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Active Lurking: Enhancing the Value of In-house Online Communities Through the Related Practices Around the Online Communities

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Abstract

In this paper we examine the possibility of evaluating the value of an online community in a company by focusing on the practices around the online community, which we call active lurking. We divided the practices into two types: independent practices that are completed within only an informal context, and connecting practices that have relationships with the formal organizational structure. We conducted a questionnaire for 2,584 participants in two types of online communities in a large manufacturing company, and semi-structured interviews of 102 participants. We concluded that our practice-based evaluation is useful for managers or designers of an online community to help them to understand, evaluate, and manage its practical impacts on their business activities before or after building it.

1. Introduction

The rapid spread of information technology (IT) makes it possible to organize social capital [8] and communities of practice [28] beyond geographical restrictions. Malone pointed out the diffusion and the importance of decentralized organization supported by IT, in which a company could put the human value at the center of a business [9]. In this paper, we focus on the value of an in-house online community as a decentralized organization supported by IT.

It is difficult for managers to evaluate the value of an online community as a management resource [28] because the online community is based on informal and spontaneous participation that is separate from the formal organizations in a company. For example, Brown and Duguid indicated that in a cross-organizational online community no one has formal responsibility for the activities of the online communities; therefore managers cannot manage them in the same way that they manage as for the formal organizations [1]. Despite the difficulty of evaluating the value of an online community, this has been

regarded as one of the important problems in research of online communities [20]. For example, as Preece pointed out in a discussion on supporting online communities and building social capital in the special issue of Communications of the ACM [20], we need methods of evaluation for an online community, which is necessary for understanding what makes the online community successful and for justifying development funds. The most popular method for analyzing an online community is to focus on the communication within it [4]. An important feature of an online community is its ability to capture its communication as persistent conversation [3]. This capability enables researchers to easily, but objectively, analyze communication in an online community by using methods such as social network analysis [23], content analysis [7], and genre analysis [17]. However, we think that focusing only on internal communication recorded as persistent logs to evaluate the value of the online community misses some of its potential value because generally there are a lot of lurkers who post few or no messages into an online community.

In this paper, we will examine the enhancement of the value of an online community in a company through the related practices around the online communities, which cannot be captured as persistent logs. We call these practices active lurking. We will examine the feasibility of evaluating active lurking using a method we call practice-based evaluation.

2. Related works

2.1. Evaluation by focusing on active lurking around an online community

In general, the existence of participants called lurkers, who post very few or no messages in an online community, is widely known. Kollock and Smith indicated that lurkers might have a negative influence on an online community because many people regard them as free riders [6].

On the other hand, some researchers have argued that lurkers play an important and necessary role [10,

12] and others have progressively investigated the actions of lurkers themselves [11, 13, 14]. For example, Nonnecke and Preece have used semi-structured interviews to investigate why lurkers lurk, and have classified the results according to a gratification model showing lurkers' needs and the most-mentioned reasons for lurking [14]. In another study, they elucidated the relationships among lurking level, type of DL (discussion list), membership level, and traffic of DLs by applying quantitative log analysis to two types of DLs [13]. Nonnecke and Preece also showed the goals of lurkers and the corresponding effects that persistence has on those goals. They discuss design implications in five areas: email clients, server software and administration, alternative access mechanisms, support information, and members [12].

Throughout a series of studies, Nonnecke advocated that there are many participation styles, and in that sense, lurking is one style of participation, and is a situated action taken for many reasons including personal and group-, work-, and tool-related factors [11]. Takahashi et al. observed that there are a considerable number of lurkers who use or propagate information gained from online communities in their outside environment [25]. They called this kind of lurker an active lurker. They concluded active lurkers could not be neglected in an evaluation of the value of online communities in a company because they have a strong and wide influence outside of the online communities. In another study [26], they focused on the action of an active lurker, which they called active lurking. This is because a poster, who sent a message to an online community, can also use or propagate the information gained from the online community in its outside environment. In short, a poster also has the possibility of doing active lurking. They defined three types of active lurking based on the form of information flow, investigated the roles and effects of them by coding the interview data, and found that each type of active lurking has different roles and effects; to increase the strength of the value of online communities, to increase the extent of the value, and to increase the quality of information within the online community. Thus, they regarded these types of active lurking as behaviors that increase the value of an online community.

Nonnecke et al. conducted a large-scale web-based survey of 1,188 responses from 375 Microsoft Network online communities in order to examine the behavior and attributes of posters and lurkers, and validated their earlier research [15, 16, 21]. They also suggested the possibility of managing lurking and developing better community tools as an implication of their work. Schultz and Beach pointed out the

importance of the facilitators who can reduce the reasons for lurking, as indicated by the findings of Nonnecke et al. [14], in order to move participants from lurker to poster [24]. Rafaeli et al. also focus on the transition from lurking to de-lurking that is the change into poster, and pointed out the positive effect of social capital [8] on the level of de-lurking [22]. We could say that recent research topics on lurking or lurkers focus on the possibility of the management of an online community from the viewpoint of lurking or lurkers.

In this study, we regard lurking or lurkers not as a target for being reduced, but one for being promoted. This is because the existence of active lurking or active lurkers might have positive impacts on the management of an online community, as shown in previous research [25, 26]. We focus not on the active lurker but on active lurking, which are actions done by both posters and lurkers, because it is reasonable that we investigate all of the actions on the outside of an online community for evaluating the value of an online community.

2.2. The relationship between active lurking as an informal practice, and formal organizational structure

We can regard active lurking as a practice because participants, who performed any kinds of active lurking, not only gain information from the online community but also actually utilize the information in their activities. As Orlikowski indicated in the research on the constituted relationship between organization and technology, a practice lens is useful for us to examine emergence, improvisation, and change over time as people reconfigure their technologies or alter their habit of use, and thereby enact different technologies in practice [18]. Because active lurking is emergent and improvisational, made up of evolving practices over time, observing it from the perspective of practices could be useful for evaluating the value of an online community. In order to do so, we focus on the impacts of active lurking as a practice on the formal organizational structure such as information flow and the organizational chart. This is because managers or CEOs need not only an isolated story about an online community, but also a story connected with explicit and concrete impacts of the online community on their business activities. The same problem was pointed out by researchers of communities of practices and legitimate peripheral participation, although their targets are not necessarily supported by information technologies. For example, Wenger pointed out that domain-related disorders

often occur when the community of the organization fails to make a clear connection between the domain and the needs of the business. These connections might include establishing the legitimacy and strategic value of the domain, clarifying the link to business issues and finding ways for the community to add value, offering inspiring challenges, including the community in important decisions, holding it accountable for the reputation of the firm in the domain, or exposing it to other perspectives [27]. As Brown and Duguid also pointed out [1], there is a gap between the canonical practice, which is recognized by the organization through conventional job descriptions, and non-canonical practices, which are generated in the informal context of actual communities and actual practices. In order to close the gap, the organization must re-conceive itself as a community of communities, acknowledging in the process the many non-canonical communities in its midst. As these previous studies indicated, it is essential that managers or CEOs to understand the relationship between informal practices and formal organizational structure around the online community. Understanding the relationship leads them to the understanding what makes the online community successful and therefore justifying development funds, as Preece pointed out in the discussion on supporting online communities and building social capital [20].

In the study conducted by Takahashi et. al [26], they classified the practices based on the pattern of the information flow through active lurking, and quantitatively examined the roles and effects of active lurking by coding the interview data and interpreting the coding results. Although the results of aggregative analysis in this study would be helpful for us in understanding the value of an online community, it also needs further consideration about how participants actually use the information gained within it for their business. In this paper, we will intentionally focus on the relationship between active lurking around an online community as an informal practice and the formal organizational structure in order to understand

the whole value of the online community in a company.

3. Cases

We consider that online communities can be roughly classified according to whether their purpose is the practical use of information or information sharing. We selected two DLs (Discussion lists), named DL-P and DL-I, in a Japanese manufacturing company. DL-P is for practical use and DL-I is for information sharing. The company has over 15,000 employees in over 200 offices in Japan and other Asia-Pacific areas. More than 700 employees from various offices or divisions spontaneously participated in each DL. Both DLs are widely known as the largest and the most successful DLs in the company. Table 1 shows the basic data for each case. DL-P is related to one of the main software products (product X) of this company. The purpose of DL-P is to enable participants not only to share the information about sales activities but also to help each other to complete sales activities: proposals to customers, specific services provided by using the product for each industry, and solutions of problems in their customer offices. Typical messages in DL-P are related to participants' practical activities. For example, "Does someone know the solution to this problem?" "I want a capability to satisfy client demand. Could you tell me how to put this capability into practice?" and "I made a useful presentation package to let our customers know the differences between our product and competitors' products. Let me know if you need it." Thus, DL-P provides practical support for participants' activities, rather than simply enabling information sharing. DL-I was organized by an executive in the company. The purpose of DL-I is "direct discussion for those with interest in various topics related to this company." Participants discuss broad topics that are important to all employees, such as top management strategies or visions of the company, although these kinds of topics would not be directly related to their practical activities.

Table 1. Basic data for DL-P and DL-I.

	DL-P	DL-I
Data collection period	Sep. 1997 - Nov. 2002	Jul. 2001- Jul. 2002
Main purpose	Practical support	Information sharing
Organizer	Quality assurance Dept.	An executive
Purpose (detail)	Exchange best practices through Q&A in order to share the know-how of sales solve participants' problems of the product X in their customer site	Discuss various topics in the company, and current social problems and trend through the earnest dialog
Typical topics	Sales practices, solution of customer problem and claim, and technical know-how about the software product	Company vision, and problem, environmental issues, and novel products and services
# of participants	1,805 participants	779 participants

For example, “Let’s discuss the 3 years plan provided by the president,” “Let’s thoroughly read the company vision and strategy,” “How can we reduce hazardous industrial waste in our company,” and “What do you think of the business model related to our new product Y?” In addition, not only the executive but employees also broach topics and discussions. Thus, DL-I is an online community for information sharing, and does not necessarily have any practical application in participants’ activities.

4. Method

We conducted a questionnaire for classifying the participant levels, selected interviewees by a stratified sampling method, and conducted interviews with them to investigate the impact of active lurking as an informal practice on the formal organizational structure.

4.1. Classification of active lurking by questionnaire

It must be noted that we discuss not lurkers per se, but the practices of active lurking around the online community. This is because, as a previous study indicated [26], a poster who sent a message to an online community can also use or propagate the information outside of it. We classified active lurking into three types based on the classification proposed by Takahashi et al. [26]: ‘active lurking for practical use,’ ‘active lurking for propagation,’ and ‘active lurking for personal contact.’ As criteria for the classification, we focused on the flow of the information gained from an online community among its members or non-members. ‘Active lurking for practical use’ is defined as active lurking in which a member uses information from the online community in his/her personal activities. ‘Active lurking for propagation’ is defined as active lurking in which a member propagates the information to non-members. ‘Active lurking for personal contact’ is defined as active lurking in which a member directly contacts a poster not just through the online community. Table 2 lists questions concerning these criteria.

4.2. Selecting interviewees

Table 3 shows basic data regarding the response to the questionnaire. We also analyzed the communication logs in each DL for counting the total number of participants and the number of participants who post messages into each DL. Of the total number of participants in DL-P and the total number of participants in DL-I, 32.6 % and 23.7 % responded to this questionnaire, respectively. Nonnecke notes a bias

that more posters than lurkers do respond to questionnaires [11]. In our study, we could not observe a very strong bias like that seen in Mason’s study [10] where less than 3 % of responses were from lurkers although 90 % of the membership lurked. In fact, in DL-P, the ratio (59.6 %) of lurkers among respondents was greater than the ratio (51.6%) of lurkers among all participants. In DL-I, there was a slight bias, where only 75% of the responses are from lurkers while 83.8 % of the membership lurked.

Figure 1 and Figure 2 show the results of applying the active lurking classification described in the previous section to both DL-P and DL-I. We selected by a stratified sampling method 30 people in DL-P and 10 people in DL-I from the respondents in each DL who have performed each type of active lurking; therefore, the total number of active lurking actions we investigated through the interviews is 90 in DL-P, and 30 in DL-I. We conducted semi-structured interviews with them in order to investigate more in detail what selected participants actually did in each active lurking incident they revealed in the questionnaire. The total numbers of interviewees are 73 for DL-P and 29 for DL-I, because some interviewees were redundantly

Table 2. Questions concerning criteria.

Type of active lurking	Question
Active lurking for practical use	Have you ever used information or knowledge gained from the DL for your own or your organizational activities?
Active lurking for propagation	Have you ever propagated information or knowledge gained from the DL to those outside it?
Active lurking for personal contact	Have you ever directly contacted with a poster not through an online community about the information or knowledge gained from the DL?

Table 3. Basic data regarding response to the questionnaire.

	DL-P	DL-I
Questionnaire period	10 days	7 days
# of respondents among participants	588(32.6%)	184(23.6%)
# of posters among respondents	240(40.8%)	46(25.0%)
# of lurkers among respondents	348(59.2%)	138(75.0%)
# of posters among all participants	873(48.4%)	126(16.2%)
# of lurkers among all participants	932(51.6%)	653(83.8%)

selected in a sample of different types of active lurking. Questions in the interviews are composed of three categories; target information, behavior, and effect of the behavior. Target information is about what kind of information they took from their active lurking. Behavior is about why they did active lurking without sending a message to an online community. Effect of the behavior is about what is the effect of the active lurking they did. We recorded all of the interviews by voice recorder, carefully coded the interview data according to the structure of the questions in the interviews, and identified the type of practice in each active lurking example based on the criteria shown in the next section.

4.3. Practice-based evaluation: Two types of practices

As discussed in section 2.2, we focus on the relationship between active lurking as an informal practice and the formal organizational structure in order to evaluate the value of online communities in a company. In order to clarify the relationship, we divide practices around an online community into two types: *independent practices* that are completed within only

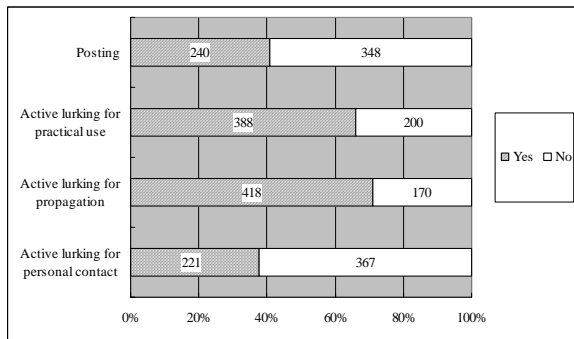


Figure 1. Distribution of # of participants who post messages and # of participants in three types of active lurking in DL-P (n=588).

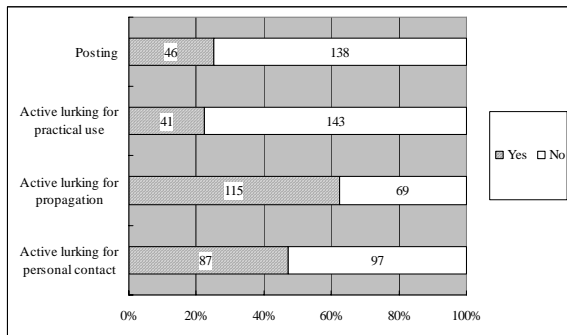


Figure 2. Distribution of # of participants who post messages and # of participants in three types of active lurking in DL-I (n=184).

an informal context, and *connecting practices* that have relationships with formal organizational structure. The latter can support and replace the formal organizational structure such as information flow and organizational chart. We identified the type of practice by reviewing the coded interview data.

For DL-P, we used the formal information flow across different organizations as a formal organizational structure, which was strictly and stably defined among the formal organizations related to product X. This formal information flow is about how the organizations should process customers' claims related to product X coming through the call center. DL-P is an informal discussion place for sales employees to share and discuss knowledge about their sales activities, customer needs and claims about product X obtained directly their customers. We assume that DL-P could have an impact on the formal information flow for the same kind of information.

For DL-I, we used the organizational chart of the company as a formal organizational structure. The company's organizational chart represents the hierarchical relationship of departments. Often the communication between different departments at the same hierarchical level might be difficult in a large company if the departments don't share the same direct reporting relationship. The owner of DL-I, an executive, intended to make it a forum for earnest and direct discussions among all employees in the company including some overseas offices or divisions in the Asia Pacific area including Australia, China, Korea, and so on. We assume that DL-I could have a function beyond geographical and other limitations defined by the organizational chart.

We will examine whether or not active lurking as a practice around both DL-P and DL-I has a relationship with these formal organizational structures in the next chapter.

5. Results

We will first confirm the validity of focusing on active lurking as a practice around DLs for the evaluation of their value by showing the quantitative result of questionnaire. Then we will specify and show two types of the informal practices in each DL. In the descriptions, IP means 'independent practices', CP means 'connecting practices', and AL means 'active lurking'.

5.1. Validity of focusing on active lurking as a practice around DL-I and DL-P

Figure 1 and Figure 2 show the number of participants who post messages, and that of

participants in three types of active lurking. Identification of the number of participants who post messages was done by reviewing actual postings as recorded in the communication logs in both cases. As these figures show, the number of active lurking cases they provided is greater than that of posting messages except for active lurking for personal contact in DL-P (only 3.2 % less than) and active lurking for practical use in DL-I (only 2.7 % less than); therefore, active lurking is a major style of participation compared with posting messages into an online community. It seems reasonable to suppose that we should evaluate the value of an online community by focusing on not only the actions of posting messages in it but also the actions of active lurking as informal practice around it.

5.2. DL-P

There are major two kinds of players related to discussions in DL-P, the practices around DL-P, and the formal information flow of their customer voice. One is sales-related employees such as sales representatives (sales reps), system engineers (SE), and customer engineers (CE). The other is the employees in the technical-related departments such as the developers, planners, and the staff in the technical support department (TS Dept.) and the quality control department (QC Dept.). DL-P is the informal discussion place about product X mainly for sales reps, SE, and CE to informally discuss know-how about their activities. On the other hand, in the formal information flow related to product X, either the sales reps or staff of the TS Dept. gathered claims of customers, which is part of their formal job description. Sales reps must also input the claims into a problem database (Problem DB), if they get them directly from their customers. Staff of the TS Dept. discusses the problems about the claims with staff of the QC Dept. and developers in order to process the claims. Staff of the QC Dept. also discuss and solve the problems with developers if they cannot process it on their own (e.g. such as critical bugs in product X).

5.2.1. Independent practices. The following are examples of independent practices that are completed within only informal context:

- A sales rep reused the know-how of a proposal focusing on the customers in some industry discussed within DL-P for their own customers (IP-1, AL for practical use);
- A sales rep often lets their customers know trends of the same industrial area (IP-2, AL for propagation). As a result, the customers appreciate the sales rep and put trust in him. In addition to the sales rep closing a deal, the customers become a fan of product X and contribute to the diffusion of this product by propagating word of

its usefulness to their company (IP-3, AL for practical use) and customers (IP-4, AL for propagation). Sometimes, the customers of the customers contacted the sales rep, and they closed another deal (IP-5, AL for personal contact);

- In DL-P, active participants discuss the needs of their customers which have not been supported in the current products. They need further discussion. So they decided to create a new discussion list (IP-6, AL for practical use), and explicitly discuss this topic. They built a team quickly using the short term project program in the company and proposed the potential need based on the discussions in this mailing list to top management. Top management permitted them to organize the new section to specifically address this topic (IP-7, AL for practical use);
- A CE found the solution to a claim reported by his customers in DL-P where a participant had an experience of processing the same claim using a creative solution (IP-8, AL for practical use). He applied the same solution for his customer and introduced it to his divisions through the posting a message into the mailing lists about it (IP-9, AL for propagation);
- A Manager in the Planning Dept. imagined the possibility of a new marketing strategy while reading the repeated discussion within DL-P (IP-10, AL for practical use). He introduced it in managers' meeting. Based on this, the managers decided to change the sales formation (IP-11, AL for practical use).

We can observe that although these practices had impacts on the work of individuals or their own organization, they were completed within an informal context because they were independent of the formal information flow, organization, or processes related to product X.

5.2.2. Connecting practices. Although DL-P is mainly for sales-related employees such as sales reps, SE, and CE, who can meet their customers, other employees such as development-related employees can join without limitation. Much of the valuable information was created through the discussions among sales-related participants for their own purposes. That is completely synchronized with the main purpose of DL-P. However, we also observed that there are a lot of practices around DL-P performed not only by sales-related participants, but also development-related participants such as developers, planners, staffs of the TS Dept. and the QC Dept. Development-related participants read the discussions within DL-P without posting any messages into it; therefore, we can call them all lurkers. But they also utilize the information gained from the DL-P in the formal information flow about customers' claims related to product X; therefore,

they perform active lurking activities. A manager of the development Dept. said that he didn't have any kind of timely formal route to hear the raw customer voice through the real experience of sales-related participants. We could say that one value of DL-P is that the development-related people can bring information about their customers gained through informal practices in DL-P into their formal information flow, via what we call connecting practices. The following are examples of connecting practices that have a relation to formal organizational structure:

- Staff of the TS Dept. informally read all messages posted in DL-P and input the claims from them into a problem database, which is referred to as Problem DB, if the claim happened for the first time (CP-1, AL for practical use);
- Sometimes a sales rep discusses the unexpected usage of product X. A staff of TS Dept. learned problems associated with this unintended usage (CP-2, AL for practical use). If these problems are critical, they request the staff of the QC Dept. or developers to fix them;
- Staffs of QC Dept. also said that they could quickly access the first case of a problem because sales-related participants asked a question about this problem in the DL-P. They would also like to know the reason or the solution to the problem with the expectation that other sale reps might know them (CP-3, AL for practical use);
- Some developers (CP-4, AL for practical use) and planners (CP-5, AL for practical use) said that they could understand the real usage of product X imagined by customers through the discussion among sale-related participants within DL-P. They sometimes create a new function based on this.

Developers also indicated the positive effect of just reading the discussions within DL-P from another viewpoint:

- Developers would also like to know the story about how customers use functions that developers developed based on the expectation of how useful it was. They also increase their motivation by this more direct contact with customer information (CP-6, NA).

This kind of information might not be gotten through the formal information flow very well because this flow as defined formally is not for customer needs but for customer claims. Although customers tend to report the problem they wanted to fix as soon as possible, they might not have a strong motivation to report their future needs to the TS Dept on the phone.

From these examples, we can observe that active lurking as a practice contributes to not only increase individual productivity of work but also enable employees to get valuable information, which cannot

be found, through the formal information flow. In other words, the relationship between informal practices and the formal organizational flow might be enacted and constituted over time [5] appropriate for their information needs about their customers.

5.3. DL-I

The organizational chart we used in this study is not a detailed and precise one but simplified to ease explanation. The top of the hierarchy of the chart is the president of the company, and one of the executives is the owner of DL-I, which we refer to as 'the executive' in the following explanations. Various types of employees in terms of department, subsidiary company, occupation, job grade, and, and age join DL-I.

5.3.1. Independent practices. The following are examples of independent practices that are completed within only an informal context:

- A sales rep who was in the new department for a chain-store market, shared the feelings of the possibility for that market that were discussed in DL-I, with his department, although participants in DL-I didn't know the fact that the company had a plan to penetrate chain-store market (IP-1, AL for propagation). The department discussed these possibilities to make a strategy of the market (IP-2, AL for practical use);
- A manager of sales subsidiary company let his team members know the future vision of the products related to broadband technology posted by the executive in DL-I (IP-3, AL for propagation), and placed this vision in the center of the strategy for the subsidiary. This information was useful to the subsidiary company because it was uncommon to get the vision of an executive of the parent company formally or informally (IP-4, AL for practical use). This case was about enabling participants to transfer knowledge not only among different divisions but also across different companies.

In these examples, we can observe that participants propagated the topic discussed among the participants (including an executive) in order to utilize them as real data in their own division.

5.3.2. Connecting practices. The following are examples of connecting practices that have relations with the formal organizational structure:

- A staff member of an information technology department, which had a responsibility for the Intranet, collected the real opinions of employees about their problems with the infrastructure of the company, which were discussed in DL-I (CP-1, AL for practical use). Because his work was to replace the whole infrastructure in the company, the opinions from employees as real users were very helpful for him. He

found that a message posted by a sales rep was based on professional knowledge about computer networks. He consulted with him about how to select the best from large choice of technologies and vendors in their context (CP-2, AL for personal contact). After replacement, the number of claims from employees decreased;

- In DL-I, the executive introduced the famous concept of destructive technology, defined by Clayton M. Christensen, and asserted the strong need for destructive technologies in the company. In an unrelated event, a superior manager decided to terminate a technology development. The technical manager, who developed the technology, read the executive's posting, and directly sent the report of their technology in which they logically argue that their technology was a kind of destructive technology to the executive. The executive, who read this report, was interested in the technology, went to their laboratory to see the demonstration, and finally decided to utilize it in the next product (CP-3, AL for practical use);
- A customer service engineer reconsidered the relation with his customer by reading the discussions of highly motivated employees in DL-I. This experience encouraged him to join an offline meeting that was organized by some employees (IP-5, AL for practical use). He also joined a project where participants discussed how to improve a customer relationship (IP-6). He and his project members were invited to the top management meeting in a different division, and reported the findings about this. They took concrete action based on a part of the report (CP-4, AL for practical use).

Connecting practices, CP-4, might not have happened without two independent practices, IP-5 and IP-6, because he could not be motivated by these practices around DL-I. In that sense, active lurking might have a function of motivating participants to behave as expected by enacting the appropriate practices.

As shown by these examples, DL-I plays an important role in creating information that might be difficult to create in formal ways. The information was necessary for their work based on their job description according to the organizational chart. Employees can discern the real intentions and frank opinions of the executive or other employees regarding important topics about the company and social issues. Employees said that they were sometimes motivated by active lurking in earnest discussions to: utilize the information gained from it in their own activities, propagate the information in order to just inform those who might be interested in it or have discussions with their co-workers in the same office, and directly contact the posters to ask questions about it or encourage them by simply saying "thank you for your

information." In DL-I, there is a lot of active lurking beyond the organizational chart as a formal organizational structure. These active lurking practices around DL-I were enacted and constituted over time [5] by the cross-organizational discussions.

6. Implications

6.1. Practice-based evaluation

Focusing on active lurking as a practice around an online community is essential to evaluate its value. This is because we observed not only the information flow but also participants' actions on the outside of both cases. The effect of the information flow and actions could extend even to non-participants. One of the implications from this study is the usefulness of understanding the relationships between active lurking as an informal practice around an online community and the formal organizational structure for managers, and its participants. The relationships observed in our case studies were not pre-designed by managers. However, it could be possible for managers to examine what kind of information an online community can be created more readably than by the formal organizational structure. As Wenger et al. pointed out, although managers can't treat knowledge effectively as if it were a thing or a piece of property, we can measure and manage the 'knowledge system' through which it flows and creates value [28]. To examine the relationships between active lurking as an informal practice and the formal organizational structure is nothing less than to design, maintain, evaluate, and manage the 'knowledge system.' We observed that information which cannot easily be created only in the formal organizational structure was created in our cases.

For example, in DL-P, the information about real customer needs could be difficult to collect directly through the call center. Instead of the call center, the development-related employees could collect it from DL-P where the sales-related employees actively discuss the know-how of their sale activities based on their real customer voices. In DL-I, the knowledge and experience that was decentralized in each individual was utilized in the practice of others, because participants could know who was interested in their individual knowledge and experience as in a know-who database.

The unique information created in both DLs helped to build a good relationship between informal practices and the formal organizational structure; therefore, we could regard both DL-P and DL-I as part of the 'knowledge system' in the company. In that sense, it could be possible for managers to imagine the

possibility of an online community as a 'knowledge system' by following steps:

1. Find the information that can be created by informal practices more effectively than formal organizational structure;
2. Regard an online community as a 'knowledge system' that covers this information;
3. Cultivate current or future participants of an online community to expect and know how to utilize this system;
4. Continuously get feedback from the participants' behavior in order to be aware of the change in their information needs.

If managers can estimate the value of practices created by active lurking around an online community, they can let participants know the existence of the valuable practices around it. Such indirect management could make an online community more active. Participants who can understand the impacts of their behavior on the formal organizational structure might have both the expectation of an online community and the motivation to contribute to it. It leads us to further consider how we should provide awareness [2] of the existence of active lurking, to whom we should provide awareness of it according to the purpose and the phase of development of an online community, and what reactions the participants are likely to have according to their awareness.

Practice-based evaluation is not meant to directly evaluate the quantifiable or economic value but to specify the criteria by which it could be evaluated, although we think that one of the most important areas for future work is to develop quantitative evaluation criteria for measuring the performance of practices, such as return on investment. Practice-based evaluation could be useful for them to find the useful evaluation criteria that are appropriate for the phase and the purpose of the online community. Some of them might be quantitative, others qualitative.

6.2. From independent practices to connecting practices

We divided practices into two types: independent practices and connecting practices. There are two implications for designing and managing the online community from the viewpoint of types of practices.

One implication is that most connecting practices in our cases have been evolving from independent practices by each individual over time. In that sense, a lot of independent practices might be necessary for emergence of connecting ones. One piece of future work is to examine the transition from independent practices into connecting ones in order to understand

how to cultivate and support both types of practices through active lurking. Another implication is that the appropriate balance of both types of practice should be based on an expectation or a strategy of an online community. For example, if managers want participants of an online community to just use the information within it for considering its possibility, they can cultivate more independent practices. This is because they can get a lot of possible applications of the information based on their individual needs. After gaining a more concrete understanding about useful information in the online community, they can support the participants connecting with their formal organizational activities, which could be connecting practice. If they find a very useful pattern of the relationship, they can promote the relationship itself as a connecting practice, or create a formal function or an organization that can formally treat this based on a job-description.

New technology might enable us to sense a part or a sign of practices around CMC system although it might be difficult to directly and correctly capture the practices around CMC system like capturing persistent conversation. For example, sensing technologies, which have a capability of capturing face-to-face communication [19], might have a potential for sensing active lurking as a practice.

7. Conclusion

We investigated how the practices around an online community, which we call active lurking, contribute to the enhancement of the value of the online community through the case studies of two types of online communities in a large manufacturing company. We examined the possibility of the practice-based evaluation by focusing on two types of practices related to active lurking around the online communities. One is the independent practice that is completed in the informal context. The other is the connecting practice that has an impact on the formal organizational structure explicitly defined by the organization itself. We concluded that practice-based evaluation is useful for managers or designers of an online community to understand, evaluate, and manage the practical impacts on their business activities before or after building it.

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9. References

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