeing the correlation. Also, mapping the results is visually easy to understand.
   - In this way, DoC is based on the role of Community Manager and treats all roles equally. Actually, however, the role depends on difficulty level and the characteristics of the members. Therefore, it cannot be evaluated by merely taking charge of many roles.

(2) Visibility of community state

- I thought that the role sharing of the members was not well balanced when I was managing the community, so this analysis result well represents the state of the community.
- By visualizing the state in which the community is not active, the state of the community is understood well. I do not want elaborate figures as the administrator side, because it is only necessary to see a trend, I feel that the expression like this evaluation sheet is appropriate.
- By using this method, it seems that it is possible to judge termination / dissolution for not only the "good" state of the community but also for the low activity community.

(3) The optimal role sharing proposal

- Even though I understand the role-giving proposal that corresponds to STEP 6 in the head, cannot it be easily done depending on the relationship between community members? In particular, it seems that it will take time to reassign the role of people with a high "contribution" to low people.

(4) Opinions

- Not only someone is able to analyze using this analytical method, but also it will be possible to analyze the community diversely by each community's participating members. Also, I would like to talk with community member using analysis results. There might be always a gap between my perception and the recognition of other members, but by sharing the results in a dialogue, it is possible to understand properly into roles that the members themselves are not aware of and the degree of 'contribution'.
- I also want to create a list of functions with community members. Doing so will lead to the recognition of necessary functions (roles) by the entire community and will also form the ownership of the members themselves.
- I would like a third party to evaluate the community instead of evaluating myself. I cannot objectively evaluate myself.

5.3.   Discussion

(1) Mapping method

Focusing on the two axes of DoC and DoP, it was found that mapping clearly showed the differences in each community. Also, from the stakeholder interview, we learned that the results are convincing. From this, the evaluation method can express the state of the community activity level, and it shows that the Degree of Participation and the Degree of Contribution are balanced at high values for highly active communities.

We received the following answers from the stakeholder interview. "Even though I understand the role-giving proposal, the correspondence to the relationship between community members, in particular, it seems that it will take time to reassign the role of people with a high 'contribution' to low people." Although the community manager thought it would take time to enact, he did see potential for change. In other words, it was possible for him, based on our study, to understand how to activate the community.

Moreover, another interviewee stated, "I would like to talk with community member using analysis results. There might be always a gap between my perception and the recognition of other members, but by sharing the results in a dialogue, it is possible to understand properly into roles that the members themselves are not aware of and the degree of 'contribution'." This statement indicates the manager thought about how to create an appropriate role, and it suggests that the method is effective in the activation of the community. At the very least, respondents stated that they can understand and consider the study valuable, indicating that it is effective for improving community activity. Therefore, we confirmed the validity of the method to evaluate and promote community activation.

It is important to increase the number of communities to be analyzed in the future in order to find out what kind of change is seen across various factors such as community types and member composition.

(2) Activation promotion method using evaluation results

In this analysis, we are only evaluating and analyzing the current state of the community, not proposing measures for improving activation. We would like to consider the specific proposal content for improving activation in the future and examine whether activation will improve through the execution of the proposal content. In addition, as a result of the stakeholder feedback, various suggestions on how to use this method were obtained. We would like to consider how to use this information as a tool to promote dialogue and explore the appropriate contexts in which to use this method.

6. CONCLUSION

The purpose of this study was to propose a method to activate communities. We proposed a method to visualize and evaluate the state of the activity level of the community by observing the DoC and DoP of members based on the type of communities.

We applied this method to five active communities and verified that the activity status of the community can be evaluated correctly with our method. In addition, we conducted interviews with various stakeholders, and we confirmed the validity of the tool to evaluate

and promote a higher degree of community activation. According to our results, we proposed evaluation methods effective for community management.

Future research topic is to expand our research to a larger number of communities of different types in order to create community categories and make it easier to develop specific proposals for activation. Furthermore, future research topic is to confirm exactly how community activation changes by implementing measures to actually improve community activity.

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