Improvement of IT Usability through Interactive and Reflective Practice between Citizen Users and Public Officials

Hiroshi Togo
Assistant Professor, Faculty of Business Administration, Kinki University
E-mail: togohiroshi@bus.kindai.ac.jp
* Corresponding author
Koji Kanagawa
Professor, School of Administration and Informatics, University of Shizuoka
Tadahiko Yoshida
Professor, Faculty of Business Administration, Kinki University
Takaya Kawamura
Associate Professor, Graduate School of Business, Osaka City University

KEYWORDS
Practices of Informatization, Duality of Technology, Action Research, Local Social Networking Service, Activity Theory

INTRODUCTION
The purpose of our research is to investigate the practices of informatization in public administration in order to improve the usability of the Information Technology (IT) operated by municipal government. Since the launch of the ‘e-Japan strategies’ project by the central government in 2001, many municipal governments have been promoting informatization in order to provide user-oriented administrative services as well as to realize a more simplified public administration with a higher budget efficiency. Due to its inherent interactivity, IT attracts a great deal of public attention and helps to bring about citizens’ direct participation in the formulation of public policy.

This research is oriented to introduce practical implications from the concept of interactive and reflective practices between citizen IT users and public officials, since IT is not regarded as an ‘objective rational artifact’ to innovate public administration, but instead as a ‘socially constructed artifact’ (Feenberg, 1991) during the use of which organizations and IT users alike face ‘unintended consequences,’ and overcome these through improvement of its usability to transform both organizational structure and existing practices. Hence our standpoint is in line with Fountain (2001) which emphasizes the ‘enactment’ of IT to transform public administration in accordance with IT’s inherent properties. But, whereas her perspective towards informatization is based mainly upon decision makers, this research looks at this issue through the lens of actual IT practitioners. In a sense, we aim to shed some light on how these practitioners enact IT and change their activities through their own IT practices.

Management theory has not yet demonstrated adequate implications as regards management practice (Kagono, 1988), chiefly as it has been oriented to show theoretical implications for business managers.
Following behind the trend of New Public Management (Hood, 1991), more and more researches are paying attention to the effectiveness of informatization through quantitative research from the view point of decision-makers. However, these studies appear to overlook the practices of informatization embedded in given situations. Thus, this research is oriented to investigate these practices. Through Action Research (AR) (Parker, 2005), our research attempts to encourage both citizen users and webmasters to improve IT usability, and co-produce practical evaluation criteria for IT usability based on users’ perspectives. During this process, our research investigates how both citizen users and webmasters seek to transform each practice embedded in their everyday activity through interaction and reflection. This research is still in the initial stages. Prior to the co-production of practical evaluation criteria, however, this paper focuses on the usage of IT, and highlights how IT users, while ‘enacting’ it, change their own practices.

THEORITICAL BACKGROUND
As this research is based on social constructivism (Gergen, 1992), it considers that technology, organizations, and users do not exist ‘a priori’ as essential entities. Indeed, all are embedded in their given situations. Therefore, this research employs not a traditional perspective such as ‘technological determination’ (e.g., Scott-Morton, 1991; Crowston and Malone, 1994), stressing an installation of a rational information system that fulfills organizational goals efficiently, nor ‘organizational determination’ that tries to derive a suitable organizational design for the usage of IT (e.g., Galbraith, 1973; Daft and Lengel, 1986), but instead employs an ‘emergent perspective’ (e.g., Markus and Robey, 1988; Orlikowski and Robey, 1991; Orlikowski, 1992). The latter perspective focuses on the influence exerted by informatization in terms of interaction between information technology and organization. This perspective is further developed by Orlikowski (1992), who offers a concept of ‘duality of technology’ that identifies prior views of technology - as either an objective force or as a socially constructed product - as a ‘false dichotomy’ (p.406). This concept is an adaptation of Giddens's model of structuration theory (Giddens, 1984), and first looks at the technology from the view of structuration, and considers technology as a structural property of organizations. Orlikowski (2001) asserts that although information technology is introduced according to given plans, usage of technology can cause ‘unintended consequences’, which bring about an institutional transformation deviating from what was initially envisaged or predicted prior to its introduction. In a sense, ‘duality of technology’ serves to indicate a recursive relationship between organization structure and usage of technology.

However, as Matsushima (2009) indicates, Orlikowski is almost unaware of from which perspective the ‘unintended consequences’ is illustrated. The ‘unintended consequences’ should, we believe, be identified by concerned IT practitioners or users, chiefly because decision makers generally do not question given everyday practices embedded in the environment concerning the usage of IT, nor transform their practices reflectively until they are faced with a dilemma. Consequently, it’s necessary to analyze the organizing processes in which organizations and society are reconstructed by ‘unintended consequences’ faced in the practices mediated by IT, calling forth reflective thinking about self-evident institutions (Matsushima, 2003).
In this regard, most preliminary (public) management studies have been conducted from the viewpoint of top management or managers rather than practitioners. Therefore, it’s significant that our research illustrates the interpretive actions taken by both IT users and administrators that lead to both organizational reform and technological change. But we should take note of ‘Ontological Gerrymandering’ (Woolgar and Pawluch, 1988) as an inevitable problem, implying that any given narrative on informatization practice by practitioners could become replaced by the observers’ (researchers’) own interpretation to introduce normative implications. While this is arguably impossible to avoid completely, in order to best get around this problem it’s necessary for researchers, as practitioners, to take part in practices of informatization. This is the rationale for using the activity theory (Engeström, 1987, 2001) that provides an analytical framework to promote AR.

**ANALYTICAL FRAMEWORK**

The activity theory is a framework aimed at transcending the dichotomies of micro and macro, mental and material, observation and intervention in the analysis and redesign of work (Engeström, 2001, p. 960). The ‘activity system’ (Figure. 1), which is the central analytical framework of cultural-historical activity theory, describes cultural-historical development of human activities in terms of subject, instrument, object, rule, community of practice, and division of labor. It illustrates human ‘activity’ and its cultural-historical development in terms of six elements; 1) Subject of the activity such as an individual or a small group, 2) object on which the subject acts together with members of a community, 3) instrument, such as physical tools, languages, abstract concepts, theories, or symbols, with which the subject acts on the object, 4) community, in which the action of the subject is embedded, that also mediates the subject's action on the object, 5) rules of the community mediating interactions between the subject and the community, 6) division of labor of the community with which the subject and other members of the community act together on the object.

Engeström emphasizes that any activity system contains numerous internal contradictions as a result of its unique cultural-historical development and is always unstable and changing (Engeström, 1987, pp.80–89). These contradictions emerge either as the reification of each element or as the contradictory relations among elements and neighboring activity systems. He proposes the model of “expansive learning” as the process of cultural-historical transformation and development of activity systems, in which the subject becomes aware of the internal contradictions and creates models of new activities to solve them. The process of ‘expansive learning’ is facilitated by ‘knot-working’, (Engeström, Engeström, & Vähäaho, 1999) and ‘boundary crossing’ (Engeström, 1987) of subjects who traverse. The model of the activity system was originally developed and proposed as a tool for ‘developmental work

---

1 Expansive learning is the capacity of participants in an activity to interpret and expand the instrument of the object of their activity, and improve their activity in increasingly enriched ways.
2 Knot-working is a very demanding mode of work and production taken place by loosely connected actors.
3 Boundary Crossers are those who mediate interaction between activity systems, the multiple perspectives and the ‘multi-voicedness’ inherent in these systems.
research,’ (Engeström, 1987; 2001) in which the practitioners at various communities of practice collaboratively define, configure, and reconfigure their activities including internal contradictions. In this process of ‘expansive learning’, professional researchers can intervene—as a form of AR\(^4\)—by presenting a tentative model of activity systems as a starting point and by participating in subsequent discussions to identify and solve contradictions.

Figure 1: Engeström’s model of activity systems

Source: Drafted by the authors from Engeström (1987), Figure 2.7, p.87 and Engeström (1999), Figure 1.2, p.31

As stated, this research is still in the initial stages. As a preliminary step, therefore, this research investigates users’ practices of IT within the informatization process, focusing on how they ‘enact’ IT and reflectively change their own practices. We have been promoting an exploratory AR to investigate a process of improving usability of the Local Social Networking System (LSNS) ‘Gorotto Yachiro’ (GY) operated by the Yatsushiro municipal government.

\(^4\) AR is an exploratory research method proposed by Kurt Lewin. The significance of AR is that researchers step into research fields in order to discover processes of problem-solving and reforming practices in cooperation with practitioners. Parker (2005) argues that a radicalization of qualitative methods such as ethnography, interview, narrative approach and discourse analysis inevitably lead to AR. According to Sugiman (2006a; 2006b), the features of AR are 1) locality, 2) sense of value, 3) a first and second mode, and 4) inter-locality. First, we should note that a collaborative practice is undertaken in a specific place and in a specific period of time, and by a specific group of people. Data collections and observatory investigations are implemented in order to grasp a specific research object in terms of present, past and future. In other words, these observations are not gathered in order to verify a universal reality. Second, AR researchers take part in collaborative practice with a specific sense of value. The social interactions between practitioners and researchers create ‘meaningful knowledge’ to share value and purpose based on the assumption of collaborative practice.
BACKGROUND OF THE INFORMATIZATION IN JAPAN’S PUBLIC ADMINISTRATION

Since Japan’s Prime Minister Yoshiro Mori presented concept of ‘e-Japan strategies’ in his policy speech in 2000, the central government has been endeavoring ‘knowledge-emergent society,’ where everyone can actively utilize information technology (IT) and fully enjoy its benefits. In 2001, the central government formulated the ‘e-Japan strategies’ project that valued establishing an environment where the private sector, based on market forces, can exert its full potential and make Japan the world’s most advanced IT nation by 2005. The main goals of ‘e-Japan strategies’ project are to 1) build an ultra high-speed Internet network and provide constant Internet access at the earliest date possible, 2) establish rules on electronic commerce, 3) realize an electronic government and 4) nurture high-quality human resources for the new era by 2005 (IT Strategy Headquarters, Prime Minister of Japan and His Cabinet, webpage). In accordance with the launch of the ‘e-Japan strategies’ project by the central government in 2000, many municipal governments have been promoting informatization in order to provide user-oriented administrative services as well as to bring about a more simplified public administration with high budget efficiency⁵.

Figure 2: Steps taken in Japan on IT strategy

Source: Adopted from Ministry of Internal Affairs and Communications (MIC), web-page

⁵ This strategy was to transform the country into the world’s most advanced IT nation by 2005. After the goal of this strategy was achieved, the Ministry of Internal Affairs and Communications (MIC) started the ‘u-Japan Policy’ aimed at realizing the ‘Ubiquitous Network Society.’ This ‘u-Japan Policy’ stresses 1) development of ubiquitous networks, 2) enhancement of IT usage, 3) improvement of the user environment (Ministry of Internal Affairs and Communications, webpage).
Due to its inherent property of interactivity, IT attracts a great deal of public attraction to realize citizens' direct participation in the formulation of public policy. After an influential experiment by Fujisawa municipal government in 1997-2000, many municipal governments introduced the BBS (Bulletin Board System) for public communication. Many municipal governments in Japan have attempted to promote citizens' participation in policy formulation with electronic Bulletin Board Systems (BBSs) in accordance with a rapid diffusion of the Internet. In 2003 Yatsushiro municipal government introduced the BBS based portal site, ‘Grotto Yacchiro (GY),’ as a part of the regional informatization conducted in accordance with the ‘e-Japan strategies’ project. In August 2002, it organized an internal working group to renew the official website by enriching its portal. The working group consisted of eighteen members from nine departments, and was led by the Planning and Coordination department. Each department delegated two members to this group. After examining the web portals of other municipalities, the working group launched the web portal GY based on BBS in April 2003. It should be noted that GY is not one of the ‘first movers’ among BBS-based city government portals. Rather, it seems to have been enjoying a ‘latecomer’s advantage.’ The goal of GY was to provide ‘playing fields in cyber space for citizens’ to promote interactive-communication among citizens. By this point in 2002, 732 municipal governments had introduced public BBSs.

Most of them, however, have since faced the following difficulties and failed to meet expectations thus far; 1) many citizens were reluctant to voice their opinions with their real names on the public BBSs, 2) public BBSs tended to be dominated by strong assertions, which also de-motivated many citizens to voice moderate opinions, 3) public BBSs were abused by massive anonymous postings, 4) public BBSs could not establish proper procedures and rules for operations, 5) municipal governments could not incorporate opinions on the public BBSs into their policies successfully (Syoji, Miura, Suko, and Wasaki, 2007). GY didn’t work well due to the stagnation in the numbers of membership and access. After the launch of the BBS-based GY web portal, Mr. Kobayashi (webmaster of the Yatsushiro municipal government), who was also a member of the working group, continued a search for a better portal design to develop the ‘playing fields in cyber space for citizens.’ In the first place, he carefully examined the shortcomings of BBS-based web portals of other municipalities. He also analyzed the data of citizens’ access to the BBS-based GY and found a high number of accesses to posters’ profiles. As a result, the analysis found that more citizens were interested in information on citizens themselves rather than information on the community itself or on the municipal government.

This result is very much ‘unintended consequence’ for Kobayashi. Users enact this portal website to make social relationships with the unknown citizens in cyber space. At the same time, Kobayashi came to know a Japanese major global Social Networking System (SNS), Mixi, and was inspired by the system to share personal information on the Internet. He came to realize that a regional SNS is a more appropriate

---

6 Grotto Yacchiro means ‘all of Yatsushiro’ or ‘very Yatsushiro’ in Yatsushiro dialect of Japanese. In 2006, GY has more than 3,000 registered members, many of which live in Yatsushiro city. Authors interviewed Yatsushiro municipal government officials who are working with GY: Mr. Takao Kobayashi and Mr. Yoshiyuki Tomoda of Information Development section on May 21, 2007, and Mr. Hiroshi Ueda of Community Safety section and Mr. Hidekazu Shinohara of Business Promotion section on January 21, 2008. According to the interviews, the Yatsushiro municipal government launched the first official website in February 1998.
instrument for visualizing connections among citizens. In December 2004, the regional SNS web portal GY came into operation. After the launch, both the number of registered members and access per day steadily increased. The number of registered members increased from 600 to 3,000 (as of December 2006), and the number of visits of the web site per month increased from 2,000 to 120,000 (as of December 2006). In relation to this, connections among members came to be visualized.

Regionwide public communication mediated by the regional SNS GY facilitated, 1) orderly, supportive and constructive communication among local citizens and between the municipal government and citizens, 2) the mobilization of people and resources for expanding, diffusing, and diversifying public activities such as environmental protection and revival of central commercial district, and 3) knowledge creation such as disaster prevention maps and a placement service for abandoned pets. Those outcomes are beyond the expectations of the city government including Kobayashi himself. GY provides a cyber space in which variety of people and organizations are loosely coupled to develop joint public activities. GY also offers a ‘ba’ (Nonaka and Konno, 1998; Nonaka and Toyama, 2003) on the web in which knowledge is shared, created, and utilized through interactions among variety of people and organizations. Yatsushiro municipal government now operates GY separately from the official website. While the official website aggregates information from the municipal government and collects public opinions by e-mail, GY offers citizens a web portal to share and exchange ideas and information among them. Kobayashi often attends users’ forums on an off-line basis as a member of users, and discusses the GY usability.

The success of introducing SNS by Yatsushiro municipal government stimulated MIC to initiate a research project on the regional SNS in 2005. The project examined the possibilities of regional SNSs as a means 1) to promote citizens' participation in policy formulation, 2) to facilitate interactive-communications among citizens, and 3) to provide disaster information. MIAC then experimented with regional SNSs in cooperation with Chiyoda municipal government in the Tokyo Metropolitan District and Nagaoka municipal government in Niigata Prefecture for the regional renovation/development and reformation of municipal governments. Chiyoda city, at the center of the Tokyo Metropolitan District, faced a residential community crisis due to an increasing gap between the daytime and nighttime population. Nagaoka municipal government faced various problems including isolated and depressed communities. According to Syoji et al. (2007), the benefits of regionwide SNS as a regional public communication media can be summarized as follows; 1) the membership system of the regional SNS induces responsible usage that prevents ‘trolling’ messages and abuse of the system, 2) users can customize the contents in accordance with their preferences, 3) the regional SNS focuses on users’ activities rather than on their communities, which makes it easier for users to participate, and 4) users can create new communities in accordance with their needs on the web. The number of Japanese municipalities that have introduced regional SNSs had increased to more than 200 in 2007. The next section seeks to shed some light on the users’ practices.

---

7 Ba is the shared context in motion, in which knowledge is created, shared, and utilized. It can be physical (e.g., office), virtual (e.g., teleconference), mental (e.g., shared experiences, ideas, or ideals), or any combination of them (Nonaka and Konno, 1998, Nonaka and Toyama, 2003).
IMPROVEMENT OF USERS’ IT UTILIZATION

This research, as stated before, investigates IT utilization embedded in situation. The number of accesses and users, while useful, do not sufficiently evaluate the effectiveness of the introduction of SNS GY. It's more important to discover how users of IT enact it to change both IT itself and their own practices. This section focuses on one of the active SNS GY user who has been making full use of SNS GY to promote civic activities for environmental protection in Yatsushiro. Ms Yukari Matsuura\(^8\), a housewife on a small family-run electric appliances shop in the central shopping district of Yatsushiro, is a famous activist leading civic activity for environmental protection. Matsuura is a leader of the voluntary civic association Jisedainotameni Gambaro-kai\(^9\) (hereinafter referred to as JG) based in Yatsushiro. JG was founded in 2001 mainly by former members of a civic committee for environmental protection organized by the Yatsushiro municipal government. Matsuura has been utilizing SNS GY as a mediation tool to expand JG activities. JG means the group (kai) striving (Gambaro) to improve environment for the next generation (Jisedainotameni) in Yatsushiro dialect of Japanese. A public-private-academia active group has been placing more emphasis on collaborative civic actions based on academic researches rather than merely making proposals to the government. With the motto ‘think globally, act locally,’ it has been promoting ‘learn-by-doing’ environmental activities, presenting its activities at various public forums, and supporting new activities for environmental protection initiated by other civic associations.

As a leader of JG as an inter-organizational organization, Matsuura has been acting as a ‘boundary-crosser’ who links various people and organizations inside and outside of Yatsushiro, and facilitates ‘expansive learning’ for environmental protection. She has been operating the JG blog at SNS GY since the launch. In the JG blog, interactive communications have actively taken place among JG members and SNS GY users. This blog has been very effective in informing SNS GY users of JG activities and in obtaining valuable feedback on these activities. Matsuura has designed a ‘ba’ on the web for various participants to cross the boundaries of respective activities and to create new knowledge, including ‘social capital,’ for environmental protection. It contributed to a massive rise in the access to the JG Home Page outside SNS GY. The SNS GY has also made it easier for Matsuura to mobilize civic volunteers, who have ‘knot-worked’ together to support JG activities. Among SNS GY users are many local newspapers reporters, who have informed other citizens about JG’s activities beyond the reach of SNS GY. Thus, SNS GY has enabled Matsuura to disseminate information on JG activities effectively and efficiently as well as to create new ties with and among unknown people and organizations. With use of several communication channels mediated by SNS GY, Matsuura has been successful in widely announcing and expanding JG activities. As a result, the number of participants of JG’s core activity, the Oyster Shell Festival, dramatically increased from around forty at the first festival to around eight hundred by the fifth festival. The interactive communications were mediated by GY knot-worked users and formed a shared common object (‘boundary object’) to promote the ‘learn-by-doing’ practices. Through the participation of ‘learn-by-doing’

\(^8\) Authors interviewed with Ms Matsuura of Jisedainotameni Gambaro-kai on January 22nd and February 26th, 2008.
\(^9\) For details of JG, please refer to Togo et al. (2009, 2010).
environmental activities, each actor fulfilled each object. Prior to the JG events, Matsuura usually mobilized civic volunteers, who have ‘knot-worked’ together to support JG activities. In addition, Matsuura has designed the festival to be an off-line ‘ba’ on the cyber space for various participants to cross boundaries of respective activities and to create new knowledge, including ‘social capital,’ for the environmental protection. After sinking oyster shells into the river, participants are encouraged to demonstrate their activities for environmental protection at Miyaji elementary school. In this ‘ba’, she has empowered and coordinated participants to collaborate with each other in the near future, while asking some participants to join in or collaborate with JG itself. Matsuura has been playing a critical role in expanding and improving JG activities by creating knowledge and social networks through the designation of these ‘ba’, on both an on-line and off-line basis.

Matsuura has also played the role of ‘boundary-crosser between generations,’ who has inherited knowledge and social networks for environmental protection held by experienced activists and organizations and she has passed them down to younger activists and associations. She has succeeded and incorporated knowledge and social networks developed by an experienced civic association, Nature Yatsushiro, which was founded in 1988 by members of the women’s society of a residential block association in Miyaji district in Yatsushiro. It has been promoting environmental education at schools in Miyaji district, and producing ‘rush soaps’ made from mat rush, which is a specialty of Yatsushiro, and waste-oil of households and school lunch centers. Ms Ritsuko Hamada, who is a leader of Nature Yatsushiro, has been supporting Matsuura as a member of JG since its foundation. In promoting Oyster Shell Festivals, Matsuura has been making use of the social network of Nature Yatsushiro in Miyaji district. It has made it easier for JG to obtain various co-operation and critical resources such as venues of the festivals from Miyaji elementary school and local residents. Nature Yatsushiro has been in charge of major programs of the festivals and Hamada in particular has been serving as a member of the executive committee. Utilizing ‘heritage’ knowledge and social networks of experienced activists and associations such as Hamada and Nature Yatsushiro, Matsuura has been empowering and supporting younger activists and organizations to promote collaborative civic activities for environmental protection. Among them are two voluntary civic associations, Chikyu Ondanka Boshi-wo Yatsushiro-kara Sekai-he (hereinafter referred to as COBYS) and ECO Suishinnsen-kai (hereinafter referred to as ECOS). By supporting these two organizations, Matsuura has been diversifying the content of JG activities by using or incorporating knowledge held by those three organizations. These organizations also fully make use of SNS GY in order to attract more citizens to participate in each activity, as JG does. JG is actually a union of several voluntary civic associations, as many members belong to several associations. Matsuura planned and produced every activity while incorporating core competence of each association.

With such a unique system of activities for environmental protection, JG has been aiming at leading and

---

10 Authors interviewed Ms Hamada of Nature Yatsushiro on February 26th, 2008. For details of Nature Yatsushiro, please refer to Togo et al. (2009, 2010).
11 Authors interviewed Mr. Daizo Fukuoka of COBYS and Mr. Shinya Kosai of ECOS on June 15th, 2008. For details of each organization, please refer to Togo et al. (2009, 2010).
promoting collaborative activities for environmental protection including collaboration with local governments. In many collaborative activities of civic associations and local governments in Japan, local governments prescribe contents and specifications of these activities, with which civic associations are required to comply. It is often the case with civic associations to have difficulties in contributing to collaborative activities with their unique ideas and accumulated original knowledge. Many collaborative activities have been co-opted by governments in order only to implement governmental policies, which brought about contradictions for civic associations to expand their activities in collaboration with governments. Matsuura has experienced this contradiction when she was asked to apply for the public-private partnership project proposed by the Kumamoto prefectural government a few years ago. JG’s application was rejected as the second place bidder. According to the winner bidder, the Kumamoto prefectural government required the bidder to submit a tremendous amount of documents, which were severely scrutinized, and to revise them in accordance with the contents and specifications decided by the government. She realized that this partnership project was to use civic associations to complement governmental activities rather than to improve these activities through the introduction of different perspectives and creativity of civic associations. Since this experience, every time when a governmental organization proposes collaborative activities to JG, Matsuura says, ‘We promote our own activities. We only ask local governments to endorse our activities.’ On the other side, public officials check JG blog on SNS GY in order to follow up preliminary JG activities. This blog makes it possible for public officials to understand the environmental activities supported by JG’s mission. The process of reflective practices through interactive communication among SNS GY users are visualized, which enable them to predict when and what support is needed.\(^\text{12}\) JG’s media literacy resulted in expanding social networks and activities of JG throughout Yatsushiro. Matsuura says that SNS GY helps me to construct social capital with the public sector. JG and other group organizations included in Matsuura’s network promote their own environmental activities in cooperation with the Yatsushiro municipal government.

**CONCLUSION**

The regional SNS GY has been constructed through reflective practices among users as well as between users and a webmaster, which led to the provision of a ‘playing fields in cyber space for citizens,’ The regional SNS GY has mediated the ‘developmental transfer’ (Tuomi-Gröhn, 2003) of knowledge among divergent ‘boundary-crossers’ and facilitated ‘knotworking’ among them. One of the significant characteristics of the regional SNS GY as a mediating instrument can be summarized as ‘appropriation’ (Giddens, 1990) by the subjects. In the regional public communication mediated by GY, users have substantially ‘enacted’ and ‘appropriated’ the media by creating original content and their own communities. From this case of successful ‘appropriation,’ we may conclude that in order to facilitate civic activities for environmental protection, local citizens are required and allowed to appropriate critical mediating

---

\(^{12}\) Authors interviewed Mr. Junichi Nakagawa of Environment section, the Yatsushiro municipal government on October 31st, 2008.
instruments such as communication media. In this process, the regional SNS GY has played the critical role of ‘mediating instrument,’ not only in the process of regional public communication but also in the process of the ‘developmental transfer’ of regionwide knowledge among diverse citizens, communities, and organizations, which in turn seems to be facilitating the ‘expansive learning’ of interrelated activities for environmental protection.

However, as for the evaluation of GY from a viewpoint of informatization policy, membership and the number of accesses do not fully reflect the effectiveness of GY. Therefore, we, the authors, are newly organizing and taking part in a working group composed of active users and webmasters this autumn. This working group is to discuss betterment for users’ utilization of GY. Through such collaborative work, this group will endeavor to develop evaluation criteria based on users’ viewpoints. These criteria are to be used to evaluate both IT usability and the outcome of the informatization policy.

REFERENCES
IT Strategy Headquarters, Prime Minister of Japan and His Cabinet, webpage, http://www.kantei.go.jp/foreign/it/network/0122full_e.html (referred on August 20th, 2010)
presentation material obtained from the author.


Vienna, Austria.


