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[Invited Paper]

The Internet is not a Highway to the "Promised Land," but rather a Pathway to
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◆CONTENTS◆

[Refereed Papers]

Who Should Operate Local Portal Sites and What Content Should be Provided:

An Empirical Study Based on a Local Questionnaire Survey

Masahiro ARIMA, Masahiro FUJITA··· 3

Possibilities for Alternative Learning in the ICT Age

Chiaki ISHIDA··· 19

The Evolvement of Social Relationships as Influenced by the Spread of the Online Community

-A Study on the Interpersonal Ties of Korean Cultural Kinship in Terms of Alumni's Network and Old-Hometowners' Network-

Yunbok LEE··· 33

A Web-Based Approach to Improve the Learning Environment of Japanese in Slovenia

Linda MARUSIC, Atsushi IWAI··· 53

A New Set of Staged Criteria to Evaluate the Improvement of Communication within a Regional Community

Shino NAMIKI··· 69

The Informatic Turn-Who Observes the "Infosphere"?

Toru NISHIGAKI, Tadashi TAKENOUCI··· 81

Causal Relationship between Media Use and Information Literacy:

A Three-Wave Panel Study with Junior High School Students

Rei OMI, Akira SAKAMOTO, Nireka ADACHI, Reiko ANDO, Kumiko AKIYAMA,

Fumika KIMURA, Megumi KASHIBUCHI, Mayumi NAITO, Mieko TAKAHIRA,

Katsura SAKAMOTO, Kanae SUZUKI, Shogo KATO, Takashi SAKAMOTO··· 91

A Study of Remote Support by IT Volunteer Group for Senior Citizens

Wei ZHOU, Shigeki YOKOI··· 103

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The Internet is not a Highway to the "Promised Land," but rather a Pathway to an Actual Community:

Employment and Participation for People with Disabilities in Japan

Kuniomi SHIBATA··· 115

Who Should Operate Local Portal Sites and What Content Should be Provided: An Empirical Study Based on a Local Questionnaire Survey

Keywords:

Policy Evaluation, Local Informatization, Local Portal Site, Questionnaire, Conjoint Analysis

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Abstract

The e-Japan Strategy formulated in 2000 considers the establishment of an e-government or e-local governments to be one of its major projects. Among the themes related to the establishment of e-local governments, the implementation of a new-type local portal sites has begun to attract all related parties; local governments, private sectors and third sectors as site operators, and local residents as site users. On the local portal site, administrative information released by local government is provided together with business information from local private sectors. Local governments are able to cut the operational cost of their official web site by outsourcing its operation, and outsourced operators are able to attract more viewers by enriched site contents and thus earn more advertisement revenue. Moreover, users will have easier accesses to their target information, as all relevant information is found on the same portal. Therefore, this seemingly making-every- stakeholders-happy policy will become popular among local governments in the near future; in fact, some advanced local governments have already started to implement such a local portal site.

However, there are several issues to be considered: apart from expectations of local governments and web operators, it is not yet clear which organization is supported as operator of their portal site, or how they would evaluate the method that provides administrative information and business information on the same web site. Furthermore, the economic advantages of this method have not yet been determined.

The purpose of this research is to examine two of the issues mentioned above: residents' preference for site operators and contents provided by applying conjoint analysis. The research was conducted using a questionnaire which was administered to the residents of Itami City, Hyogo. The survey results indicated that the residents placed the highest value on the combined provision of customized administrative information and business information. The most cost-effective way at the moment is to re-design the traditional official web sites of local governments, aiming to enhance the residents' convenience by customizing the information by users' demographic attributes. Results also indicated that the residents preferred their local government to operate the site. We believe that these study results provide basic but valuable suggestions for the gradual establishment of true e-local governments.

1. Introduction

The Internet continues to develop as the dominant information infrastructure. Home use of personal computers continues to rise. This evolution in information and communication technology (ICT) has led to a growing recognition among local governments and local private sectors: the online provision of such information that is related to local residents' daily lives is becoming important. Furthermore, information on a region's culture, history, and tourist attractions can improve residents' lives and promote local revitalization. Under such circumstances, several ICT-advanced municipalities are now considering introducing local portal sites. A *local portal site*, in this paper, is an Internet web site that mainly targets local residents and potential out-of-town visitors as its users. It can be operated by any organization, including business companies and local governments. Through a local portal site, anyone can obtain any kind of local information related to the region.

We consider local information to consist of two types of information. The first type, hereafter called *administrative information*, is information released by local governments. The second is information from local private companies, stores, restaurants, and cooperatives such as a chamber of commerce or tourism association (hereafter called *business information*). Regarding the provision method, providing both administrative information and business information is apparently the best way to improve local residents' quality of life (QOL) and to attract potential out-of-town visitors to the region. However, each has traditionally been provided separately. That is because administrative information should be free from errors and local governments have held a

monopoly on administrative information. As a result, local residents and potential out-of-town visitors have felt inconvenienced, because they are forced to access various web sites or web pages until they can reach their target information.

The current economic slump and the urgent need for fiscal reform and regional revitalization, however, have recently prompted an attempt to provide both administrative and business information on a single web site; i.e., a local portal site. Meanwhile, local governments where organizational and fiscal reforms are desperately needed, have also started to consider streamlining their operations and commercializing parts of their projects. Under such circumstances, outsourcing government's operations to private-sector or non-profit organizations has become very popular in Japan, along with the introduction of reform methods such as the Private Finance Initiative and Public-Private Partnership from New Public Management. In following this trend, some municipalities have begun to entrust private sectors, third sectors (joint corporations invested both by public and private sectors), and even non-profit organizations to open local portal sites that provide both administrative and business information. Behind this movement, there definitely exist expectations on part of both outsourcees and outsourcers. Outsourcers seek to reduce their cost and to revitalize their local economy while outsourcees expect to attract more viewers to their sites and thus increase their advertisement revenues.

This seemingly win-win relationship between local government and outsourced organizations, however, might raise a number of serious issues. First, it is not yet clear what local residents think of their experiences with having both administrative and business information on a single local web

site. In other words, it has not yet been clearly examined what content they prefer to see on their local portal site. Second, assuming that administrative information is a kind of public asset and must therefore be free from errors, we need to carefully examine who, or which organizations, would be appropriate for the error-free operator of local portal sites. Furthermore, the economic value of this new type of local portal site also remains to be clarified.

This research aims to address these issues by surveying residents' attitudes toward them using a questionnaire. In the following sections we will discuss two of the issues mentioned above: 1) Residents' assessment of the content of their local portal sites and 2) Residents' evaluations of the selection of organizations that operate their local portal sites.

2. Brief History and Problems of Local Portal Sites

In order to react effectively and efficiently to the radical changes of the age of ICT, the central government of Japan has set up a guideline called "e-Japan Strategy." The prime aim of this strategy is to re-engineer almost all processes and procedures of the central and local governments through ICT. The ICT-driven reform policy at the level of local government can be categorized into two areas: 1) administrative informatization, which aims at cost reduction by utilizing ICT or information systems, and 2) local informatization, which orients the improvement of the QOL of residents and the revitalization of regional economies by providing relevant information to stakeholders.

In the 1990s, the very beginning of the Internet age, following the birth of elementary local portal

sites operated by private information providers, local governments started to open their own official web sites, and began to provide administrative information. What characterizes the trend of this period is, according to the survey by Kusase et al. (2001), some large-scale municipalities focused on providing everyday life administrative information for their residents. In contrast, the content of web sites operated by small municipalities tended to be biased toward tourism information, with the intention of attracting more out-of-town visitors.

In the 2000s, with the prevalence of home computers and Internet connections, construction of official web sites and provision of everyday life administrative information has become the main response of local governments to the e-Japan strategy. According to the Local Information Policy Department of the Ministry of Internal Affairs and Communications' Local Administration Bureau (2008), all of the 1,811 municipalities have created web sites, and of those, 1,579 (87.2%) report accepting opinions and requests on their web sites (data as of April 1, 2008). Though these statistical figures seem to support the idea that local governments have been successful in achieving the goals of local and administrative informatization, web sites operated by local governments still require further improvements. Ho and Iijima (2006) surveyed those web sites opened by local governments, classified them into four groups according to their development stages, and concluded that the satisfaction level of each site's content varied widely and was not yet sufficient. Research by Higashiyama et al. (2006) pointed out that local governments have not yet succeeded in grasping the needs of their residents, or in re-engineering their internal operation processes and procedures.

3. Possibilities of Local Portal Sites

As mentioned, we cannot yet conclude that local governments have successfully improved their residents' QOL through ICT strategies. In addition to administrative and business information, everyday life related information communicated and shared by local residents has proven to play an important role in improving regional revitalization and residents' QOL. The use of local social networking services (SNS) has become recognized as an effective means of sharing such information among residents. The Ministry of Internal Affairs and Communications cites the "promotion of residents' participation using ICT" as an effective local informatization policy, and it recommends that local SNS be included in local portal sites. The "New Guidelines for Promotion of 'e-Local Government'" issued by the Ministry of Internal Affairs and Communications (2007) predicts that a range of groups, including NPOs, communities, and local businesses, will be responsible for actively participating in the provision of local public services through ICT channels.

According to a survey conducted by Matsushita (2007), an increasing number of local governments are now seeking to introduce portal sites that provide both administrative and business information, with the goal of increasing convenience for local residents and revitalizing local areas. Among the valid responses from 571 local governments, 86 (15.1%) local governments had portal sites, and 41 (7.2%) were scheduled to open one. Furthermore, among 86 local governments who opened local portal sites, 29 local governments (33.7%) ran the sites themselves, and 32 (37.2%) outsourced their operation to NPOs or other organizations. This indicates that it has become common practice for local governments

to entrust their local portal sites to outside organizations.

Actually some local governments have begun to provide their administrative information through local portal sites managed by private companies, in cities such as Nagano (since February 2006), Kawasaki (since July 2006), and Itami (since January 2008). Cases in which the providing of administrative information is outsourced to private web companies may become commonplace in the near future because while both the outsourcer and outsourcee benefit from such operations, the demands of local residents, who want to have easy accesses to their target information, can also be satisfied.

However, there are a number of issues to be considered regarding outsourcing. The fairness of the process used to select outsourcees and whether the credibility of a site's information can be assured are questions still open to debate. The method of provision is another concern. In the traditional method, residents or users needed to search their target information through various menu fields by their own efforts; if customized and automated provision of local information can be achieved however, it will greatly improve users' convenience, and thus their QOL. Residents will simply need to input their basic personal attributes, such as their age, family composition, and area of residence. Nonetheless, despite the fact that such a debate has yet to take place, and that a cost-benefit analysis of the customized provision of local information has yet to be attempted, the distribution of administrative information through private channels is already a reality.

4. Itami City Residents' Questionnaire

4.1 Survey Outline

Among the residents of Itami City, where the private sector-run local portal site "Itamin" (<http://itami-city.jp/>) was opened in October 2007 on an experimental basis, a questionnaire was conducted at the time of its full launch on January 26, 2008. Prior to the survey, the municipal office had informed their residents of the opening of this new local portal site through their official information magazine, issued twice a month. In addition, they issued a special brochure that explained the purpose, content, and utilization method of the site. It was distributed with their official information magazine on February 1, 2008, in order to ensure that residents were well informed about their new portal.

Through the survey, we aimed to ascertain the following: how residents felt about their local government providing their administrative information to a private company for the operation of the portal, and how they viewed the fact that such information was being provided alongside private-sector business information.

The survey was conducted through the following procedure: The questionnaire and return envelope were inserted in the February 1, 2008 edition of an Itami City information magazine and distributed to all households of Itami City, with a request that they be returned by post. The questionnaire covered eight pages of A4 sized paper. It stated that the questionnaire was being conducted in cooperation with Otemae University's Fujita Laboratory and the University of Hyogo's Arima Laboratory. The contents of the questionnaire included the following items:

a) Respondent's basic attributes: Individual attributes, method of acquiring local information,

Internet access at home, and Internet usage.

- b) Use of Itamin: Frequency of web site use, reasons for use, level of interest in the information provided, information they would like to see added, and need for local information besides that about Itami City.
- c) Evaluation of the Local Portal Site: Quantitative evaluation of the requirements for the operator and the source of the operator's trustworthiness by applying the evaluation procedure of the analytic hierarchy process (AHP). Exposing the preference structure for the content provided, the usage charge, and the type of operator by applying the conjoint analysis method. An economic assessment of the site by applying the contingent valuation method.

4.2 Conjoint Analysis

In this research, a conjoint analysis was used to analyze the following topics, "evaluation of the combined provision of administrative information and business information" and "selection of the organization to operate the portal site." Conjoint analysis asks respondents to state their preferences regarding the objects under evaluation, and is a stated-preference approach. Using a conjoint analysis, we can simultaneously estimate the values of each individual attribute of the objects being evaluated, as well as the conjoint scale. Specifically, conjoint analysis is carried out using the following process: 1) The attributes that make up the product or service being evaluated are determined. 2) Special characteristics, called levels, are set for each attribute. 3) The specific product or service, called a profile, is constructed as a combination of separate attribute levels. 4) The respondent is shown pictures, photographs, or statements representing the profiles and is asked to give his or her preference for each profile.

5) The assessment value of the level and the importance that respondents assign to each attribute are evaluated based on respondents' preference data (Ohno, 2000; Katahira, 1987). This method has mainly been used in the field of marketing science, but it is also applicable to the evaluation of the policies of local governments (Arima and Kawamukai, 2009).

4.3 Preparation of Profiles and Questions

When designing questions for the topics of analysis, we prepared the following three attributes with three or four levels, as summarized in Table 1.

- (1) Method and content of Information Provision (three levels). 1) The local government's traditional official web site: The user searches for desired items of information one after another from the site, in the locations that administrative information has been categorized by jurisdictional departments or sections. 2) The customized version of the traditional official web site: Only administrative information is provided, but is customized and filtered when the user enters his or her basic personal attributes into the system, such as age, gender, and area of residence. All relevant pieces of administrative information are then automatically searched within the site and provided all at once. 3) The combined provision of customized administrative and business information: In addition to the administrative information mentioned in 2) above, relevant customized business information is provided.
- (2) Organization to operate the web site (four levels). 1) Local government (Itami City), 2) Third-sector organization, 3) Non-profit organization (NPO), 4) Private company.
- (3) Monthly Usage Charge for a Local Portal Site

(three levels): 1) Free. 2) 150 yen. 3) 300 yen.

The 12 question profiles shown in Table 2 were created using JMP statistical analysis software's custom plan procedure.

Here, a question may arise over the validity of conjoint analysis in our questionnaire. The validity of conjoint analysis becomes higher when respondents well comprehend the attributes and levels of the target services. In our case, as already mentioned, a questionnaire was distributed with the brochure explaining what Itamin, our target service, was and how to use it. It was included in the city's information magazine featuring the launch of the portal. Both the magazine and the brochure explained that the site was operated by a private sector company, with some concrete examples showing how administrative information and private-sector business information were provided on the single portal. Furthermore, as shown in Fig. 2, the questionnaire gave clear explanations with concrete examples of the content, the operator, and the operational cost of this portal site. After providing these detailed explanations, we presented profiles, and asked the respondents whether or not they were willing to use them. The questionnaire was designed in this way so that both respondents familiar with the local portal site and respondents with no Internet experience could answer the questions based on good comprehension of the target service.

Therefore, we understand that we tried to make sure that the respondents to our questionnaire had a good understanding of the portal, and were able to evaluate properly the 12 profiles presented in the question.

4.4 Question Design

Conjoint analysis can be broadly broken down into two methods: choice-based conjoint analysis

Table 1: Attributes and Levels for the Assessment of Local Portal Sites

	Attributes		
	Methods of Information Provision	Organizations	Usage Charge
Level 1	Traditional method: users need to search their target information one by one	Local government (Itami City)	Free
Level 2	All pieces of customized administrative information are provided collectively to each user	Third-sector organizations	150 yen / month
Level 3	Customized administrative information is provided along with related business information	NPOs	300 yen / month
Level 4		Private companies	

(a)	(b)	(c)
Collective provision of customized administrative information, 300 yen/month, NPO	Provision of administrative information with relevant business information, free, private company	Collective provision of customized administrative information, free, local government (Itami City)
Willing to use it? <input type="radio"/> Yes <input type="radio"/> No	Willing to use it? <input type="radio"/> Yes <input type="radio"/> No	Willing to use it? <input type="radio"/> Yes <input type="radio"/> No

Figure 1: Examples of the Profiles Used (taken from the first three cards)

Table 2: The 12 Profiles Used in the Questionnaire

Profiles	Method of Information Provision	Monthly Usage Charge	Organization
(a)	Collective provision of customized administrative information	300 yen	NPOs
(b)	Provision of customized administrative information along with business information	Free	Private companies
(c)	Collective provision of customized administrative information	Free	Local government (Itami City)
(d)	Traditional method	150 yen	Local government (Itami City)
(e)	Provision of customized administrative information along with business information	150 yen	NPOs
(f)	Provision of customized administrative information along with business information	300 yen	Local government (Itami City)
(g)	Collective provision of customized administrative information	150 yen	Third-sector organizations
(h)	Traditional method	300 yen	Third-sector organizations
(i)	Traditional method	150 yen	Private companies
(j)	Provision of customized administrative information along with business information	Free	Third-sector organizations
(k)	Collective provision of customized administrative information	300 yen	Private companies
(l)	Traditional method	Free	NPOs

The uniqueness of Itami City's portal site "Itamin" — which cannot be found in other web sites — is that administrative information is provided together with business information from local shops and other private sectors. Administrative information is also provided by the city, from that city's official site. However, because Itamin is operated by a non-governmental organization, it may be able to implement unique methods to provide its information. For instance, it will use a customized information provision method according to individuals' needs. In this questionnaire, we call this provision method "information provision customized to individuals."

In the other sites with traditional functions, you need to search for each piece of your target information one by one. However, with the future Itamin, you may become able to obtain all the administrative information you need, once you enter your personal data — such as your family composition or the area of your residence — into the system. Furthermore, the portal may also become able to offer relevant business information together with such customized administrative information.

Here is a concrete example of how Itamin can be used in future. Please read it through before answering the following questions.

"In traditional web sites, the list of preschools and information for the application is usually provided separately on different web pages, whereas Itamin may be able to provide you with all the related information on a single page. You will merely need to register necessary information on the site, such as the area of your residence, the age of your children, your family composition, and income. Then, you will see all the relevant information, such as the current status of admission, the necessary forms for enrolment, and information for the application, all of which is related to your child's admission to the preschools of your neighbourhood. Itamin may also be able to offer relevant business information from private sectors along with such administrative information: Together with information about the preschools in your neighbourhood (administrative information), it offers shopping information, about where you can buy necessary school supplies and clothing for attending the preschools (business information)."

The organizations operating local portal sites can vary from local government to third-sector organizations, NPOs, and private companies. It will be difficult for local governments to provide private-sector information, whereas regarding private companies, one should consider how they can ensure the continuity of information provision (because they may go bankrupt, etc.) and gain the residents' trust in their organization (because they are not "authorized" organizations and may fail to provide accurate information). Still, in this age of administrative reform, it is extremely important to discuss the possibility of non-governmental organizations providing administrative information.

Some operational costs must be covered in order to achieve the improvements mentioned above: the collective provision of customized administrative information, and the provision of both administrative and business information. These costs are usually covered by advertising revenue.

However, here we are presuming that the cost is covered by the site's users (e.g., by membership fees). Under this assumption, there are several options for each of the following three topics: 1) information provision methods, 2) fees, and 3) organizations to operate the portal site. There are various possible combinations as mentioned below.

Figure 2: Explanations for the Respondents
Regarding the Attributes and Their Levels for Evaluation

and ratings-based conjoint analysis. Ratings-based conjoint analysis can be further sub-divided into the "order-rating method," the "grade-rating method," and the "paired-comparison-rating method." In this research, we utilized the following three methods, based on ease of use, as we were attempting our conjoint analysis using a questionnaire given to members of the public with no experience of answering the questions designed for conjoint analysis. The first method used was a binary selection method, in which respondents gave a response of "yes" or "no" to indicate whether they would accept and use the displayed profile. The second method was a 5-point scale grade-

rating method with answers ranging from "very good" to "poor." The final method was an order-rating method in which respondents put the 12 profiles in order according to the level of preference. In this paper, we use the data from this binary selection method.

5. Survey Results

5.1 Response Bias

According to the 2005 Japanese census, Itami City's total population was 192,250 (gender ratio: 49.0% male, 51.0% female), and it had 72,983 households. As many as 78,458 questionnaires

Table 3: Demographic Composition of the Survey Samples

Age	TOTAL					
	Residents of Itami			Respondents		
15~19	9,096	5.6%	13	0.5%	0.1%	
20~29	24,188	14.9%	131	4.9%	0.5%	
30~39	33,306	20.5%	524	19.5%	1.6%	
40~49	23,673	14.6%	445	16.6%	1.9%	
50~59	27,009	16.6%	417	15.6%	1.5%	
60~69	24,082	14.8%	571	21.3%	2.4%	
70+	20,938	12.9%	556	20.7%	2.7%	
n/a	—	—	24	0.9%	—	
Total	162,292		2,681		1.7%	

Age	Male			Female		
	Residents of Itami	Respondents	RR	Residents of Itami	Respondents	RR
15~19	4,676	5.9%	0.2%	4,420	5.3%	0.1%
20~29	12,256	15.5%	0.3%	11,932	14.3%	0.8%
30~39	16,740	21.2%	0.7%	16,566	19.9%	2.4%
40~49	12,062	15.3%	1.0%	11,611	13.9%	2.8%
50~59	12,969	16.4%	1.2%	14,040	16.8%	1.9%
60~69	11,610	14.7%	2.7%	12,472	15.0%	2.0%
70+	8,650	11.0%	4.4%	12,288	14.7%	1.3%
n/a	—	—	—	—	—	—
Total	78,963	48.7%	1.4%	83,329	51.3%	1.8%

*RR=Response Rate

NOTE: Calculated from the 2005 census data. The number of respondents who did not fill in their gender is not shown.

were inserted in the Itami City's information magazine for distribution, and 2,426 responses were collected by post, representing a response rate of 3.09%. In addition to those received through the post, 255 responses were collected through a residents' association and a chamber of commerce. The total number of responses collected was therefore 2,681, giving a response rate of 3.42%. The responses collected through the residents' association were collected from individual homes two to three weeks after the questionnaires were distributed. The questionnaires collected through the chamber of commerce were distributed separately from the others, during the chamber's monthly meeting, and were then collected over the next two weeks when respondents visited the chamber of commerce. The composition of the samples is shown in Table 3.

Of the total responses, 42.3% were male (1,133 questionnaires), and 55.7% were female (1,492 questionnaires), showing a slight bias toward female respondents. Among males in their 20s and

under, the response rate was low, while among males in their 60s and over, it was high. Females under 20 also showed a low response rate, but females in their 30s and 40s had a high rate.

We also saw some demographic bias in respondents to the binary selection question that asked, "Willing to use it or not?" (referring to the local portal sites shown in each of the 12 profiles presented). This is shown in Table 4. The male response rate to these questions was low. The response rate showed a tendency to decrease as age increased among respondents in their 50s and above. In addition, rates for those unemployed/students, self-employed, and corporate managers were also low.

These biases seem to be caused mainly by the fact that the questionnaires were distributed not among all residents or citizens, but rather among all households, in which one member of the household was asked to answer the questions. The low response rate might also have raised the problem regarding the reliability of our survey

Table 4: Demographic Composition of Respondents to the Conjoint Analysis Question Using the Binary Selection Method

Gender				Age				Occupation			
	Residents of Itami	Respondents (binary selection)	Response rate		Respondents (total)	Respondents (binary selection)	Response rate		Respondents (total)	Respondents (binary selection)	Response rate
Male	1,133	605	53.4	≤29	144	109	75.7	Employed	463	328	70.8
Female	1,492	907	60.8	30-39	524	395	75.4	Public servant	137	100	73.0
n/a	56	10	17.9	40-49	445	327	73.5	Third-sector staff	38	28	73.7
Total	2,681	1,522	56.8	50-59	417	262	62.8	Specialist	81	49	60.5
				60-69	571	270	47.3	Corporate manager	40	20	50.0
				70+	556	156	28.1	Self-employed	69	32	46.4
				n/a	24	3	12.5	Freelancer	51	29	56.9
				Total	2,681	1,522	56.8	Homemaker	565	364	64.4
								Unemployed/Student	680	280	41.2
								Others	479	270	56.4
								n/a	78	22	28.2
								Total	2,681	1,522	56.8

Internet use at home			
	Respondents (total)	Respondents (binary selection)	Response rate
Use	1,634	1,132	69.3
Do not use	863	357	41.4
n/a	184	33	17.9
Total	2,681	1,522	56.8

Experience and interest in Internet shopping			
	Respondents (total)	Respondents (binary selection)	Response rate
No experience, and not interested	856	424	49.5
No experience, but interested	204	124	60.8
Experienced, and wish to continue	1,165	847	72.7
Experienced, but no longer interested	90	50	55.6
n/a	366	77	21.0
Total	2,681	1,522	56.8

results.

In principle, when a bias exists in the samples, we must make a weighted estimation by using the sampling ratio's reciprocal as a reconstruction factor, while carrying out the parameter estimation. However, we did not perform any adjustments in this research, because there exists no information about the population of households in Itami City and we detected no extreme demographic bias in our samples.

As to the problem with low response rate and

the representativeness of our survey samples, under the greater difficulty nowadays of questionnaire surveying and opinion polling, no survey can avoid a low response rate. Accordingly, we must leave these problems with our samples to be remedied by future research.

5.2 Estimated Preference Structure on Local Portal Sites Using the Binary Logit Model

The Binary Logit Model was applied and the residents' utility function was estimated. In this

model, whether or not resident i ($i = 1$ to n , and n is the number of residents) will accept and use a profile presented on a local portal site can be expressed as follows (Aizaki, 2005):

$$U_{1i} = V_{1i} + e_{1i}$$

$$U_{2i} = V_{2i} + e_{2i}$$

where U_{1i} is resident i 's utility level attained when he or she is "willing to use" presented profiles, and U_{2i} is resident i 's utility level attained when he or she is "not willing to use" presented profiles. V_{1i} and V_{2i} are definite utilities, obtained from "willing to use" and "not willing to use," respectively, and e_{1i} and e_{2i} are the probability terms. When the difference between the two probability terms is assumed to conform to a logistic distribution, the probability of the presented local portal site being "used," P_i , can be formalized with the Binary Logit Model using the following formula.

$$P_i = \exp(V_{1i}) / \{\exp(V_{1i}) + \exp(V_{2i})\}$$

When estimating with this model, we standardized V_{2i} as "0" and considered each level of the three attributes shown in the profile to be the primary factors that defined V_{1i} . When estimating the parameter or coefficient of the primary factor that defined the definite utility of V_{1i} , assuming a linear utility function, we applied the following two methods.

- 1) Results were measured with the binary logit model using all response data from all samples that contained responses to the question asking if the respondent would accept the 12 profiles presented.
- 2) Measurements were made using the binary logit model, which was applied to all response data from those samples with the same attribute values for gender, age, occupation, Internet use at home, and experience and interest in Internet shopping.

The estimated results are shown in Table 5. The

utility value was calculated by adding the part-worth utility values or the partial utility of three attributes. Table 5 shows the estimated partial utility of each level. Reference levels were the "traditional web site" for the "method and content of information provision," "free" for the "monthly usage charge," and a "private company" for the "organization to operate the web site." When we estimated the parameters, the coefficients of the levels used as reference levels were set at "0."

McFadden's adjusted pseudo-coefficients of the determination were used to the goodness-of-fit of the entire model, as shown in Table 5. The goodness-of-fit, when estimation was performed using the entire sample, was 0.3276. This is within the standard range of 0.2 to 0.4 that is regarded as a high goodness-of-fit. In addition, when the estimation was applied to each attribute group, the pseudo-coefficients of the determination were 0.1932 at their lowest, for those aged 70 years and above, and 0.4599 at their highest, for those employed as freelancers. We can say that these goodnesses-of-fit were tolerable. Incidentally, the estimated coefficients for respondents with home Internet access and for those without it had the same sign; this fact shows that the residents without access to the Internet at home understood the meanings of the profiles and responded accordingly.

5.3 Interpretation of the Estimated Results

Fig. 3 shows the values of the coefficient estimates for each level of each attribute, measured using the whole sample on a graph. Though caution is required regarding the different scales for monthly usage charges and the other two attribute graphs, Fig. 3 shows us that, when the usage charge was made "not free," it resulted in a significantly lower partial utility value.

Table 5: Coefficient Estimates from a Linear Definite Utility Function Via the Binary Logit Model

		Variance-adjusted pseudo-coefficients for determination	Intercept	Method of Information Provision		Monthly Usage Charge		Provider of Local Portal Sites		
				Customized public information	Public and private sector information	150 yen	300 yen	NPOs	Third-sector organizations	Local government
Total respondents		0.3276	1.594 **	0.214 **	0.286 **	-1.302 **	-1.796 **	0.018	-0.147 **	0.113 **
Gender	Male	0.3028	1.546 **	0.176 **	0.249 **	-1.250 **	-1.694 **	0.004	-0.170 **	0.113 *
	Female	0.3478	1.638 **	0.244 **	0.315 **	-1.344 **	-1.879 **	0.033	-0.131 **	0.117 **
Age	< 29	0.4540	1.910 **	0.198	0.283 **	-1.805 **	-2.216 **	-0.066	-0.205	0.053
	30-39	0.4474	1.975 **	0.322 **	0.433 **	-1.643 **	-2.262 **	-0.061	-0.242 **	-0.020
	40-49	0.3894	1.775 **	0.234 **	0.233 **	-1.512 **	-2.022 **	0.098	-0.109	0.163 *
	50-59	0.2612	1.434 **	0.193 **	0.245 **	-1.074 **	-1.583 **	-0.001	-0.117	0.105
	60-69	0.2423	1.261 **	0.251 **	0.333 **	-1.027 **	-1.467 **	0.083	-0.162 *	0.170 **
	70+	0.1932	1.312 **	0.038	0.171 *	-0.855 **	-1.306 **	-0.060	-0.098	0.192 *
Occupation	Employed	0.3471	1.650 **	0.208 **	0.292 **	-1.422 **	-1.805 **	0.014	-0.142 **	0.032
	Public servant	0.3704	1.470 **	0.282 *	0.427 **	-1.396 **	-1.982 **	0.043	-0.182	0.064
	Third-sector staff	0.2913	0.892 **	0.399 *	0.323	-1.264 **	-1.724 **	-0.049	0.006	0.330
	Specialist	0.3837	1.511 **	0.352 *	0.167	-1.584 **	-2.127 **	-0.010	-0.114	-0.099
	Corporate manager	0.3336	2.324 **	-0.057	0.160	-1.319 **	-1.800 **	-0.220	-0.137	0.371
	Self-employed	0.2602	1.574 **	0.068	-0.011	-1.096 **	-1.633 **	-0.035	-0.014	0.220
	Freelancer	0.4599	2.129 **	-0.010	0.286	-1.836 **	-2.041 **	0.021	0.001	0.049
	Homemaker	0.3462	1.645 **	0.272 **	0.341 **	-1.325 **	-1.874 **	0.032	-0.116	0.148 *
	Unemployed/Student	0.2526	1.507 **	0.160 **	0.226 **	-1.047 **	-1.542 **	0.035	-0.175 **	0.193 **
Other	0.3654	1.716 **	0.214 **	0.331 **	-1.389 **	-1.952 **	-0.010	-0.216 **	0.085	
Internet use at home	Use	0.3761	1.672 **	0.260 **	0.300 **	-1.471 **	-1.982 **	0.002	-0.167 **	0.079 *
	Do not use	0.2140	1.378 **	0.131 *	0.280 **	-0.904 **	-1.375 **	0.032	-0.122 *	0.179 **
Experience and interest in Internet shopping	No experience, and no interest	0.2041	1.482 **	0.135 **	0.214 **	-0.946 **	-1.310 **	-0.007	-0.162 **	0.182 **
	No experience, but interested	0.2998	1.254 **	0.302 **	0.291 **	-1.154 **	-1.810 **	0.015	-0.176	0.028
	Experienced, and interested	0.4277	1.767 **	0.306 **	0.355 **	-1.621 **	-2.185 **	0.021	-0.164 **	0.084
	Experienced, but no longer interested	0.3246	1.653 **	-0.115	0.202	-1.328 **	-1.716 **	-0.020	-0.006	-0.031

NOTE: ** denotes significant at the 1% level and * denotes significant at the 5% level.

In our evaluation of the methods and content of information provision, the coefficients for a customized version of current an official web site, and those for combined provision of customized administrative information and relevant business information, were positive, excluding the attribute groups of freelancer, corporate manager, self-employed, and those who had experience with Internet shopping, but were no longer interested in it. That is to say, we found that the utility value for the residents could be increased through providing these two information provision methods and content types instead of the traditional method and content. Excluding certain cases, such as the attributes of 40-49 year-olds, third-sector staff, specialists, the self-employed, and those who had

no experience of Internet shopping but were interested in trying it in the future, we found that the coefficient for “high-quality” information, which included both customized administrative information and relevant business information, was greater than that for “semi high-quality” information, which provided only customized administrative information.

In addition, as can be seen in Fig. 3, the increase in the utility level from “semi high-quality” information to the provision of “high-quality” information was somewhat lower than the increase in utility level from the current method and content of information to the provision of “semi high-quality” information. This suggests that, when considering replacing the current official web site

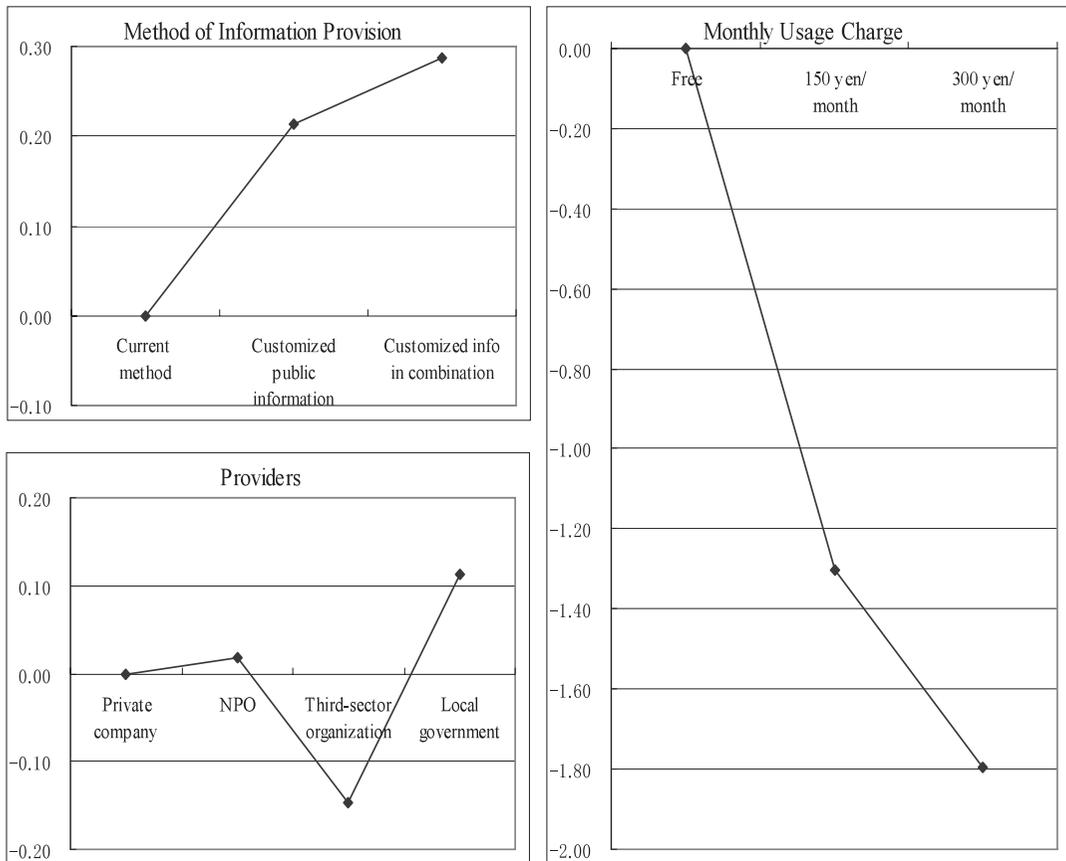


Figure 3: Estimated Partial Utility of Levels for Each Attribute

of a local government that just “displays” the existing information, the marginal benefits of providing customized administrative information alone are greater than the marginal benefits of providing customized administrative and relevant business information in combination.

Moreover, as Table 5 shows, the utility value decreased by 1.302 when the monthly usage fee of 150 yen was required, which helps us estimate that the utility value of “1” is equivalent to 115.2 yen. Compared to the evaluations for current official web sites, the utility value is increased by 0.214 when the current site was customized for each user. Thus, it is estimated that the marginal benefit of customizing traditional web sites is

approximately 25 yen. Similarly, the marginal benefit of additionally providing relevant customized business information is estimated to be approximately 8 yen.

The evaluation of usage charges showed negative coefficients for monthly 150 yen and 300 yen charges in all cases. The absolute value of the coefficients was found to be greater for 300 yen than for 150 yen. As the values of the coefficient estimates were all highly significant at the 1% level, it is doubtful that residents would pay to use local portal sites, when they can use almost all other portal sites free of charge, including those operated by private sectors.

In the evaluation of local government as the

organization to operate the portals, the coefficients for all attribute groups were positive, excluding respondents in their 30s, specialists, and those who had Internet shopping experience but were no longer interested in it. The figures were significant for both genders, and for respondents aged 40 years and over, excluding those in their 50s. When viewed by occupation, the figures were significant for homemakers and the unemployed/students. On the other hand, the values of the coefficient estimates of the third-sector organizations were negative in all cases, except for the third-sector staff and freelancers, among the occupation attributes. They also had a lower evaluation compared to the portal site operated by a private company. There was not one case where the estimated coefficient of the NPOs was significant, and each level of each attribute varied in indicating a positive or negative estimated coefficient. This result implies that residents do not have a clear idea about NPOs as operators of local portal sites, and therefore were not able to evaluate them appropriately.

6. Conclusion

Out of the various topics concerning local informatization, this paper has focused on local portal sites, an area currently receiving attention as a tool to streamline administrative tasks and to provide residents with convenient information access, as well as to facilitate the revitalization of local economies. The purpose of this research was to find out what residents expected and desired from their local portal sites, in terms of its content and operator. To achieve that aim, we conducted an empirical analysis using a questionnaire for residents. Questions were constructed for a conjoint analysis of three attributes, and these

were included in the questionnaire for the residents. Our research suggested that the application of conjoint analysis to a survey of residents, using the questionnaire method, was not easy, but not impossible either.

The results of our conjoint analysis clarified the following:

- (1) Local residents and users of local portal sites recognize the positive value in having hypothetical, yet potentially real, local portal sites. One site would provide customized administrative information, filtered as needed, and the other would provide both customized administrative information and related customized business information. However, the questionnaire results also indicates that residents assigned a higher marginal utility to the customization of traditional local government web site than to the addition of relevant business information. This means that the value of local portals can be greatly enhanced simply by providing residents with information that is filtered according to their personal attributes, even if the overall content remains the same.
- (2) Regarding the selection of organizations to operate local portal sites, it was found that residents placed the highest value on having the local government be the operator. We assume that this preference can be explained by their concern for the credibility of the operator and for the accuracy of the information provided. This conclusion is strongly supported by the preliminary analysis using the AHP method (Fujita and Arima, 2009).

In Japan today, we face serious problems related to information systems and operations conducted by public bodies, including the falsification of pension records by the Social Insurance Agency.

In light of such alarming trends, we believe that this study has been successful in demonstrating the necessity of local information being provided by local governments, in addition to the significance of analyzing residents' evaluations of their local government's web site, from the perspective of the credibility of the site's content and operator.

In order to further explore the outcome and policy implications, we plan to continue our analysis of the Itami survey data and conduct an additional survey in the city to do time series analysis. We will also conduct similar surveys in municipalities other than Itami City to support our conclusion based on this survey.

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Possibilities for Alternative Learning in the ICT Age

Keywords:

Education, Media, Alternative, ICT, Communication

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Summary

This paper investigates the meaning of ‘media’ and ‘communication’ from the viewpoint of both socio-informatics and the sociology of education. In order to connect both fields, I will consider the role and potential of learning activities in the age of pervasive Information and Communication Technology (ICT). As a first step in this multidisciplinary challenge, I will compare the usage of keywords in the both fields, and specify issues arising when we create knowledge in the context of the modern educational system in Japan.

The paper will give a brief overview of the background of the problems found in Japan’s modern education system, highlighting the social effects of the so-called meritocracy ideology. It will then shed light on new possibilities for ICT as a resource for learning by drawing on research based on the idea of ‘social capital’ as popularized in the work of Robert D. Putnam. The paper will also present a multidisciplinary comparison of ‘media’ and ‘communication’ as keyword that helps deepen our understanding of spontaneous learning activities, and then highlights a counter-perspective to the recent research on ICT covered in the previous section. Drawing on fieldwork data, the paper will explore ICT-driven changes to learning practices in Japanese society. In conclusion, it will reconsider learning activities in the context of recent ICT developments. By this token this will enable us to reinforce the imperative of a deeper exploration into the meaning of ‘media’ and ‘communication’ in contemporary society.

1. Introduction

The rapid development of Information and Communication Technology (ICT) enables people to communicate with each other more easily than ever before, regardless of time and place. The online world is flooded with an enormous volume of information, and we can now acquire the appropriate data or information for our needs by simply using portal search engines. In this respect, Internet sites can be considered as pages in a new and useful encyclopaedia for better knowing our world. Additionally, there exist many communities in the online world where people exchange opinions based on their individual interest or search for answers to particular problems in their lives. As is widely known, Social Networking Services (SNS) are prominent examples of a 'community' type website, and are noteworthy because they have overcome many of the problems associated with anonymity and content trustworthiness on the Internet.

In addition to SNS, a variety of recently developed software has become available with which we can easily implement a more customized community type website, most notably Contents Management System (CMS) software. Some of these tools are provided free of charge. Moreover, such software allows users to build their own website without any specialized knowledge of a software programming language. To gain a better understanding of this development, it is necessary to examine the social meaning and function of the online world as a subject for academic debate in Japan. The emergence of an online world has attracted enormous attention as a new field of academic research. It has given rise to a number of new ways to conceive and generate useful knowledge. Much of this academic work has concentrated on analysing the function of online

communities within both social science and technology-related disciplines. Amongst the broad spectrum of academic research, developments in Internet technology hold important implications for the sociology of education. In particular, ICT and related areas of research present important challenges for abstract concepts such as 'information' and 'knowledge' and how these crucial building blocks are cultivated in the modern formal educational system.

With this paper I would like to clarify how and to what extent we can overcome the difficulties caused by the social system emerging from the processes of modernization and globalization. In particular, I focus on the resource of information/knowledge that a human being requires to live within a particular society. With such a broad scope of analysis it is difficult to develop the discussion within a single academic field. Rather, to answer the above question, it is necessary to approach the issue from a comprehensive point of view. In particular, I seek to illuminate the meaning of online learning as an alternative to traditional approaches by taking the following steps. First, I review specific problems frequently occurring within systemized formal education, especially in Japan. Second, building on this discussion of formal education, I will investigate the meaning of an online space as a new learning space. To better focus this interdisciplinary challenge, I concentrate on 'communication' and 'media' as a means to build common points of comparison between two different academic disciplines, namely socio-informatics and the sociology of education. Using this two-stage analysis, I attempt to confirm theoretically how our learning activities are affected by authority. After the theoretical discussion exploring the concepts of 'media' and 'communication', I introduce the case of a

functioning ICT network dedicated to supporting immigrant children in Japan. By analysing interactions taking place on the network, I identify key characteristics of communication, and point towards the possibilities of an alternative learning space.

2. Meritocracy Ideology in Modern Japanese Society

This section presents an overview of debates critical of aspects of the modern formal educational system in Japan, which almost all Japanese have experienced as both a national duty and an individual right. Post-war Japan is characterized as a society that has transcended its system of social class determined by birth. This change has been compounded by increased individualization amongst the population and the effects of globalization, a trend that has been very pronounced since the mid-1970s. The more people become accustomed to liberation from fixed categories such as social class, gender and patriarchy in closed groups, the more privatized will people's perception and recognition tend to become (Hirota, 2004). In place of socially-fixed categories, post-war Japan, as in many other developed countries, stressed the importance of attaining a high standardized score and entering distinguished high schools, which in turn offered the greatest chances of entering prestigious universities and all the benefits they potentially offer. The accompanying social environment and worldview, often referred to as Japan's meritocracy ideology, still persists in present day Japanese society.

It is often claimed that the formal educational system serves as the foundation for perpetuating this system and reinforcing this ideology. Takashi Miyajima (1999), for instance, points out that this

ideology has a severity which demands the same qualities from all children based on the principle of 'self-help'. He also notes that success within the established Japanese education system seems to be an unreachable goal for those who face difficulties that set them apart from the stereotypical student. To achieve success under this meritocratic ideology, children are forced to perform in tandem with the standard of homogeneous competence. Each child is expected to take responsibility for his/her own life by making an effort to achieve the highest score possible, which is generally measured and evaluated by standards defined in the national curriculum. Evidence for the power of this assumption is being pronounced in the wake of an increasing inequality in Japanese society (*kakusa shakai*).

Recent mass media attention to one side, it has long been common knowledge within the field of sociology of education that the formal education system strongly affects the redistribution of social classes. However, identifying the kind of consequences brought on by formal education is difficult. It can lead to problems in critiquing the overarching system. Moreover, the disposition and relationship of the education system and its practice is not clearly understood by people; they tend to accept it as axiomatic. At this most fundamental level, people seldom reflect on the meaning of the system (Miyajima, 1999). Miyajima (1999) contends that the axiomatic nature of the relationship fosters a tendency for people to blame particular inequalities as being determined by properties or incomes, rather than acknowledging that many of these inequalities are in fact pre-determined by academic success.

An individual's experience within the formal education system heavily influences that person's

future work and life choices as well as placing restrictions on human behaviour (Seki, 2002). Keiko Seki (2002) defines this power of restriction as 'authority'. In every stage in our life-course, we can observe the presence of power and its interventions in daily life. Seki asserts that all the places where human beings grow are also the places where one builds the norm of 'authority'. She claims that 'authority' is a device that binds us throughout our life, directing our path through life in every process (Seki, 2002). If we resign ourselves from the competences prescribed by authority, it means a downfall into the underclass (Hirota, 2004).

The aforementioned discussions unravel an ambivalent situation in contemporary Japanese society. That is, we are required to design our own life-course by ourselves at our own risk. However, the procedure of such design is politically induced by a hidden authority. This situation clearly has parallels to the work by Zygmunt Bauman (2008), which stresses that 'identity' is what we are required to achieve in modern society. Since the important things in life become concentrated around the individual, people no longer pay attention to others; rather, they hold fears about those who have different values and languages (Bauman, 2008). As a result, the 'others' beyond one's understanding have become an increasing target for censorship and discrimination. It is widely claimed that modern education systems are highly complex and monolithic for transforming unknown 'others' into someone understandable. This situation holds some parallels with modern Japanese society. Seki (2002) insists that we should disentangle this authoritative procedure that persists throughout our life span. It is very difficult to make it visible, but the trial of disentangling will contribute towards finding solutions for those who

are at a disadvantage, who do not have access to enough information resources, or lack the vocabulary to survive in a meritocratic system (Seki, 2002).

To show concern for these negative characteristics inherent in modern Japanese society, I strongly feel the need to reconsider the sources and the networks of our knowledge and reflect on their importance. For this, it is imperative to analyse the meaning and the process of our learning activity; namely, how we get information and utilize it as knowledge in real life situations. The effect and the meaning of ICT in Japan is a case in point. This is appropriate because ICT is one alternative tool that allows people to identify information and gain direct knowledge using a resource or online interaction that is removed from the prescribed authorities governing compulsory education.

3. Relationship between Alternative Learning and ICT

Observing the reality of communicating with others in contemporary society, we can identify many factors and developments that can lead us to anticipate an enhanced role in ICT. This is not just for communication but establishing a means for helping people breakthrough their anxiety which is related to the unknown 'other'. The rapid progress of ICT has given rise to such a change in knowledge creation and usage in contemporary society.

SNS is capable of realizing a connection between the offline and online worlds (Harada 2007). For SNS, certainty and reliability makes such mass collaboration possible. This phenomenon refers to the creation of meaning derived from the total accumulation of ideas or information drawn from a mass of users. It can lead to the creation of values

which are different from the expert assumption of conventional (Shoji *et al.*, 2007). According to Kazuhide Harada (2007), the foundation supporting this mass-to-mass online interaction has a volunteer spirit. This characteristic of large-scale knowledge generation is an important development, and one that bolsters the argument of this paper, because it highlights diversity in principles that lead to an individual's involvement in social action. Putnam presents this way of thinking as being rooted in a spirit of mutual aid or what he terms 'generalized reciprocity' (Putnam, 2001). Generalized reciprocity stands for co-operation that takes place under the conviction that in the future some other person will help, and thus can be constituted as a rather weak tie connecting numerous and small groups of members (Putnam, 2001). Putnam goes further by defining this mutual aid relationship as being based on reliance and co-operation whereby 'generalized reciprocity' can be seen as a form of social capital fostering a broad-based civil society network (Putnam, 2006). Putnam's theory has had a great impact in the circle of sociologists of education and socio-informatics specialists, particularly those working on ICT.

These academic debates apart, we can see similar objectives that have emerged in community-building policies by the government. The Cabinet Office of the Japanese government recently published a report about social capital in Japan based on a statistical analysis by drawing on Putnam's theory (Naikakufu, 2003). This kind of research has stimulated further policy-oriented research, which in turn has heavily influenced local government activities. According to the investigation of the Shoji research group, local SNS have mushroomed from only 2 in 2004 to over 200 by 2006 (Shoji *et al.*, 2007). This indicates that local governments are trying to build 'generalized

reciprocity' among the citizens.

These recent approaches framing research in the field apply ideas found in the concept of 'social capital', which was contextualized by Pierre Bourdieu (1986) and later popularized by Putnam, to an analysis of the relationship between offline society and ICT. We can better understand some important aspects of 'social capital' with categorized statistical data found in prior research. However, it is more important to consider how our lives follow the existing social structure, including the previously mentioned conception of 'authority'. Statistical data are prone to overlook elements that are not included when formulating research variables. For instance, following Kenichi Suzuki (2002), it is necessary to find the corresponding aspects from the processes that enable human beings to link and tie themselves to others. Suzuki argues that we need to recognize the unified, comprehensive conditions of the fundamental relationships that enable individuals to exist. In other words, we need to understand the relationship between our knowledge and our surroundings by throwing ourselves into the system itself. Here we can see a similarity to the work of Toru Nishigaki (2003b) who contends that we need to analyse the process of creating information or human society by entering and working in the system, not just observing from outside the system. These works enable us to recognize the need to connect the distinct intellectual powers that exist among academics in humanities, social sciences and engineering. The rapid development of ICT now offers us an opportunity for a common denominator to connect these separate academic fields, and gives us the ability to take a comprehensive approach (Nishigaki, 2003b). This paradigm shift will affect epistemological discussions about the world and the way in which we think about

knowledge. Just as we can observe a paradigm shift caused indirectly by the emergence of ICT, the means of education and the learning processes itself must also become the object of reconsideration.

As a first step towards reconsidering the concepts of the intellect and learning processes, I will review the meaning of keywords such as 'media' and 'communication' that underpin discussions of how society is being affected by ICT. In the next section, I shall situate ICT in an array of theoretical arguments in socio-informatics and the sociology of education.

4. Key Ideas as a Disciplinary Bridge

Takehiko Daikoku (2003) criticized the axiomatic nature of debates that juxtaposes media and technology from a socio-informatics perspective. For him, these debates lay too much focus on analysis contents available on the Internet and on ideas of IT literacy. Daikoku instead suggests the need to understand media as a concept that accompanies a particular communication paradigm, which in itself is a product of historical semantics and existing conceptual frameworks. Daikoku places emphasis on the need to think inter-subjectively, and highlights the importance of inter-physical communication that takes place in our lives. On this basis, Daikoku refers to Niklas Luhmann's (1993) definition of 'media' as a device that generalizes order from within the chaos of communication which would otherwise remain anarchic, dispersive and accidental had we let it lie. It is from this process that high level structures emerge, which enables us to see that 'media' directs our choices and motivations. Luhmann classifies 'media' into communication media and symbolically generalized media. His classification

suggests that communication media is realized by language, letters, publication or electronic media, whereas symbolically generalized media includes money, authority, truth or love (Luhmann, 1993). From a sociological perspective of education, Satoshi Tanaka (2004) argues that society, as a man-made system, was designed to deal with complicated environments and to transform the unknowable into something that is real and knowable, which consists of distinct elements. In this sense, 'media' is a device that directs human being's communication towards possessing a particular meaning. In this context, we can understand that the 'media' which Tanaka mentioned is not simply the language, information or equipment of ICT, but rather holds parallels with Luhmann's notion of 'communication media'. Tanaka (2004) also contends that we can interpret 'media' into a subject or a code that makes something distinct from others. In this latter context, we use 'media' to grasp our environment and use it to adjust our perceptions in order to form a stable self identity. It is through this process that we can decrease anxiety surrounding the unknowns and the unknown 'other' with media (Luhmann, 1990). The re-interpretation of Luhmann's media theory by Daikoku and Tanaka in an ICT context is particularly useful to understand the ability of 'media' as a means of decreasing our chaotic condition.

In a similar vein, Shigetaka Imai (2004) said we could consider Aries' (1980) notion of a 'child' as a form of 'media'. He positions this as characteristic of modern society, which has removed children from the labour force, arguing that the notion of 'child' did not even exist before the 17th century. Consequently, it is possible to argue that human anxiety over the 'other' was conceived differently, and went through different stages of development

according to the norms of the day. However, after the modern education system came into existence, education became a social system whereby the child undergoes an indoctrination process to establish the modes and norms of human behaviour. Moreover, this is a process that instils expectations for appropriate ways of life. On the basis of Aries' definition, we are able to widen the concept of 'media' not just to children but all human beings, as we are all objects affected by authority's ability to form the code of knowledge. This is especially true in a post-industrial society which encourages lifelong learning, and that the operation of a system framing people's identity is presented as gaining 'knowledge' (Tanaka, 2004).

Although Luhmann clearly explained that 'media' has the power to reduce our chaos, he also admits the dual contingencies in the act of 'communication' that can possibly affect the authenticity of communicative intention. One of such contingencies is the possibility that people have the intent to decide their behaviour depending on the other's attitude. The other is that either or both may misunderstand when they interpret the other's words or behaviour (Luhmann, 1993). In an era of ICT-mediated communication, the effects of such contingencies will be even more pronounced. For instance, Masamura (2003) notes that ICT has positioned movement beyond time and place, thereby dramatically changing our life conditions. Moreover, this movement is forming a new semantic pattern. Consequently, an individual's meaning has become more complicated than ever before. He also insists that the concept of 'information' is not a phenomenon particular to the ICT age, but has long been important in the creation of human society. Prior to the emergence of the networking society⁽¹⁾, mental activity such as recognition or the understanding of language –

in other words non material existence – were deeply connected with our physical and material existence (Masamura, 2003).

Information can be considered to possess both a material and non-material existence (Masamura, 2003), as we can control personalized information beyond our physical existence in the networking society. As a result, the role of human beings has become less fixed and less affected by social categories than ever before. This change may translate into the overarching objectives of communication and media such as formal education systems, which are less able to carry out their function of structuring communication, identities and the notions of what constitutes an appropriate life.

Shigemitsu Arai (1998) notes that the Internet is not resemble an encyclopaedia but rather a sphere. Thus, users not only create and communicate their own free will as well as take positions where they are not merely students who receive information passively, but more importantly act as independent participants. Arai also mentions that this kind of interaction prevents professionals from monopolizing information. Be that as it may, how then should human beings treat and utilize 'information' in contemporary society and continue doing so in the future? More specifically, how can we communicate with others in a way that is free from the structures of an all-pervasive authority? And how can the use of communication ability to gain knowledge actually resolve problems in our life? In the next section, I shall prove these claims by focusing on a particular case in which people use the Internet as an alternative communication media in Japan.

5. Possibilities with ICT in Practice

To highlight the potential of an alternative

dynamic communication environment, I will draw on the data from fieldwork with Group A, a network of support groups serving the needs of immigrant children. Before explaining the details of Group A, I will review the diversification in the background of people living in Japan.

The number of immigrant children in Japan has dramatically increased since 1990 due to revisions in the Japanese Immigration Law. The registration of all immigrants in Japan, both temporary and permanent, increased by 45.2% between 1997 and 2007, making up the total immigrant population 2,152,973 (Immigration Bureau of Japan, 1997–2007). The increasing diversity of the Japanese population in terms of citizens' countries of origin is also reflected in as the experience of immigrant children. There are many children from abroad who are unable to speak Japanese and face difficulties in adapting to Japanese schools because of their differing cultural backgrounds. Many schools have responded to the increasing number of immigrant children by creating special classes for them, which include multicultural and intercultural education. Such programmes are normally conducted by teachers and academics who try to provide genuine support and help to children with special needs. However, it must be acknowledged that the Japanese public school education system was created on the assumption that pupils and students can speak Japanese. Hence this presents major challenges to non-Japanese speakers.

Group A is an example of a dynamic information environment for supporting immigrant children, in this case a mailing list network. The network of Group A has multiplied rapidly since the network commenced operating in late 1997. Starting with only about 20 members, it had by 1999 grown to approximately 100 members and by the end of

2008 the total expanded to over 700 members throughout Japan⁽²⁾. Group A consists of a wide range of members. For an analytical purpose, however, I establish the following dominant participant categories drawing on the supplied data profiles: 35% participate as voluntary members or staff of either paid- or unpaid staff of the non-profit sector, 26% identified as university or junior college students, and 26% are school teachers ranging from primary school to higher education⁽³⁾. Ninety-six per cent of the members live in Japan. With the remaining 4% have different cultural backgrounds. The members help immigrant children cope with the difficulties that they face in their daily life. This mailing list is not anonymous, and members reveal personal information such as their real name and profession. The members exchange their opinions in order to solve the problems they face. Despite such mutual help, there are sometimes few irresponsible statements given in the mailing list.

Since the establishment of the mailing list in 1997, over 9,000 emails have been exchanged. Having become a member of Group A in 2006, I have classified the mailing list interaction into several categories. The analysis of this information indicates that approximately 30% of postings concern news derived from mass media reporting of issues related to immigrant children or the introduction of various textbooks/teacher's handbooks; another 30% of postings concern reporting, opinions or enquiries related to daily support activities; and another 22% deals with news and reports for symposiums, forums or training courses for volunteers being held in various prefectures. In addition, the Group A network manager has confirmed an exponential increase in the volume of traffic especially for event invitation in recent years. This rapid growth is an indicator

of the growing awareness of the reality of multicultural diversity of children in Japan, a change that has also been reflected in increased mass-media attention, and its broad acknowledgement as an important public issue.

When considering new learning possibilities for ICT, the fact that nearly one-third of all communication between the members is taken up with daily support activities is significant. To better understand this development, it is instructive to divide the interaction into categories based on their degree of urgency. Issues which require urgent help predominantly concern qualification or countermeasures to prevent entries to Japanese schools. Time is a crucial factor for children whose Japanese ability is so weak that they are likely to fall behind in academic achievement. Therefore, the supporter's network needs to generate ideas immediately so that the immigrant children can survive in Japan's meritocratic system. This explains the first example that I am bringing here, where various ideas were gathered from nationwide when a South American child was not qualified to enter Japanese school. To collect information as to how to qualify such children for entry in Japanese school requires a quick and meaningful response. In this case (Case 1), over 10 opinions and information gathered from the Tokai and Kanto districts as well as abroad for the child who came from South America. The shorter duration of education at primary and secondly schools in their countries made it difficult for the child to seek admission from any universities in Japan. To solve this problem, an alternative idea was put forward. It was also suggested to negotiate directly with the universities, particularly private ones, as they increasingly face challenges to survive due to the declining birth-rate in Japan.

In addition to the declining birth-rate, there is a

great disparity in geographical distribution of the immigrant population. Immigrants are concentrated in metropolitan cities and local cities in proximity to manufacturing industries. Even amongst the areas of higher concentration, there is diversity in immigrant profiles such as nationality, occupation and cultural background. For this reason the Japanese government has found it difficult to build a consensus of policy or even gain a basic understanding of the problems faced by immigrant children (Kajita, 1992). Under such circumstances, some remarkable actions to overcome these challenges have emerged as a result of concerted initiatives by citizens at the local level (Kajita, 1992). These actions have given birth of many voluntary groups serving the needs of immigrants in each area⁽⁴⁾. Although it must be understood that these workers often face difficulties in negotiating with local government officials, school teachers and other professionals because volunteers are regarded as non-professional and their efforts are consequently often devalued or marginalized. However, with Group A, this scenario is far less likely to occur because the process of formulating enquiries and discussing solutions commonly transcends the members, offline position, and discussion is focused on an open-ended, informal debate of how to deal with the problems.

Furthermore, rather than trying to deal with each problem when it arises, Group A has another characteristic in its interaction that adds context and depth to the problems faced by immigrant children and the wider community. These problems, which are considered by Group A as part of broader social issues, are a representative feature of this network, a point that can be illustrated with two examples dealing with political issues. These examples concern the depth of

support for immigrants at schools that differ from prefecture to prefecture in Japan. In these examples (Case 2), the number of lower-ranked high schools has attracted attention from certain sections of the network. From Prefecture X, one member demonstrated statistical evidence which pointed out that there are many such schools in Prefecture Y. He insisted that Prefecture Y has an attitude to provide institutional support for those who are enthusiastic but lacked Japanese skills. He further suggested that the local attitude found in Prefecture Y contributed to a decrease in the number of drop-outs. However, against this posted opinion, a member living in Prefecture Y responded that this would not always be the case. Private organizations and voluntary workers were persevering and supporting immigrant children in such schools, whereas their schools had not dealt with this issue as yet. This case demonstrates that official statistics alone cannot reveal the reason behind the willingness of many lower-ranked high schools in Prefecture Y to admit immigrant children.

There have been a number of discussions in the network, which centred on why these kinds of differences occur between each prefecture. These discussions are supported by abundant information and evidence drawn from the members' activities.

The third example (Case 3) is symbolic of the contemporary Japanese educational environment where greater emphasis is placed on achieving high scores in standardized tests. This is a critical issue as it is intricately connected to the survival of some low-ranked schools, which are at risk of being closed due to the dwindling birth rate in Japan. As Kajita (1992) notes, the overwhelming characteristic of immigration in Japan is that the immigrant population is concentrated in specific areas. Given that the difference of cultural backgrounds amongst immigrant children

determines their low performance in the Japanese standardized test, this can influence the local government's education policy which is fundamentally naïve to the social context of such data. With regard to the standardized test, it was reported in this network that some schools did not report the scores of immigrant children as public data, being fearful of lowering their school rank and prestige.

These examples illustrate the importance of the issues surrounding immigrant children that are currently debated. They provide a clue to account for the serious attitude of various supporters of the network. Moreover, these support activities are closely linked to the broader discussion as to how we can live together with those who have different cultural backgrounds and when to provide appropriate information and action to them, rather than forcefully integrating immigrants into Japanese society. Networks such as Group A raise issues of tolerance for different cultures and not rejecting demands and resistance from minority groups and individuals as being unrealistic. The latter is a highly political conundrum, and one that enables the majority to resign themselves to the realities and difficulties of providing effective solutions⁽⁵⁾. Such an attitude of resignation only serves to preserve the existing meritocratic educational system.

The online interactions and debates of Group A are very dense. This means that initiating a topic with an opinion or enquiry quickly generates responses that touch upon issues and problems of other members who are facing similar problems. Through various discussions, the quality of information/knowledge improves. This sometimes triggers solutions that offline interaction alone could not have solved (Case 1). Not only does a network such as Group A offer potential solutions

to difficult problems in the offline world, it also provides some hints to better reflect on the inflexibilities of the existing system within a broader context (Cases 2 and 3). In addition, because the interaction is less likely to be affected by members' social positions or authoritative relationships, it can transcend problems inherent in the offline world. For this reason, Group A becomes a relativizing space, where people are not forced to obey taken-for-granted norms and values absolutely. This is a crucial point, and one of the strongest indicators that such networks offer an inclusive alternative for problem-solving between numerous and diverse actors.

Applying the discussion from Sections 1 to 4 in the case of immigrant children in Japan, the Japanese educational system is not capable of carrying out its function of decreasing the chaos of communication. In other words, it has not considered immigrant children as an effective 'media', and thereby failed to give them chances to acquire Japan's social norms. For this reason, immigrant children exist in a marginal position within Japanese society. However, following the discussion in Section 4, we take note of the dual contingencies which hinder communication between people. Under such circumstances, we have to struggle and also create relationship with 'others' that have a different cultural background. This can lead to a reinvigoration of communication practices for Japanese society as a whole, and challenge the fears that arise from the unknown 'other'.

From this perspective, we are encouraged to envisage the possibilities of alternative knowledge generation that are emerging out of the semi-dynamic communication environment created with ICT. Considering such an environment allows us to reflect on the meritocratic ideology that is

implicitly justified in present day Japan.

6. Conclusion

In this paper, I have described alternative learning activities based on an ICT network, which address areas that the modern educational system is lacking in focus. From the cases above, the network of Group A can be considered as symbolic and significant for the following reasons. Its members exchange their opinions in an open-ended manner, without sticking to their social position too much. This takes place in a semi-dynamic communication environment that can be reflected immediately in their offline support activities. Another important meaning is that through the mailing list, people acquire information from various people as 'media', and incorporate this knowledge into their offline practice, and become a form of intermediary 'media' themselves. This alternative form of communication is in contrast to the formal educational system in Japan which is not ready to assist the socially weak in facilitating their access to information. It is intermediate people and voluntary groups that they need as media. It is thus important to unite the supporters as media and ICT network as media provides alternative processes. In this sense, the wide and weak network generated using ICT has an alternative meaning in the terms put forward by Putnam. Both the ICT network itself, in this case Group A as a whole, and the individual members themselves, can act as resources for marginalized people, i.e. immigrants.

As Albert Melucci (1997) suggests, both supporters and immigrants might be considered as 'nomads' in contemporary society, since 'now' and 'here' is a stage of their disputes in which they co-operate together by using various networks that are beyond time and place. He also mentions

that there are fused movements under the surface of water that occur before collective action. In this process information plays the most important casual role. The network can be considered as a form of social capital for non-formal learning activities that hold possibilities to break through in difficult situations. This type of learning activity, employing a wider range of ICT networks, presents an opportunity to create alternative meanings, which possess a different aspect and perspective to that found in the modern educational system.

New technology creates new social spaces that offer different perspectives and a break from what we have previously experienced. Thus, we need to investigate and better understand the actual conditions and effects of these changes in a substantial and methodological manner. Although our understanding should be informed by more than pure interest, it is necessary that we also go deeper to ponder our will or reason, and reconsider how we can try to learn about our world based on media and communication from an epistemic point of view.

It must be noted here that an action by which we try to know or inform 'others' is a 'learning process'. Therefore I would like to reiterate the need to reconsider the meaning and interpretation of 'media' and 'communication'. Coming to terms with the problems inherent in a meritocratic society in an era of individualization and globalization requires a due reconsideration of the role of learning activities through communication with 'others' and the outside the world. As highlighted, in order to identify such alternative learning activities, there is an important role to be played by those engaged in non-formal learning activities.

Notes

- (1) According to Nishigaki (2003a), we now exist in a 'networking society' and not an 'information society'. 'Information society' existed in the 1960s-1980s when researchers analysed how computerization was affecting the industrialized society. On the other hand, 'networking society' refers to a type of society in which non-experts in computer science utilize a personal computer or any micro-processor implanted device to edit digital data and exchange information with others.
- (2) This figure includes the former members. Thus, the total number of existing members would decrease to approximately 600. I calculated the number from the email title, searching related keywords to the self-introduction.
- (3) The rate of occupation was calculated as multiple answers (N=2945).
- (4) Lists of voluntary groups are available from websites of the associations in the field of international co-operation and cultural exchange in each prefecture. They have laid the foundation for the growth of non-profit organizations in this field in Japan. For example, in the prefecture where I reside contains the fifth largest immigrant population in Japan, and there are approximately 131 voluntary groups.
- (5) I owe this point to Professor Izumi Yamada (Hosei University) who presented a paper for the Advanced Lecture Series for Japanese Language Volunteers on 28 February 2009.

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The Evolvement of Social Relationships as Influenced by the Spread of the Online Community

-A Study on the Interpersonal Ties of Korean Cultural Kinship in Terms of *Alumni's Network* and *Old-Hometowners' Network*-

Keywords:

alumni's network, *old-hometowners' network*, online community, constructivism perspective, *yeongo* (緣故), social capital, Japan, Korea.

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Abstract

Despite Korea's high economic growth, its traditional interpersonal relationships continue to play a significant role, especially in terms of cultural kinship among urban immigrants. Reflecting the current unique character of Korea's social structure, online communities have rapidly developed, populated by existing alumni associations and hometown-rooted associations. Related case studies show that the spread of online communities has influenced the evolvement of alumni associations and interpersonal relations of urban immigrants into the extensive *alumni's network*, vocational cooperation network, and *old-hometowners' network*.

1. Introduction

1.1 Question

This paper purposes to analyze the constitutional development and implicational evolvement of social relationships resulting from the online propagation of communities, such as the *alumni's network* and *old-hometowners' network*, which play instrumental roles in Korean society⁽¹⁾.

[Japan's evolvement of social relationships founded on online communities, and their characteristics]

In 1999, 2channel (2ch, hereinafter) began providing Internet service in Japan. Today, 2ch is touted as the largest Internet forum in the world. 2ch Internet users are anonymous-strangers in the real world; by March 2001, the number of viewers had exceeded that of asahi.com (Hagiwara, 2004).

Actually, the local Bulletin Board System (BBS), a pc-to-pc online community based on real-world interpersonal relations, had predated Internet service and was supported by the government⁽²⁾.

In 1995, an alumni association site named "yubitoma" surfaced as an online community founded on real-world interpersonal relationships. Since then, yubitoma has kept growing, with its membership reaching 3,700,000 by February 2009. The site is unique its pre-censorship on posting. The members post their messages on their school board, then they are e-mailed to both the school board manager and the yubitoma staff in charge. The items can be posted on the main community board only if both the school board manager and yubitoma give their approval (Cho, 2001). Yubitoma's official site domain is "yubitoma.or.jp."

[Korea's evolvement of social relationships founded on online communities, and their characteristics]

In Korea, the growth of BBS online communities has been exceptional since Internet service began. Research by Endo (2008) revealed that 39.6% of Internet users in Korea are BBS members (2002), surpassing even the USA (21.0% in 2000) and Japan (20.5% in 2002, 12.4% in 2000, and 18.5% in 2001).

Korea has developed unique online communities based on real-world interpersonal relations. The process began in the earliest stage of Internet service and spread through the evolution of BBS-based online communities. The first online community site by an alumni association, "I-love-school (母校 *sarang*)," was started in September 1999; membership had expanded to 10,000,000 by May 2001. Unlike yubitoma of Japan, I-love-school is open to posting and has a complete list of alumni information in the form of a roll call. The site topped Korea's 10 best hit items in 2000 of Samsung Economic Research Institute for being the engine in the spread of Internet service in the country⁽³⁾.

In May 1999, Daum Café service, a club-type online community service, entered the scene. It has maintained the highest ranking in user views since its opening day. Daum Café can be compared to 2ch in that both of them evolved in online space.

In February 2002, Suh Yijong from Seoul National University pointed out that "... the characteristics of Korea's Internet communities ... above all, reflect real-world communities of social relations such as peer groups, blood lineage, vocation, friendship, pen pals, etc. This category has as many as 350,000 cyber communities. The second category is composed of 129,000 alumni sites and 112,000 school sites, and the third, 43,000 religious sites. Together, the three categories

exceed 600,000 sites and take the better half ...” (Suh Yijong, p.41, 2002)

And according to NIA’s Internet White Paper, most of the major community sites reflect “*yeongo* (緣故; the three major Korean traditional ties),” which consists of blood, academic, and regional ties (Table 1)⁽⁴⁾.

The NIA’s survey categorized the distribution of communities in Daum, Freechal, Cyworld, and SayClub into *yeongo* (緣故), information, and enjoyment. Daum has 57.41% of *yeongo*, 18.82% of information, and 23.77% of enjoyment. Freechal has 63.30% of *yeongo*, 20.80% of information, and 15.90% of enjoyment. Cyworld has 65.90% of *yeongo*, 15.79% of information, and 18.31% of enjoyment. SayClub has 65.90% of *yeongo*, 11.72% of information, and 27.58% of enjoyment (NIA p.112, 2004).

Most community sites in Korea are characterized by online communities based on real-world interpersonal relations, which is peculiar to Koreans. The phenomenon is interpreted in this study’s constructivism perspective as a modern concept of Korea’s unique instrumentally-social

capital in terms of *alumni’s network* and *old hometowners’ network*, both of which stemmed from *yeongo*.

Why are major portions of Korea’s online communities related to alumni associations and hometown-rooted associations? (Research Topic 1)

What is the unique mechanism influencing the evolution of Korea’s social relationships into online communities? (Research Topic 2)

To find the answer to the first question, the characteristics of *alumni’s network* and *old-hometowners’ network* in Korean society will be carefully researched and compared to those of Japan.

To answer the second question, the method of participation observation will be used in two representative cases (“S” University’s “O” department alumni’s online community and “S” city’s hometown-rooted online community). This study will look specifically into the online development of instrumental ties of social influence, such as the *alumni’s network*, vocational cooperation network, and *old-hometowners’ network*.

Table1. Distribution of online communities in major Internet Portal Sites of Korea

Category	Daum		Freechal		Cyworld(club)		SayClub		I love school	
	number	ratio (%)	number	ratio (%)	number	ratio (%)	number	ratio (%)	number	ratio (%)
<i>Yeongo</i>	1,699,736	57.41	770,776	63.30	164,516	65.90	275,743	60.70	72,785	54.69
Information	557,155	18.82	253,466	20.80	39,412	15.79	53,232	11.72	18,564	13.95
Enjoyment	703,706	23.77	193,954	15.90	45,730	18.31	125,308	27.58	41,749	31.36
Total	2,960,597	100.00	1,218,196	100.00	249,658	100.00	454,283	100.00	133,098	100.00

Source: National Information Society Agency (2004), White Paper Internet KOREA 2004, p. 112

1.2 Typology in evolving social relationships into the online space

Discussion on the typology in evolving social relationships into the online space can vary

according to perspectives, effects, and values. We could expect arguments concerning the media to be divided into 2 general categories: optimistic and pessimistic. Optimists view the migration of

social relationships to the Internet as a new creative space for the exchange of ideas, and public talks in new roles and forms of self-expression (Rheingold, 1993); pessimists point out that the enlargement of online space results in the personalization and atomization of the members, and weakens social ties, integrity, and solidarity (Holmes, 1997).

On the other hand, the constructivism perspective, influenced by Benedict Anderson's concept of "imagined community," regards online space and real-world space not as separate entities, but as interactive ones.

Benedict Anderson, an anthropologist, states: "In an anthropological spirit, then, I propose the following definition of the nation: it is an imagined political community, and imagined as both inherently limited and sovereign. It is imagined because the members of even the smallest nation will never know most of their fellow members, meet them, or even hear of them, yet in the minds of each lives the image of their communion (Anderson, 1983)."

The sudden presence of Internet media of topological importance as regards their socially constructive function-to enable individuals to communicate transcendently, ignoring time and space-has been and will be influencing on not only local or global society, but interpersonal relationships as well.

I suggest that studies on the practical Internet users' recognition of social constructivism functions should first be performed on subjects, such as online communities, which evolved from real-world social communities due to the availability of Internet service.

Recently, this opinion has been strongly backed by the case of "Fusion Nagaïke" in Japan. Fusion Nagaïke is an imaginary place created by a certain

online community, which is supposedly a better and richer version of "Bessyo," a real place. Some people have expressed a desire to experience life in Fusion Nagaïke. (Asaoka, 2006).

Therefore, Korean society is also considered susceptible to the evolvement of social relationship carried out in online space, since Internet service is already widespread and fully developed in Korea.

Benedict Anderson, in his constructivism perspective, tried to redefine the concept of a community as "imagined," which is clearly expressed in his definition of the nation as "an imagined political community." He also pointed out the fact that the spread of printing media, such as newspapers and magazines, plays a key role in the process of transforming a modern nation into an imagined community.

Now comes the era of Internet service, the new powerful interactive medium with a face-turning difference in function from newspapers and other journals. The Internet is expected to greatly affect not only the reformation of the national consciousness but also the evolvement of interpersonal relationships through dynamic changes in an individual's imagining process.

This study wants to employ the constructivism perspective in looking at the two new social-network factors, *alumni's network* and *old-hometowners' network*, which will influence the evolvement of the interpersonal network. The focus will be on Korean people in the Peninsula, as a collective model of the remarkable full-fledged spread in the provision of Internet service.

1.3 Comments on precedent studies

Many online communities are based on real-world interpersonal relations, such as alumni associations and hometown-rooted associations-a

circumstance that has been singled out as uniquely Korean. However, major studies often analyze only the characteristics of online communities as new social phenomena. Having examined the studies by NIA and Professor Suh Yijong, we feel a compelling need to clarify background information and explanations on Korea's unique evolvement in online space. No other studies have tried to question the scenario.

2. Reviews on Korea's social relationship after the rapid growth of its economy

2.1 *Alumni's network* in Korean society

Taking a constructivism approach to interpersonal networks, this paper goes over the characteristics of Korean society, focusing on academic and regional ties (two of the three major traditional ties) in comparison with those of Japan.

[Bureaucracy based on literary circles, and the cliquey development of the bureaucratic circles]

Japan had not imposed imperial examinations since Daimyo (大名), a Japanese feudal lord, practically ruled his land by the hereditary succession of power. As a result, literacy had no place in military cliques as a means of social achievement. After the Meiji Restoration in 1868, Japan started to form academic leagues founded on a modern education system. However, these leagues only indicate what courses are prevalent in the different areas of society. Professor Sonoda of the College of Education of Kyoto University (1987) considered the academic leagues as merely the result of effective modern education, not the cliquey banding together to maintain academic ties.

On the other hand, the Choson Dynasty of Korea had a bureaucratic government supported

by literary circles. Even the high-ranking officials from the *yangban* (兩班: scholar-official) class were not automatically bestowed their posts and privileges. Each one had to pass the *Guagweo* (科擧: imperial examinations) to become an official and, as such, get paid with farmland cultivation dues.

In time, the number of successful candidates exceeded the available office appointments, and suddenly, academic cliques began competing to be the ruling clique in bureaucratic circles (Yi Sung Mu, 1998). The tendency to form cliques out of academic ties started and developed during the Choson Dynasty, and seems to have continued all the way to the present. As Lee Jeong-Kyu commented in his study, "... We see that forming factions and cliques revives badly in many a department in the Korean society. ... These *yangbans* in the history successfully descended their political power and socio-economic profits once acquired by means of building up the educational background that belonged to a prevailing academic clique, which has been deeply engraved on Korean people's minds with the high appreciation of instrumental value of education." (Lee Jeong-Kyu, pp.88–89, 2003)⁽⁵⁾

[Popularization of Higher Education and Generalization of Tendency to Form Academic Cliques]

The rate of higher education can be used an index to show the importance of education in Korean society. After the year 2000, when Internet service had reached optimal expansion, Korea's higher education rate overtook that of Japan⁽⁶⁾. Japan had 50.0% in 1980, 53.7% in 1990, 64.7% in 1995, 70.5% in 2000, and 72.9% in 2003. Korea had 27.2% in 1980, 33.2% in 1990, 51.4% in 1995, 68.0% in 2000, and 79.7% in 2003 (Kim, 2005).

Higher education and *munjung* (門中, Korean paternal lineage) had been traditionally considered by the upper class (*yangban*) as the most important factors in Korean kinship congregation. Therefore, it can be concluded that with the rapid popularization of higher education in 1990s, the academic cliquy tendency was revived and transformed into a rigid social network, which this paper calls *alumni's network*.

Rapid economic growth in the 1970s and 1980s, and democratization in the late 1980s have reinforced regional ties related to the hometown to create a social network, which this paper calls *old-hometowners' network*. This network can apparently be traced to the traditional kinship congregation culture and urban hometown-rooted associations on the one hand, and to the first presidential election (1987) held in 30 years, on the other.

2.2 Old-hometowners' network in Korean society [Munjung: behind the development of *old-hometowners' network*]

While China lifted the marriage ban between the same surnames and family origins in 1931, Korea set it up in 1957 (clause 1, article 801, Civil Code), and it remains in place.⁽⁷⁾

This aspect of the Korean cultural transition was introduced by the ruling class in relation to *munjung* as *yangban's* kinship congregation. The status system of the *yangban* class and the lower classes is no longer enforced, but the *yangban* kinship culture still functions, and with a wider range at that. Professor Lee Kwang-Kyu conceptualized the tendency and called it "Yangbanization" (Lee Kwang-Kyu, p.47, 1997).

Japanese culture is a complete contrast. Cousins are regarded as out-of-family ties and are, therefore, allowed to marry; no special meaning is attached

to blood lines. With the country's high economic growth after World War II, "restrictions" were further loosened up. The concept of "family identity" in modern Japan's family transition allows even individuals who legally belong to the same family to consider their own blood ties as different from each other (Ueno, 1994).

Thanks to *munjung*, Koreans do not cease to maintain proper relationships with their kin, even after they have left their native land. One explanation for this tradition is that *munjung* represents the equivalent of an altar ceremony for their clan ancestors. Koreans can never be cut off from their roots; specifically, the hometown hill of kindred tombs. Immigrants are often called (*region*-) *saram*-which translates as "a person from his native place"-because they are regarded as mentally and regionally inseparable from their hometown (Ito, p.170, 1987).

[Rapid Urbanization and the Development of Hometown-rooted Urban Associations]

Korea owes much of the development of *old-hometowners' network* to the formation of hometown-rooted associations of urban immigrants, accompanied by rapid urbanization. In 1960, only 28% of the population lived in cities; The percentage had increased to 33.3% by 1966 and 43.3%, by 1970. In 1975, the rate had jumped to 48.8% due to inflows of young laborers, aged 15-19 years.

Associations were formed naturally by urban settlers of the same rural origin, a condition that was considerably interrelated with the regional political affairs at their hometowns. Since emigrants were disinclined to cut their kinship ties with the residents of their hometowns, they took developments in their places of origin quite seriously.

Many hometown-rooted associations were started on the initiative of hometown school alumni, which, to urban immigrants, signifies that *old-hometowners' network* can include *alumni's network*.

[Campaign for Presidency and the Aggravation of Regionalism]

The democratization in the late 1980s is deemed to have strengthened the instrumental function of the *old-hometowners' network* as an interpersonal network. In the 1987 presidential election—the first in 30 years—over 90% of the total votes for one of the candidates came from his hometown, the agricultural province of Jeolla. Another candidate garnered more than 70% in Gyeong-sang, his province. This phenomenon is observed in congressional elections as well (Ryo Young-Bu, 2001).

Korea has recently developed the *old-hometowners' network* due to the concept of munjung (Korean kinship), hometown-rooted associations based on rapid urbanization, and the 1987 presidential elections. Most urban immigrants share both their current regional community network and *old-hometowners' network*.

Meanwhile, the Japanese version of Korea's *old-hometowners' network* may offer a glimpse at Japan's provincial cliques (藩閥). The "Yamaguchi (Choshu-han)" clique is a representative Japanese case similar to Korea's *old-hometowners' network* that is referred to in this paper. Yamaguchi (Choshu-han) comprises the Ito and Yamagata cliques⁽⁸⁾. The Ito Keymen circle has no Yamaguchi origins. Inoue was from Kumamoto; Suematu, from Hukuoka; and Kaneko, from Hukuoka. Of the Yamagata clique, only one of the key men, Sirone, hailed from Yamaguchi. The rest came from elsewhere: Hirata, from Miyazaky; Kiyoura,

from Kumamoto; and Ooura, from Kagoshima (Sonoda, pp.97-98, 1987). It can be said, therefore, that the Yamaguchi (Choshu-han) clique has not been formed based on hometown origin.

Japan's high growth is said to have spurred the relatively active formation of the Kenjinkai (similar to Korean town or province associations). However, Kenjinkai tend to dissipate as immigrants adapt to city life (Ito, 2002).

2.3 Positive data

The difference between Korean and Japanese concepts of social networks is confirmed by related studies. For example, NHK research on overall interpersonal relations with kinship, neighborhood, and workplace companions has revealed that, for the past 30 years, the number of people who want full association has been dwindling, while the number of those who want formal or partial association has increased (NHK 2004). At the same time, Japanese teenagers' associations of firm friends have multiplied, increasing at an average of 2.8 in 1980, 2.9 in 1985, and 3.1 in 1990 (Hasimoto, 1998).

On the other hand, notwithstanding high economic growth (in the late 1980s), the traditional interrelationship still plays an important role in Korea. According to Korea Sociological Association (1990), the younger the generation is, the stronger the tendency.

This study analyzes what is more likely to succeed in Korean society. The results are: 66.4%, effort; 22.8%, *yeongo*; 6.2%, talent; 2.8%, destiny; and 1.3%, other factors. Thus, it is clear that instrumental ties and a person's efforts are considered very important. In the percentage distribution by generation, the *yeongo* factor was high among respondents over forty years old (17.2%), and even higher among those under thirty

years old (26.1%). The trend in Korea runs counter to the weakening of Japan's traditional interrelationships.

The same situation has also been proved by a comparative research on social consciousness. A study by Japan's Bukkyo University (2001) on the kind of association that Japanese siblings want between themselves after social independence revealed that 39.65% hoped for full association and 46.6%, for partial association. In sharp contrast, 83.2% of their Korean counterparts wanted full association.

The dissimilarity between the two countries also occurred in the desired interpersonal relationship between college companions after social independence. In Japan, 59.9% of the respondents hoped for formal association; 17.9%, partial association; and 20.1%, full association. In Korea, 13.0% of the respondents wanted formal association; 33.5%, partial association; and a remarkable 52.3%, full association.

The results do not necessarily connote that Korean society is a crony society. For instance, hereditary assemblymen commonly exist in Japan, but are very rare in Korea. This implies that, in Korea, it is almost unthinkable that a father will pass on his social network to his son, whose own social network will be much more meaningful to him (the son) throughout his life (Hattori, 2004).

Remarkably, both the USA and Japan evolve their discussion on social relations as social capital, usually focusing on community interpersonal relationships such as volunteers' associations, and seldom on blood and academic ties. The "we" concept in Korea refers to blood, academic, or regional ties, which are developing into the *old-hometowners' network*, and functions as personal and social capital (Lew Seok-Choon, 2002)⁽⁹⁾. The following case studies depict how this

interpersonally-related network has been developing in line with the spread of online communities.

3. Case study of online community as *alumni's network*

3.1 Overview of "S" university's "O" department alumni's online community

"S" university's "O" department specializes in the study of all the communication phenomena in relation to human beings. The students were all of 5 in 1975, the year the department was established. The number of students reached the maximum of 45 at one point, but is now down to about 30 because the entrance quota has been limited by government policy. As of 2005, the department's alumni numbered 620. Graduates who have the 1990s' entrance-codes are members of an online community in Cyworld Club; the community has a stratified structure of different alumni codes. The case study focused on the 1998-alumni online activities and reviewed the characteristics of the evolvement of social relationships into the online space.

3.2 Evolvement of the social relationships of 1998-entrance-coded alumni

(1) Establishment of their own online community

The Cyworld online community for 1998-entrance-coded alumni was started by Y. Kim in October 2004, 7 years after his batch entered the college. He was their student-representative. He notified his alumni that he had opened an online community, and all the members joined it.

(2) Development as a means of sustaining social congregation after marriage

In January 2005, one member named T. Yoo

posted the news of his marriage, which became a hot issue to the community. Y. Kim first post about the event was:

〈Reading required; Public notice on the decision for the gift item for T. Yoo's marriage〉

"T. Yoo and his bride decided Hausen drum washing machine for the gift item. I acknowledge that important is our mind, but I inevitably confess we need mutual aid of 30,000 won per capita. The following is my bank account. Please remit with pleasure."

Afterwards, the married couple posted an invitation letter to all the members of 1998-entrance-coded alumni to their new home as a return courtesy. The post received 20 replies accepting the invitation.

〈Re: Please, come over to my house! May 4th, 2005〉

"I'm afraid that it's not too late. It's Saturday...I'd like you to gather at No. 6 exit of Bong Cheon subway station//~.. This is housewarming. I'd greatly appreciate if you all come. Please reply if you accept.

p.s. Please don't buy us anything. Hausen is enough.^^"

Another marriage took place in November 2005. The member was H. Jin. The community's online bulletin board played an important role again as the cyber communications center. The group agreed on the congratulatory gift and invited alumni the same way as in the first wedding-through their online bulletin board.

(3) Sharing and cooperating with daily routines

The 1998 group's bulletin board also functioned

as a venue for sharing private matters in their daily lives.

〈Re: Serendipity, Oct. 25, 2005〉

"I'm now on the job training here in Singapore. Since I have to stay here for 6 months, I'm afraid I can't participate in Hyeon's marriage ceremony. The 3rd 1998? The following is an article found by chance and it's very funny. Kill time reading it."

They also posted "help wanted" notices from members.

〈Urgent: Wanted the family with 3-generations' reunion for New Year's day altar ceremony〉

"The ceremonial costumes should be Korea-traditional.^ Please let me have information till coming Monday morning;;;^^ Regards.."

3.3 Difference from Japan

Korean alumni's online communities, which have college education for their backbone, differ greatly from those of Japan.

In Japan, the Zemi (short for "Seminar," the German word) system utilizes ML (mailing list) as a general means for contact. The ML setup is of the one-to-multitude type and thus inadequate for members who post articles freely for personal purposes.

Korean colleges do not have the Zemi system; they basically just circulate course lectures, using online communities as the main media for publicity and content exchange for certain participants. The following is an example of online community activities partly participated in by the cinematics class.

〈Re: Wanted participants for team presentation! Sep. 11, 2006〉

“Looking for team presentation participants, I’m a 2002 law college student. Please reply~

Reply 1. Lee Hyang: Well, with me, 2002 social college (Mar. 11, 2006)

Reply 2. Lee Seong Wun: hope, business administration (Mar. 11, 2006)”

From the constructivism perspective on online communication activities, college student activities and alumni marriages are major factors in motivating online communities to form an *alumni’s network*. The “New Media Union ABC” case below is an example of a theme online community formed by such constructivism factors.

3.4 New Media Union ABC

(1) The process of establishing an online café

New Media Union ABC was established in Naver by IT experts who graduated from the “O” department of “S” university. In 2006, it was nominated as the representative site of information and knowledge sharing. Actually, Naver had started to provide community service since 2003.

Small real-world IT circles that existed before the start of Naver’s online community service have grown tremendously since Naver added online community service.

(2) Characteristics of the network

As of February 2008, the café had 16 members-entrance-coded alumni from 1979 to 1998, some of whom had never met each other before.

〈writer: pja832. Greetings and a note, Feb. 20, 2008〉

“Hello! Goodman, the Café manager, and Singa, sorry I don’t know who you are. Lee Hang Bok senior, Gang Dol Seok senior. You are familiar with me. I’m working as a professor at Gangwon College

‘C’ department. I hope to find out good materials for my lecture and a supporting network to connect applying opportunities for special lectures and intern students’ job. I’d greatly appreciate if you concern.”

The vocational composition varies: the Broadcasting Ethics Communication (2, governmental organization), U1 Media (2), TU Media (2), Skylife (2), Newspaper (2), Professors (2), and KT (1, information and communications). Japan also has associations with different vocational connections and exchanges. However, even in Meiji, an age of active academic networks, they were formed according to their realms, such as administration, press, etc. (Amano, 1992).

New Media Union ABC is characterized by the inclusion of specialists from different fields among college alumni. Also notable is the fact that alumni in the same company collaborated, as in the cases of 1984-code/1986-code in Broadcasting Ethics, 1985-code/1989-code U1 Media, and 1986-code/1989-code Sky media.

3.5 Evolvement of social relationships driven by an official home page

While the alumni online communities and theme online communities have been in the forefront, the “S” University “O” Department Official Homepage, which appeared in the spring of 2005, has been hosting spirited exchanges about alumni lifestyles.

(1) Log-in required

The Official Homepage consists of Public Notice, Alumni Reference, Alumni Activities, Membership Registration, and Free Bulletin Board. Alumni Reference cannot be accessed without logging in, as it contains confidential

details such as the college entrance year, working place, position, cellular phone number, office number, home number, home address, e-mail address, etc., all listed in alphabetical order.

(2) Log-in not required

Everyone can look at the contents of Public Notice without logging in. In January 2008, there were 55 articles, of which 60% were condolences extended not only to the members themselves but also to their parents, grandparents, and parents in law. The following interview shows that, especially to members over 40, posting condolences contributes to active member interrelationships.

“We’ve met often till marriage and continued to keep in contact afterwards. Soon, with sons and daughters, we got busy with company affairs, too. Suddenly, we missed contact numbers. One day, a condolence information of an alumni friend or his parents flew in. It was an opportunity to gather again and somebody recorded the contact numbers and passed out. Again, we have New Year’s meeting and Year-end parties and spring and summer picnics, too. Now, we keep alumni homepage, and it’s very convenient, especially with the information of condolences (1987 alumnus).”

4. Case study of online communities as an *old-hometowners’ network*

4.1 Overview of “S” city’s Hometown-rooted Online Communities

“S” City has a population of 110,892 (in 2008) and is part of Gyeong Sang Buk Do (Province), which comprises 25 counties and cities. It lies in the center of South Korea.

The online communities related to “S” city are classified into 3 major groups. Type 1 is a

community cored by “S” city residents; Type 2, by urban immigrants from “S” city; and Type 3, by a mixture of Types 1 and 2. We will discuss Type 3 first since it appeared the earliest.

4.2 Type3: Hometown-rooted urban immigrants plus hometowners

The I-love-“S”-city Association, “S” City Cyber Village (in short, Sang Sa Mo), the best representative Type 3 community with about 3,400 members as of July 2007, was opened on August 6, 1999, in the early stages of Internet service. This community is almost as big as [Kawasaki region BBS] in Japan, which has about 3,500 members.

In February 2008, the small inner associations of Han-Love (Han-sarang), Seoul-Residents (Seoul-Circle), and 386-Generation (386세대-Circle) were formed and were very active from day one. Han-Love, with about 100 members, is an association of local social-service volunteers. Seoul-Residents has around 590 Seoulians, and its activities include hiking and other socials. 386-Generation, with about 600 members, is an association of people in their 40s who were college students in 1980s. Its members may choose to reside anywhere.

In addition to these three, primary school alumni boards have been newly opened and the café is now campaigning to recruit other cafés for sisterhood relationships. The following is its public notice for the campaign.

〈Re: Wanted sisterhood relationship with cafés.
writer: chonjang, Jun. 17, 2008〉

“There are lots of cafés in ‘S’ city, which seems going along very well but sometimes unfamiliar to us, hard to find out. We hope for the better service to the members through your sisterhood.”

This tendency in Korea is much different from

that of Japan; i.e., machi-BBS, opened independently from 2ch, tried to avoid connection to alumni associations because of board troubles.

4.3 Type 2: Hometown-rooted Urban immigrants' connection

Type 2, cored by urban immigrants, is divided into 2 categories, minority hometown companions' communities and urban old-hometowners' communities. Here, we will discuss the characteristics of Seoul's "S"-city hometown-rooted online community.

The "S"-city old-hometowners' online community for Seoulians started in 2006 as a homepage for the real-world "S"-city hometown-rooted association. As time passed, the site received a considerable number of visits not only from its Seoul members but also from other regional members. Following is an example:

〈Re: Upgrade to full membership, please. writer: *dosa*, posting date: Feb. 14, 2008〉

"First, Congratulations on your opening! I'm B. Jang, the café manager of 'S'-city middle-school 25th alumni and Taegu's 'S'-city-rooted middle-school online community manager. Whoever he may be in Seoul or Pusan, the mind always is living with 'S' hometown. Please upgrade my membership so as for me to visit often."

The "S"-city hometown-rooted association has members from Pusan and Taegu, the country's 2nd- and 3rd-largest metropolitans, and other areas, including Seoul. In particular, exchanges between Taegu and Pusan are frequent, as the two regions are just an hour apart by train.

〈Re: Hi! writer: General Affairs boy, posting date: May 27, 2007〉

"There has been 33rd General Assembly Regular of Pusan's 'S'-city hometown-rooted association held in Pusan KBS Hall (in an annex). President B. Koh (Taegu's), Secretary General Y. Kim and Chief General Affair Y. Nam participated. B. Koh's congratulatory address flourished and Pusan's was sort of in different atmosphere. Our execution staff will succeed merits of the former tradition."

Meanwhile, Seoul's "S"-city Hometown-rooted Online Community has changed its name into "S"-city Hometown-rooted Association, "S"-city-origin Circle. This means that the "S"-city old-hometowners' online community for Seoulians has evolved into a social network of "S"-city origins.

〈Publication on the main-page〉

"Welcome to 'S'-city Hometown-rooted Association! People of 'S'-city origin are free to join us. You can visit and post and enjoy news and information on our hometown. Smaller inner associations include alumni sites where you can enjoy communications with primary, middle, high and college alumni. 'S'-city old-hometowners are the host here. We hope you share writings, information and knowledge, publication, news, etc. in our site."

4.4 Type 1: Hometowners' connection

Type 1 is cored by "S" city residents. County's Grape Site, Dried Persimmons Village Site, and other sites are familiar with information about their local specialty products. Their online activities are related and influenced by the local government.

To be able to post an article, a person must secure regular membership from "Invil (Information + village)," the department of the Home Affairs Ministry (government) that is responsible for the online community. Anyone can

be a member of Invil, and each member can access all its regional sites. Type 1 is similar to BBS in Japan regarding administrative involvement for the sake of regional prosperity.

COARA, a representative BBS in Japan, was initially cored by Oita residents, but due to the huge influx from foreign regions, its originality was lost in the membership acquisition limit.

From the perspective of membership acquisition, there is a dividing line between off-limit of origin in Type 2 and Type 3, and open-limit of origin in Type 1. The current trend appears to overwhelmingly favor the continuation of online communities.

5. Influence by the extant culture of traditionally organized mutual aid in congratulations and condolences

As discussed above, alumni and regional online communities are growing tremendously in Korea, and their message boards' function of announcing celebrations and grievances greatly promotes interpersonal relationships among the alumni members.

Confucianism and Confucian ancestral worship permeate every level of Korean society. Similarly, mutual-aid networks for weddings and funerals can be found throughout the peninsula. These networks are called "Kye" (契)⁽¹⁰⁾.

Yongsan-ri, a small town of ninety-four houses in Jindo County, is an example. At the beginning of the rapid economic and social development in the early 1970s, the townsfolk Yongsan-ri had already established 130 mutual-aid networks. Seventy of the networks were for weddings; twenty, for funerals; another twenty, for friends; fifteen, for savings; and three, for miscellaneous reasons (Ito, 1977a)⁽¹¹⁾.

Mutual aid for weddings and funerals were

preparatory measures for possible weddings of children or deaths of parents. The mutual-aid network for funerals was passed down from generation to generation, which shows how popular mutual aid and members' relationships were in a network⁽¹²⁾.

Another interesting fact is that these mutual-aid networks are formed by peers or similar-age groups. The reason is closely related to the contents of traditional education. As a primary school system in Choson Dynasty, Seodang (書堂) taught the five basic principles of interpersonal relationship as 三綱五倫 (the three bonds and the five moral rules in human relations): 父子有親 (There should be affection between father and son), 君臣有義 (There should be loyalty between lord and vassal), 夫婦有別 (There should be a difference between husband and wife), 長幼有序 (There should be orders between senior and junior) and 朋友有信 (There should be faithfulness between friends)⁽¹³⁾.

長幼有序 (There should be orders between senior and junior) refers to the authority bestowed on age and 朋友有信 (There should be faithfulness between friends), to classmates under the same teacher. The social disciplines played a key role in the diverse codes of etiquette and manners prescribed for differently aged relations. On the other hand, classmates can enjoy interpersonal relations on familiar terms. Thus, Kye tended to center on the same age group, and the trend continued to the current age⁽¹⁴⁾.

Since Korea's National Liberation from Japanese colonial rule (1910-1945), the importance of the five principles in interpersonal relationship has been constantly emphasized in school subjects such as morals and social studies at school. In contrast, Japan abolished morals (修身). South Korea is also different from the Asian trend in

China (文化革命), Vietnam, and North Korea, which criticize Confucianism and embrace socialism and communism⁽¹⁵⁾.

Kye continues to prosper in Korea, centering on peer groups. Unlike their counterparts in Japan, alumni circles in Korea correspond to the modern transformation of *Kye* from a traditional heritage to a kind of academic network (Kim Pil-Dong, 1992).

For this reason, weddings and funerals in Korea tend to have great numbers of guests, counting among them numerous academic ties. For example, a study by the Korea Consumer Agency (1997) reveals that the average number of guests at a wedding (for both families) is 343; a 2001 survey reported 365. A Korean attends around twenty-four weddings and funerals a year. Elsewhere, the number of wedding guests is only about 15-30% of the Korean figures; in Japan, ten to twenty (reception guests, fifty to a hundred); in the United Kingdom, fifty; and in the US and Taiwan, fifty to a hundred (Korea Consumer Agency, 1997).

Among the Korean wedding guests, school colleagues take up a very high percentage. For example, according to a study by Lee Sari, a third-generation Japanese-Korean's wedding guests from Japan are: 50% family, 12% schoolmates, 11% acquaintances, 18% work colleagues, and 4% hobby network friends. In Korea, the numbers are: 5% family, 53% schoolmates, 3% acquaintances, 32% work colleagues, and 4% hobby friends. These figures reveal that school ties are extremely strong in Korea. In addition, ties between the guests in Korea are much more varied than in Japan (Lee Sari, 2004).

A large number of rural youngsters moved into urban areas to work as laborers during Korea's high-growth period, and in succeeding years, to

pursue higher education. As a result, half of Seoul's undergraduates are of regional origin (Gyeong Sang Univ. ISS, 2005). It is these urban immigrants who make up the *old-hometowners' network*, joining high-school alumni's associations or others. As stated above, *Kye* crosses school ties, which, in turn, cross regional ties. Therefore, double-folded between the academic and regional is one of the major characteristics of Korean interpersonal networks. We have analyzed the cases by way of illustrating those characteristics by <4.2> and <4.3> (especially Types 2 and 3).

6. Conclusion and Prospects

6.1 Overall Analysis

Since the start of the nationwide spread of Internet service, Korea has continuously and considerably developed online communities based on real-world interpersonal relationships. In the spotlight are blood, academic, and regional ties—the three major Korean traditional ties that have long persisted in the form of alumni and hometown-rooted associations.

Two questions have been raised: (1) What is the reason behind the boom in Korea's online communities, especially those based on *alumni's network* and *old-hometowners' network*, the two closely related social network factors unique to Korea that this study considers the modern versions of the traditional real-world interpersonal relationships? and (2) What will be the reciprocal influence by the online communities on the evolvement of real-world social relations and activities?

This study was conducted from a constructivism perspective, focusing on the sudden appearance of an interactive medium such as Internet service, which allows individuals to exchange

communications transcendentally, ignoring time and place. Internet users can keep reforming the functions of online social-networks such as *alumni's network* and *old-hometowners' network*, which are closely related and often composite. Network members can maintain interactive relationships and exercise reciprocal development, both online and offline, in the social evolution of Korea's community.

Unlike Japan's concept of academic ties, the number of official positions available to literary circles under Korea's traditional centralized bureaucratic system was limited. Academic cliques were constituted and Koreans achieved cultural recognition by banding together "school wise." Korea moved very quickly from ancient to modern, a feat accomplished late in the 20th century. During this rapid transition, the tendency to segregate and congregate remained and even accelerated. The phenomenon has now expanded nationwide due to fast economic growth and the popularity of higher education, and has paved way for the *alumni's network*, a blended social network of "ancient-modern" capital.

In view of regional ties, Korea's traditional *munjung* culture—a kinship congregation—played a key role in tying emigrants mentally to their places of origin. Immigrants who had rushed to urban centers formed hometown-rooted associations and enjoyed regional ties that the groups afforded them. These associations were the seeds of the eventual development of the *old-hometowners' network*. The direct presidential elections and democratization process of the late 1980s worked together in promoting the activities and functions of the *old-hometowners' network*, thereby producing outstanding social capital.

As a result, almost all Koreans are connected to both the residential community network and the

urban *old-hometowners' network*, which is constructed based on rural hometown high schools.

At this stage, online community services provided by the competing Internet portal sites have further fired up online participation at *alumni's networks* and *old-hometowners' networks*.

This study also confirmed the fact that the academic and regional ties once weakened by time are getting stronger through the convenience of the Internet, and are evolving into a new phase of the social network concept.

In case of the ⟨"S" University "O" Department Alumni's Online Community⟩, online pages are separated according to the entrance-year code and most of the alumni participate. ⟨New Media Union ABC⟩, as a theme online community, has a considerable number of members who never met before. ⟨"S"-city's Hometown-rooted Online Communities⟩ accepts members from the hometown area, regardless of their current place of residence.

The overall conclusion is that former small groups of intimate alumni (cronies) with relatively strong ties are now expanding their influence on groups with weaker ties and coalescing into an *alumni's network*. Similarly, thanks to widespread Internet service, online communities are helping urban immigrants foster regional ties and interpersonal relationships transcendentally, and are coming together in super unions such as *old-hometowners networks*.

The concept of ties is considered one of the important approaches in social psychology, social capital, etc. For instance, Granovetter (1973) pointed out that weak ties play an instrumental role in employment and resignation from employment; at the same time, there are reported

cases wherein strong ties are divisive (Murray et al., 1981). Both case studies have shown that ties, once established, are effective social capital.

A study comparing social relationships in Korea and the USA revealed that in Korean society, *hyeoreon*, *hakyeon*, and *jiyeon* are stronger⁽¹⁶⁾.

Compared to Japan and the USA, therefore, Korea is unique in the function of academic and regional ties from a community's constructivism point of view. Meanwhile, the full-fledged spread of Internet service has prompted online communities to develop into new social networks, such as the *alumni's network* and *old-hometowners' network*⁽¹⁷⁾.

6.2 Topological importance of the real world-based online communities

What influence is exerted on the evolvement of the whole cyber-world space construction by the widespread use of online communities that are based on real world?

To better understand the topological importance of real world-based online communities through interpersonal relations, the study field needs to be enlarged to cover subjects from the entire online space. Moreover, to be included in this study, there must be a comparison with other forms of online communication service functions in different topologies, such as "search," "SNS (Social Network Service)," "chatting," etc.

Further analysis on the background of <Table 1.> will help understand the key role of online communities. The table contains information about the online community distribution of all the major portal sites in Korea which are providing services for the community activities and communication functions.

Daum and Freechal major in "community activities"; i.e., Cyworld (Club) in <Table 1.>

refers to the community service provider of Cyworld⁽¹⁸⁾. SayClub, Korea's representative chatting site, specializes in "chatting"; and "I love school," in alumni.

"I love school" started as an information service site that provided its members with the users' Alumni contact information, and gradually expanded into a club-type community service provider for alumni.

Although this suggests that the development of Online Communities based on Real-world Interpersonal Relations has an influence on the development of the online community, such is not the case. According to the result of the Gratification Niches of Internet Communities based on Real-world Interpersonal Relations and Those based on Online Relations, the two types of Internet communities have coexisted in Korea, complementing each other with their particular functions (Lee Yunbok, 2009).

In addition, it is thought that the development of Online Communities based on Real-world Interpersonal Relations influences not only the development of a community and SNS with the community function, but also other communication services. SayClub was once a mere chatting specialist but is now close at heels of the other sites. Koreans' interpersonal relationship biases to familiar acquaintances are well documented in the research done by Yoshii and others, which compared Japan and Korea as regards the use of mailing service (Mobile Communication Research Association, 2003)⁽¹⁹⁾.

The term "café," denoting a type of Internet community service provider, was first adopted by Daum and, since then, it had been regarded as a symbolic proper name for Korea's unique online community activities. Soon enough, fast-growing Naver added the word to its name (Naver Café) to

boost user visits to Naver pages.

A long court battle ensued between Naver and Daum (starting in February 2004), as Daum sued for the exclusive use of “Café” as an on-line-community service provider Naver eventually won the case. The legal altercation between Daum and Naver underscores the importance of BBS-based online community service, especially in Korea, whose cyber space is packed with online communities reflecting real-world interpersonal relations.

In addition, it is thought that SNS with the community function has suddenly become fashionable in Korea, thereby causing a surge in the spread of SNS. Korea’s Cyworld calls SNS its “Mini Home Page,” as it used to be an auxiliary function for Club activities connected with the Club’s profile-service functions. Mini Home Page had been designed by Cyworld (which originally was online community service provider) to support its own Club service .

The users of this service function had increasingly used it as a means of sharing the contents of their own production, and the popularity caused SNS to develop separately as Mini Home Page, an independent online service provider (NIA, p.176, 2005).

According to NIA’s research (NIA, p. 176, 2005), Cyworld started developing the concept of an independent SNS service and specializing in it back in 2001, almost 2 years ahead of “Friendster” of the USA (March 2003), and about 3 years before Japan’s “mixi.” Daum, at that time, failed to recognize the potential of SNS service and capitalize on it. Daum could only look with envy at Cyworld, whose soaring sales catapulted it from being a minor community-service provider to the third-highest in Korea, with a record membership over 10 million.

Daum did try to give chase but failed to catch up because SNS functions optimally when the volume of users is huge. While Daum’s SNS languished below, Cyworld rode high on its new community service known as Cyworld Club.

Cyworld Mini Home Page has grown very quickly because Korea had sustained the online communities based on real-world interpersonal relations. Most of them started out as multitude-to-multitude communications in topology, and the user felt the need to build his own network that centered on himself-a one-to-multitude setup in topology. It was at that point that SNS showed up as a tool⁽²⁰⁾.

The recent study on the comparison between Korea and Japan shows that Koreans are more inclined than the Japanese to establish and maintain relationships with acquaintances by SNS (Hasimoto et al., 2008). It may be necessary to examine the functional relations of the online community and SNS with the community function in Korea, utilizing the niche analysis⁽²¹⁾.

Notes

- (1) The terms *alumni’s network* and *old-hometowners’ network*, which culturally and socially feature the major constructivism concept of “social capital,” were carefully coined for this study and specially marked in bold-faced and italicized type to distinguish them from other similar explanatory expressions.
- (2) The term “Local information (地域情報化)” was first used in Japan. Unfortunately, it turned out that only 4 of 733 communities have succeeded (Kogawa, 2007).
- (3) The italicized but not bold-faced expressions like *sarang*, *yeongo*, *hyeoreon*, *hakyeon*, *jiyeon*, etc, are Romanized Korean words.
- (4) *Hyeoreon* (혈연; blood ties), *hakyeon* (학연; academic ties), *jiyeon* (지연; regional ties), and

- yeonggo* (연고; the three major Korean traditional ties) are denoted by the Chinese characters 血緣, 學緣, 地緣, and 緣故. *Yeonggo* have always been regarded as traditionally important social capital throughout the Korean Peninsula and its cultural history.
- (5) "Chousen Habatu Tousousi, 1992 by Mun Ok Chu" is one of the more informative publications written in the Japanese language about the development of Korean cliques.
 - (6) Higher education here means at least two years of college.
 - (7) It said that the development of lineage culture carried out immediately after the National Liberation from Japanese colonial rule (1910-1945) was greatly owed to both the Choson's traditional *yangban*-custom, with privileges such as exemption of taxation to *munjung* holders, and the backlash against the compulsory changing of one's full name under the coercion of the imperial Japan.
 - (8) "Han," the Romanized Japanese expression for 藩, means "administrative province."
 - (9) The subject in relation with "we," especially after the high growth, is continuously an issue in Korea's various social science fields, such as sociology, politics, communication science, etc. (i.e., Park Sung-Gwan, 1994; Lew Seok-Choon, 2002)
 - (10) *Munjung* (門中、kinship organization for ancestors' worship in Confucianism ceremony) first appeared around in 17C~18C during the Choson Dynasty. While *yangban* (兩班、the upper class) was able to establish *munjung*, *sangmin* (常民、the peasant class) were not. That is why the peasants constructed *Kye* (契) networks. "*Kye* for funeral ceremony" was the first to appear, almost at the same time as the *yangban's* *munjung* (Kim Pil-Dong, 1992).
 - (11) Ito's study indicates that the main stream in mutual aid is on weddings and funerals; the Japanese versions of mutual aid in financing and savings are less frequently found.
 - (12) In the western world and Japan, funeral rites have been socially systematized, and funerals are presided over by a pastor at a church or by a Buddhist monk at the temple. However, in such a Confucian country as Korea, institutions like churches and temples were not as well developed. Thus, peasants organized mutual aid for funerals and prepared for them as a group. The study implies that such traditional networks continue to exist today.
 - (13) This is similar to the onset of formal education in Japan during the Meiji Period, when the primary school system was widely established as a showcase of the nation's Family System (the Emperor System).
 - (14) Ito conceptualized this as "ch' inhan-sai," which means "ultimately intimate relationship." He said that it is almost impossible to define this in the existing anthropological terms (Ito, 1977b).
 - (15) According to a recent Korean research, big-scale mutual aid for funerals still existed very widely in Korea, even up to the late 1990s (Kwangju Folk Museum, 1997).
 - (16) A study by Lee Jong-Han on 198 Korean and 184 American subjects, aged 30-49 years, who reside in cities and have jobs and college-level education, shows that in college, 50% of the Koreans were non-volunteers who belonged to an Alumni Group or Kinship Lineage Association. In comparison, 94% of the Americans were volunteers (Lee Jong-Han, 1992).
 - (17) Putnam, in the social capital perspective, points out the importance of the development of social relationships by means of American online space (Putnam, 2000).
 - (18) Daum calls online communities "Cafés," while Cyworld calls them as "Clubs."
 - (19) By way of analysis, Mobile Communication says, "There's a distinctive difference the distribution of the frequent mailing partners between Korea and Japan, with familiar friends, seniors and

juniors higher in Koreans as much as 64.6%... (Mobile Communication Research Association, p.121, 2003).

- (20) In Korea, the egocentric development in interpersonal relations basically relies on *hakyeon*, *hyeoreon*, and *jiyeon* ties, which are thought to be associated with attitudes that are centered, not on the body of the group, but on the individual. We need further study on this topic. Japanese individualism and collectivism are very different from those of Western Christianity (Hamaguchi & Kumon, 1982). It is thought that Korean individualism possibly develops very differently from that of Japan and America because it is Confucian.
- (21) The niche analysis predicts that a new medium will compete with established media for user satisfaction (Dimmick, 2003).

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A Web-Based Approach to Improve the Learning Environment of Japanese in Slovenia

Keywords:

Japanese as a foreign language, Language learning environment, Web-based system, Foreign language learning support website

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Abstract

In this paper we present the problems in developing the learning environment of Japanese as a foreign language in a small European country with its own language, and suggest a method of improvement. The Republic of Slovenia, an EU member state with a population of approximately 2 million, geographically and culturally distant from Japan, is taken as an example. Not only is the number of Japanologists in Slovenia quite small, the small number of potential purchasers results in higher prices for books, leading to difficulties in publishing Japanese language related materials. In this paper, construction of a learning support environment based on an information system incorporating Web 2.0 elements is proposed as the means of improvement: centralizing the existing resources on a single, academically credible website based on the Slovene language and focused on Japanese language learning, and inviting participation from not only Slovene students and scholars, but also Japanese students willing to support foreign students in learning the Japanese language.

1. Introduction

In this paper, we investigate the problems a small European country with its own language faces in developing its Japanese language learning environment, and suggest a method of improvement.

The Republic of Slovenia (hereinafter referred to as “Slovenia”) is taken as an example. Slovenia is a country situated in southern Central Europe (Figure 1), with a population of approximately 2 million and its own unique language. Separating from Yugoslavia in 1991, it joined the European Union in 2004, adopting the Euro as its currency in 2007. According to the Statistical Office of the Republic of Slovenia, 56% of the population aged 10 to 74 was using the Internet in 2007 (SORS, 2008). In the first quarter of 2008, 59% of households had access to the Internet and 50% used broadband Internet access.⁽¹⁾



Figure 1. Slovenia and its capital, Ljubljana⁽²⁾

Slovene, the official language of Slovenia, is a part of the Slavic language family. Apart from being spoken in Slovenia itself, it is also used by Slovene minorities living in Italy, Austria and Hungary (Yamazaki, 1985). Including Slovene immigrants to the United States, Australia, and

elsewhere, Slovene has approximately 2.5 million speakers (Kanazashi, 1995).

Japanese language education in Slovenia is mainly conducted at the University of Ljubljana, and the scope of Japanese learning materials designed specifically for Slovene speakers is limited. The country’s small size results in a small number of Japanologists and an even smaller number of Japanese researchers with a sufficient knowledge of the Slovene language to help produce such learning materials. Another problem is that the small number of Slovene speakers learning the Japanese language translates into a small number of buyers of such materials, which makes it somewhat difficult to publish them (see next section).

In this paper, construction of a learning support environment based on an information system is proposed as a temporary means of improving the learning environment of Japanese as a foreign language in Slovenia. The method proposed here involves some decision-making, but is basically a simple one: starting a single, representative website for this purpose. It should also be possible to apply this approach to other countries facing similar problems.

In section 2, the Japanese language educational system in Slovenia is outlined and unsolved questions discussed. In section 3, the possibility of using an information system as a potential solution is shown, and in section 4 starting a single new website is proposed as a concrete method of implementing this idea.

2. Japanese language education in Slovenia

2.1 Characteristics of the educational system

The University of Ljubljana plays the central part in Japanese language education in Slovenia.⁽³⁾

Japanese is being taught in the Department of African and Asian Studies (the major focus is on research and education concerning China and Japan), which was founded in 1995 as a part of the Faculty of Arts.

Interestingly, formal Japanese language education in Slovenia only started after independence. One might generally assume a smaller country would automatically have less foreign language educators, and the smaller the country, the more difficult it would be to have an educational system for several foreign languages in place. Under such circumstances, the appearance of a Japanese language education system in Slovenia can be interpreted as an investment in the future.⁽⁴⁾

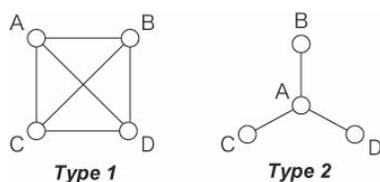


Figure 2. Two types of foreign language learning systems

In order to better understand the position of Japanese language education in Slovenia, foreign language learning systems in general are divided into two broad types, as seen in Figure 2. A circle represents a country with its own language, while a line shows a link to another country's language, which is being taught as a "foreign language" in the first country (in Type 2, it means only language A is being taught). For the sake of simplicity, the model in Figure 2. presumes one language per country. In Type 1, the countries A, B, C and D each possess a system for teaching the languages of all the other countries. In Type 2, on the other hand, B, C and D have a foreign language education

system that only teaches the language of A (A itself is not conducting any foreign language education).

While countries in the Type 1 model have the advantage of having domestic language experts available for all other languages, they also have to maintain an education system for 3 foreign languages. In Type 2, learning foreign languages is deemed unnecessary for country A, and the other 3 countries are also less burdened with foreign language education systems since it is only necessary for them to learn language A. However, this approach implies that not only any interaction with A, but also communication between any other 2 states (for example C and D), will have to be conducted in A's language. Usually, Type 1 is an approach possible for larger countries, and Type 2 is common in smaller ones (Figure 3).

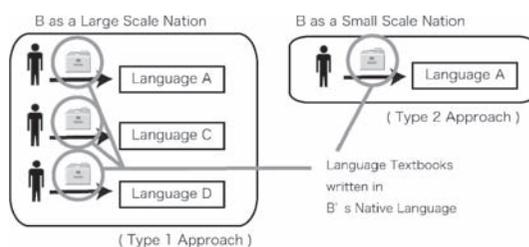


Figure 3. Country size and foreign language education

In reality, the situation is not so extreme as to only allow the choice between Type 1 and Type 2, but this simple model is taken as a basis for the explanation that follows.

If knowledge of foreign languages was only necessary for maintaining international relations and arranging business transactions, the system presented in Type 2 might be sufficient. In reality, however, many nations prefer to consider the potential benefits of establishing foreign language education systems for a few select languages they

consider important (Trim (1994) lists several factors influencing that choice). In other words, English takes the role of a “common language” (language A in Type 2), and several other foreign languages are selected in addition⁽⁵⁾.

It may be said the Japanese language was selected as one of those additional foreign languages in Slovenia.

2.2 Unsolved questions concerning the educational system

In the beginning, the lack of Japanese language teaching materials in the local language forced students and educators to resort to using textbooks and dictionaries written for English-speaking readers. In other words, due to the limited resources and small size of the country, English (in the role of language A in a Type 2 model) had to be, and to some extent still is, relied upon as a means of learning another foreign language - Japanese (Figure 4).

Gradually, the Department of African and Asian Studies managed to produce basic Japanese language textbooks in Slovene, but there are practical limitations to what can be done.

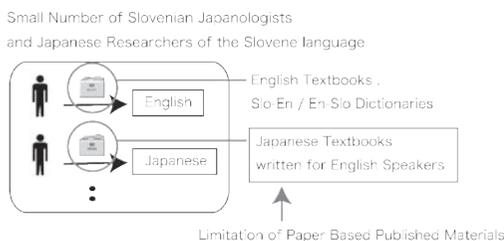


Figure 4. Japanese language education in Slovenia

Slovenia’s small size results in a small absolute number of Japanologists and an even smaller number of Japanese researchers with a sufficient

knowledge of the Slovene language to help produce learning materials. Thus, the limited number of experts able to produce such materials delays the process.

There is, however, another reason why providing Japanese language learning materials in the learner’s own language is difficult for small countries like Slovenia, namely the economic aspect of publishing materials for a prohibitively small number of potential purchasers. While it certainly depends on the type of publication, it has been stated, “A book in Slovenia today costs as much as dinner for four.”⁽⁶⁾ This is an example of small print-runs being covered by higher prices, but in the case of highly specialized publications, such as Japanese language teaching materials, the number of purchasers becomes even smaller. In such cases, the estimated sales might be insufficient to even recover the costs of publishing, consequently making the project unlikely to be undertaken by most publishing houses. Since the absolute number of Slovene speakers interested in buying Japanese language learning materials is small, the appearance of an abundant selection of such materials on the market is very unlikely.

To summarize, the unsolved problems of Japanese language education in Slovenia include the small number of both Slovene Japanologists and Japanese researchers with a working knowledge of the Slovene language, as well as the unfavorable impact of the lack of purchasers on the publishing of Japanese language learning materials. It seems unlikely these issues can be resolved immediately by using the conventional system of foreign language education based on published materials.

In this paper, we propose an alternative approach: the construction of a learning support environment, based on an information system, as a temporary

means of improving the learning environment of Japanese as a foreign language in Slovenia. The potential of such a system is explained next.

3. The possibilities of an information system based learning support

The idea of establishing a learning support environment based on an information system is founded on two observations, the first being that since information systems have reached a high level of functionality in recent years, language learning resources are increasingly being created and delivered in electronic form. The second observation, based on the results of a survey conducted by the authors, is the existence of ordinary Japanese people willing to support (in electronic form) foreign students in learning the Japanese language.

The tendency for learning materials to appear in electronic form is further discussed in 3.1, while the analysis regarding the willingness of Japanese students to contribute to the Japanese language learning environment in Slovenia is shown in 3.2.

3.1 The development of web-based foreign language learning environments

Web-based learning support has surpassed the simple online presence of electronic dictionaries and is beginning to provide a variety of new functions.

While the number and diversity of learning support websites makes categorization difficult, a concrete example can be given: a feature which allows whole sentences (as opposed to only one word or set phrase per query) to be input and processed, displaying popup definitions of words by moving the mouse cursor over them. This function is based on a simple idea, but shows there

are cases when web-based language learning support systems can offer a learning environment with features more powerful than those publications normally provide.

Therepresentativefunctions of the contemporary language learning support websites (including the example above) could be listed as follows: A) online dictionaries and their variations like the above-mentioned popup definition system, focusing on reading comprehension (including the systems with functions for reading foreign language texts without repeatedly searching for words) B) offering materials such as texts, audio and video files in the target language for learning purposes C) offering memorization tools such as vocabulary drills and electronic flashcards D) an option of asking language learning related questions to the site's resident experts and community members E) evaluating the learner's ability and progress by means of online tests or recording the usage (usage time, number of exercises taken, proportion of correct answers).

In this paper, the term "foreign language learning support website" is used for websites offering the above-mentioned features. A more formal definition is "a website providing various tools and materials for the purpose of supporting the process of learning a foreign language, for example online dictionaries, pop-up definitions, and audio / video materials".

Some concrete examples of foreign language learning support websites include Rikai.com,⁽⁷⁾ developed by Todd David Rudick, a software engineer in Tokyo, Reading Tutor,⁽⁸⁾ which provides reading materials as well as dictionaries and other reading tools and was developed by Japanese language education professionals, and WordChamp,⁽⁹⁾ by GlobalLinguist, Inc. Reading Tutor and WordChamp also include entries in the

Slovene language.

Figure 5 is a screenshot of Rikai.com, showing the use of the popup function to examine possible translations after inputting text



Figure 5. An example of usage of the popup dictionary function (Rikai.com)

Many foreign language learning support websites, the examples above included, have the benefits of being available for free (the economic problems discussed previously in the case of printed learning materials are absent) and are more convenient than repeatedly consulting a printed dictionary (or even an electronic one). Furthermore, they are accessible from any PC connected to the Internet and updated more frequently (new words are included faster) than most conventional dictionaries.

Another noteworthy point is the practical embodiment of Web2.0 elements in some foreign language learning support websites. The system's usefulness and adaptability are improved by allowing users to contribute, for example by adding new definitions, words and materials or evaluating existing resources. At the WordChamp site, for instance, users can add translations, as well as audio or image files to the site's dictionary, or create flashcards for vocabulary drills. These card lists are presented according to popularity and tags. From their profile page, users can also search among other users for language partners with complementary language skills. While editing their flashcards, they can ask those people on their

friends list for help with specific tasks, such as proofreading and providing audio files for pronunciation. Such a system, allowing contribution by those who have access to it, could provide an efficient solution to the afore-mentioned problem of a small number of Japanese language researchers in Slovenia.

Foreign language learning support websites will most likely continue developing in this new direction of encouraging contributions from, and collaboration among, participants. In these circumstances, it is possible for even ordinary Japanese students, who stay in Japan and do not engage in studying abroad, to be able to cooperate with students learning the Japanese language overseas by means of communication in the Japanese language. In other words, as the foreign language learning support websites develop, the existence of ordinary Japanese with an interest in Slovenia, not only Slovene Japanese language experts and Japanese researchers who understand the Slovene language, becomes increasingly relevant to the question of improving the Japanese language learning environment in Slovenia (Figure 6).

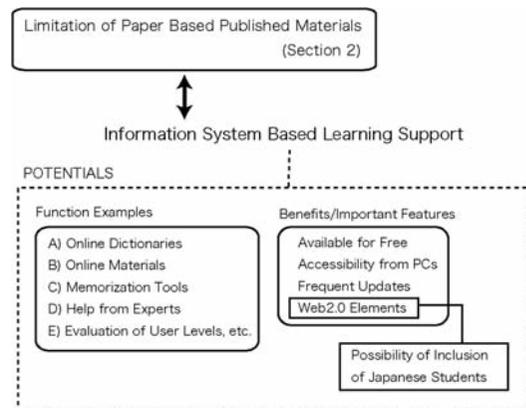


Figure 6. The potential of a web-based foreign language learning environment

The next question is to assess to what extent the Japanese are willing to cooperate in such projects.

3.2 The possibility of cooperation among students

In order to investigate the possibility of having the Japanese contribute to the process of improving Slovenia's Japanese language learning environment, a questionnaire survey aimed at undergraduate students of a Japanese university was conducted. Since Slovenia is not necessarily well known in Japan, it was anticipated the targeted undergraduate students might have difficulties answering questions related to the country. For this investigation, it was deemed desirable that the questionnaire subjects have a certain level of knowledge about Slovenia and learning opportunities such as a possibility to study abroad. What follows is the outline of the survey taken from this point of view.

Survey Outline

Survey Target: Gunma University, Faculty of Social and Information Studies, undergraduate students

Number of respondents: 79 (49 male, 30 female)

Date of survey: June 28, 2007

Method: a questionnaire survey conducted among the participants of "Introduction to Social and Information Studies", a compulsory subject for first-year students

Number of questionnaires distributed: 79, Number of questionnaires retrieved: 79 (Valid Response Rate 100%)

(The reason for selecting this particular faculty was its long-term student exchange program with the University of Ljubljana (Araki, 2007), making it practically the only faculty within Japan to

exchange students with the University⁽¹⁰⁾. Since the survey includes questions concerning the possibility of studying in Slovenia, it was deemed the most appropriate choice at the time.)

The following questions were included in the survey (the question number will be used as a reference code hereinafter):

- Q3. Would you like to study abroad in the future?
- Q4.1. Would you like to study in Slovenia?
- Q4.2. Would you like to learn the Slovene language?
- Q4.3. Would you like to support Slovene students in learning the Japanese language by means of communication and interaction through chat rooms, bulletin boards, wikis etc. in Japanese?
- Q9.1. Are you generally interested in international exchange activities and experiencing different cultures?
- Q9.2. Would you like to engage in business-related work in the future?
- Q9.3. Are you interested in chat rooms, bulletin boards, wikis and similar Internet-based systems?
- Q9.4. Are you interested in international cooperation activities, such as helping people in developing countries?

Five options were provided: 1. Yes, 2. More yes than no, 3. Undecided, 4. More no than yes, 5. No

The results of Q4.1, Q4.2 and Q4.3, which are directly related to Slovenia, are displayed in Table 1, Table 2 and Table 3.

By grouping the affirmative answers in Tables 1-3 into "has intention" and the negative ones into "no intention", it becomes apparent the negative

Table 1. Result of Q4.1

	Frequency	Percent	Valid Percent	Cumulative Percent
VALID 1	4	5.1	5.1	5.1
2	9	11.4	11.4	16.5
3	17	21.5	21.5	38.0
4	19	24.1	24.1	62.0
5	30	38.0	38.0	100.0
TOTAL	79	100.0	100.0	

Table 2. Result of Q4.2

	Frequency	Percent	Valid Percent	Cumulative Percent
VALID 1	2	2.5	2.5	2.5
2	9	11.4	11.4	13.9
3	17	21.5	21.5	35.4
4	20	25.3	25.3	60.8
5	31	39.2	39.2	100.0
TOTAL	79	100.0	100.0	

Table 3. Result of Q4.3

	Frequency	Percent	Valid Percent	Cumulative Percent
VALID 1	6	7.6	7.6	7.6
2	15	19.0	19.0	26.6
3	23	29.1	29.1	55.7
4	17	21.5	21.5	77.2
5	18	22.8	22.8	100.0
TOTAL	79	100.0	100.0	

tendency is strong in all of them. However, compared to Q4.1 (13 “has intention”, 17 neutral, 49 “no intention”) and Q4.2 (11 “has intention”, 17 neutral, 51 “no intention”), Q4.3 (21 “has intention”, 23 neutral, 35 “no intention”) displays a more affirmative tendency. In fact, just under one fifth of respondents (9 out of 49) who fall into the “no intention” category in Q4.1 (studying in Slovenia) answered affirmatively to Q4.3 (Japanese language learning support).

While there are not many students who actually wish to study in Slovenia, it became apparent there are students who even though they have no wish to study in Slovenia claim that, if given an opportunity to participate in mutual learning activities over the Internet, they would be willing to help Slovenian university students learn Japanese.

Next, in order to analyze the background structure of the intention to study in Slovenia or support Slovene learners of Japanese, principal

component analysis was conducted using the data from the 8 questions mentioned above.

The results of principal component analysis are presented in Table 4. While these components should be interpreted carefully in parallel with other data, the authors think, at the present stage, that the first components (Q4.2, Q4.3, Q9.3) should be grouped in a column that reflects interest in language-related or electronic communication, the second components (Q3, Q9.1, Q9.4) in a column that reflects interest in experiencing foreign culture and the third components (Q4.1, Q9.2) in a column that reflects the aim for economic success.

It is interesting to note that Q4.1 (wishing to study in Slovenia) and Q4.3 (supporting learners of Japanese) are included in separate columns. From the component analysis above, it can be seen that while the main aim of the students wishing to study in Slovenia might be economic success, the intention of supporting Slovene Japanese-learners is separate from this and connected to an interest in communication.

Table 4. Rotated Component Matrix(*)

	Component		
	1	2	3
Q3	-.004	<u>.761</u>	.441
Q4.1	.485	.175	<u>.727</u>
Q4.2	<u>.782</u>	.066	.438
Q4.3	<u>.791</u>	.332	-.031
Q9.1	.367	<u>.809</u>	.084
Q9.2	.006	.137	<u>.839</u>
Q9.3	<u>.698</u>	.223	.099
Q9.4	.480	<u>.679</u>	.030

Extraction Method: Principal Component Analysis.
 Rotation Method: Varimax with Kaiser normalization.
 (*) Rotation converged in 7 iterations.

While increasing the number of Japanese students in Slovenia might be difficult, it should be possible to create an environment suitable for

receiving Japanese language learning support from Japanese students, by, for example, designing a site to ensure more enjoyable communication, and then developing it in such a way as to attract people interested in communication itself (Figure 7).

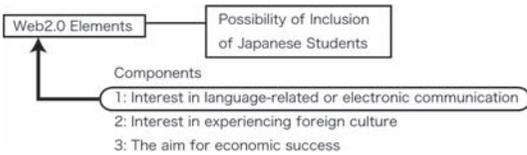


Figure 7. The possibility of participation by Japanese students

In this section, the possibility and potential of a solution based on an information system was shown. However, simply pointing out only the advantages of foreign language learning support websites is not enough and before actually implementing an efficient Japanese language learning environment based on a learning support website, problem issues need to be addressed. Specific problems are discussed in the next section.

4. Discussion

While there are many advantages to the use of foreign language learning support websites, they also display some drawbacks and limitations typical of web-based learning. The main points at issue can be summarized as follows: 1) The language learner must be computer literate and have access to the Internet. 2) Internet-based learning support websites are currently not truly portable in the same way as a printed dictionary, textbook, or an electronic dictionary. 3) Prolonged computer use tends to cause physical discomfort and psychological stress. 4) Many foreign language learning support websites, apart from the aforementioned Reading Tutor, lack academic credibility⁽¹¹⁾ in the sense of not having been published by universities and authored by academicians. 5) Many foreign language learning support websites were constructed using English as their “central language”, sometimes resulting in problems with functionality when other languages are used.⁽¹²⁾

The use of foreign language learning support websites is desirable if either the advantages

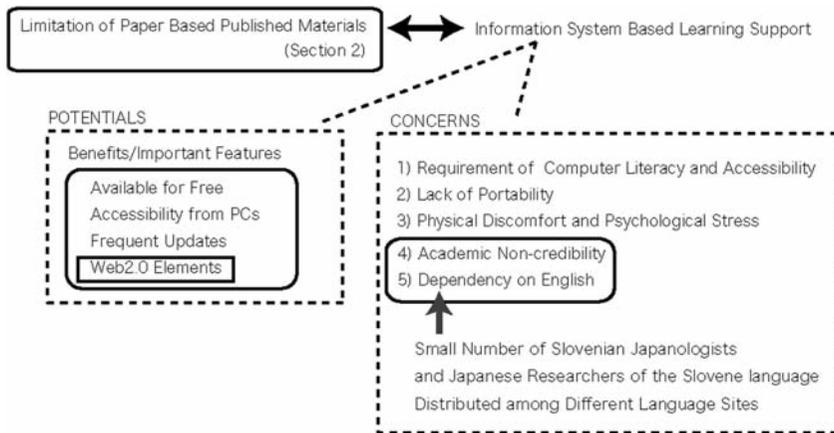


Figure 8. Points concerning the construction of a language learning support site

mentioned in the previous section exceed the disadvantages listed above, or the problem points themselves can be resolved. The problems 1) to 3) are not specially related to learning foreign languages or small-sized countries and will probably continue being resolved in parallel with the advancement of information technology in society. In contrast to this, points 4) (acquisition of academic credibility) and 5) (overcoming dependence on English) are of essential importance for this research. These problems are related to

the dispersion among several sites of the contributions of the already small number of Slovene Japanologists and Japanese Researchers. The problems indicated in Figure 4 reappear here.

Taking the acquisition of academic credibility and overcoming dependence on English into consideration, the following approach is proposed in this paper as one possible method of using Slovenia's relatively scarce Japanese language learning resources to their maximum extent:

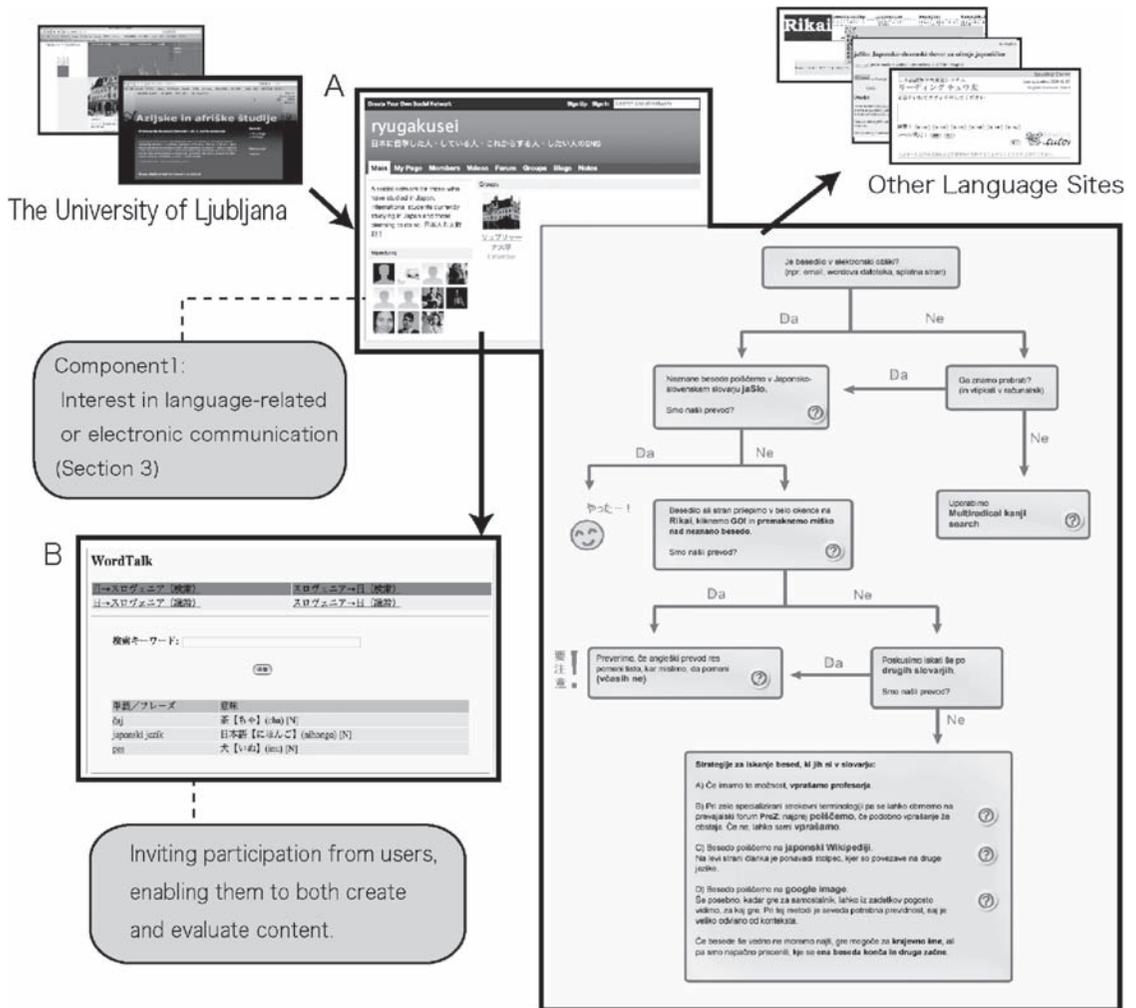


Figure 9. The construction of a prototype system

Constructing a single, academically credible website, based on the Slovene language and focused on Japanese language learning, concentrating the aforementioned resources, as well as incorporating Web 2.0 elements that promote communication and collaboration between participants, enabling them to not only interact on a personal level and share knowledge and information through chat and forums, but to also contribute and evaluate learning materials. In other words, the method proposed here is to start a single site supported by a consensus of the relevant experts and concentrate resources similar to those held by the existing foreign language learning support websites.

More concretely, this means the researchers and students of the University of Ljubljana, as the central research institution, would be directly involved in starting the new website. The reason why constructing a new site, instead of simply choosing an existing one that also supports the Slovene language, is considered more appropriate, is that some of the issues previously identified, such as reliance on English, would otherwise remain unresolved. While the construction of the new site itself would require some practical effort, the procedure of gathering the resources (for example a Japanese-Slovene dictionary) that Slovene researchers have produced themselves and hold the ownership of should be relatively easy. Moreover, having the new website managed by an academic organization that already has a student exchange program established would be extremely advantageous for creating a learning environment in which ordinary Japanese students participate, as was considered in 3.2 of section 3.

Elements of the prototype system at the present stage of development are shown on Figure 9. When finished, the system will be linked with the

Japanology Department's website. As seen in part A, it already contains an SNS-style community site with a variety of features that enable communication between participants (chat, forums, comments and private messages), as well as sharing audio and video files. Students can ask questions, exchange information, share learning materials, communicate with students currently in Japan as well as invite their existing Japanese friends (and other students) to join.

As reflected in the name of the site, at the current prototype stage the membership primarily consists of Ljubljana University students who have studied, or are currently studying in Japan. These students are being systematically invited to join the new site on the assumption that their comparatively high level of Japanese-language skills and experience with Japan itself can be valuable to other students and, when needed, serve as a bridge between the Japanese members and the less experienced Slovene students. Future plans include inviting those Japanese students who have previously studied at Ljubljana University on an exchange program or visited Slovenia on a study tour, as well as gradually including regular Japanese students with an interest in communication (as shown in section 3) and Slovene Japanese language learners who have never been to Japan and would benefit from language exchange and interaction with Japanese students.

The dictionary system still only exists in the form of outside links. However, the prototype system includes a structured set of guidelines of how to use these outside resources. Another element of the prototype system, still at an experimental stage, is a student participation based dictionary-construction function made specifically for this system (Part B). This system

can be used for constructing both Slovene-Japanese and Japanese-Slovene dictionaries. It features a majority-rule based voting system for deciding the most appropriate translation, with an aim of maintaining the quality of the dictionary. Assuming cooperation by Japanese students, it also provides a Japanese interface. One important and very original aspect of the framework is that each decision making process yields one specific communication space. That is to say, Part B also provides the possibility of discussion between users, so they can jointly decide on any improvements and countermeasures when problems arise. In each discussion space linked with a particular word, users can collaborate by adding translations, sample sentences, questions or vocabulary drills. Here, the decision process is itself one of the cooperative learning activities, and the structured accumulative dialog data provides users with a new real-time resource for language learning.

Construction of the prototype system presented here is the first step towards the system integration proposed in this paper. While the formal consensus for integrating these components into the proposed single site is still pending, the elements of the system displayed in Figure 9 already exist.

Rejecting the multiple sites currently existing and constructing a special new one might invite criticism. This single-site approach, however, is based on concern for credibility and efficiency. The present situation of several coexisting foreign language learning support websites is not the result of planning, but rather came about spontaneously. They were started independently by several different organizations and individuals for various reasons and are managed separately. This leads to the above-mentioned question of academic credibility and reliability. Furthermore,

there are problems with fragmentation (the potential contributors for a particular language are dispersed among several sites) and repetition (similar tools and content being produced several times for different sites, for example the same word being entered into several sites' dictionaries), resulting in poor efficiency. Such problems should not be ignored when it comes to a language with a small number of speakers such as Slovene. While the situation of multiple sites coexisting implies diversity and the benefits of competition, the inefficiency of such an approach prevents it from being the optimal solution for a small language, which might benefit from a more concentrated effort, namely a single site. This paper assumes Slovene to be such a case.

The construction of such a website could also be effective in gathering ordinary Japanese people who do not yet have any contact with Slovenia and are simply interested in a general cultural exchange and economic benefits. It can be anticipated that a site where "all Japanese-speaking Slovenes" congregate would have the effect of bringing Slovenia closer to the Japanese. Therefore, for example, it should be possible from among those Japanese students who already have an interest in cultural exchanges with foreign countries, to interest a larger number in Slovenia, than by using more conventional methods. Furthermore, this kind of site could be useful for the securing of local personnel by representatives of Japanese companies who plan to expand into Eastern Europe. This approach would probably provide better support for economic activity than the current state of several dispersed sites.

To summarize, construction of a single new foreign language learning support website by an academic organization is proposed as a provisional method of improving the learning environment of

Japanese as a foreign language in Slovenia. While the validity of the proposed method is yet to be examined from many sides, the authors consider it to be at least one of the more promising methods at the present stage.

5. Concluding Remarks

In this paper, the various issues facing a small European country with its own language and developing its Japanese language learning environment are examined and a learning support environment based on an information system is proposed as a temporary means of improvement. Furthermore, regarding the future prospects of development in constructing Japanese language learning environments in small countries, based on the results of our survey, the possibility and importance of participation of ordinary Japanese with no direct relation to those countries was presented.

While this research deals with Japanese as a foreign language education, it focuses solely on the small-country point of view and can be considered novel in this regard. Although considerable research has been devoted to Japanese as a foreign language education within Japan (Kikuchi (1997), Tsuruno (2002), Ozaki (2006)), rather less attention has been paid to such developments abroad, particularly in relatively recently established small countries.

Furthermore, it should be possible to apply the findings of this research to other small countries with language education problems similar to those of Slovenia, and this could be important in the future. There are other such small countries in Europe (as mentioned in (Bekeš, 2004)) and elsewhere, and whether a learning environment for Japanese as a foreign language is created and

maintained in such countries is certainly a matter of concern and interest for Japan⁽¹³⁾.

Lastly, while this research focused only on the development of information systems in recent years as one of the changes in the environment surrounding Japanese language learning, there are also other changes worth investigating. One of the rather interesting tendencies in recent years is the increasing number of scholars of the Chinese language (which itself is closely connected to the Japanese language) worldwide.⁽¹⁴⁾ A multilateral investigation including these points of view can be considered as a future research topic.

Acknowledgements

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Notes

- (1) From "Internet usage in households and by individuals, Slovenia, 1st quarter 2008" on the page of Statistical Office of the Republic of Slovenia: http://www.stat.si/eng/novica_prikazi.aspx?id=1907
- (2) From "Republic of Slovenia" on the page of The Ministry of Foreign Affairs of Japan <http://www.mofa.go.jp/mofaj/area/slovenia/index.html> (place names were added as needed)
- (3) There are 2 major universities central to university education in Slovenia: University of Ljubljana and University of Maribor. The latter, however, is oriented more towards science and technology, while cultural studies (including Japanese) are mainly taught at the University of Ljubljana. The faculty in charge of Japanese language education is

- called the “Faculty of Arts” in English and not “Department of Literature”, as its Japanese name suggests.
- (4) From the year 1996, the Japanese side also began accepting and funding Slovene exchange students. However, the domestically produced scholarly books on Slovenia are, while not completely non-existent (Yamazaki, 1985 and Kanazashi, 2001), rather small in number. The same can be said about the number of Japanese people able to understand the Slovene language.
- (5) While a detailed examination of the criteria of choosing languages exceeds the scope of this research, Trim (1994) discusses some very interesting points regarding the criteria for choosing the second language. In the same work, it is stated that a country is more likely to value a particular foreign language highly if that language:
1. Is widely used as a vehicle of international communication
 2. Is spoken by a country (or countries) with which there are active interpersonal, industrial, commercial, leisure, entertainment, and tourism relationships
 3. Has a positive image
 4. Is spoken by high prestige groups.
- (6) Taken from an argument by Andrej Blatnik <http://www.transcript-review.org/section.cfm?id=249&Lan=en>
- (7) <http://www.rikai.com/perl/Home.pl> features pop-up definitions (Japanese -> English, English -> Japanese, English -> Spanish, Chinese -> English) as well as Firefox plugin with the same functionality (but apparently only the Japanese to English version), flashcards and several small modules (such as “Today’s Kanji”) that users are free to place on their own websites.
- (8) <http://language.tiu.ac.jp/> Also contains a level checker for either vocabulary or kanji. Interestingly, it also supports the Slovene language in “jaSlo: Japanese-Slovene Learner’s Dictionary” (<http://nl.ijs.si/jaslo/chuta>), containing almost 10,000 entries.
- (9) <http://www.wordchamp.com/lingua2/Home.do> offers pop-up definitions (called “web reader” on the site), vocabulary lists and several different exercises including pronunciation, listening comprehension, picture flashcards and antonyms. One of its characteristics is that it was presumably specifically designed to be a resource for language teachers, offering tools for setting homework assignments and tracking student performance.
- (10) Gunma University (primarily the Faculty of Social and Information Studies) has a one-year student exchange program with the University of Ljubljana. Refer to Araki (2007) for the particular details of this student exchange system.
- (11) The problem of credibility seems to be omnipresent when it comes to Web2.0, and is well known. The results of another survey conducted for this research include reports of unease regarding this matter and will be briefly reported here. A questionnaire survey targeted at foreign students studying at Gunma University’s Foreign Student Center was conducted as a preliminary survey for this research in June 2007. In the 11 questionnaires retrieved (the respondents’ first languages were Vietnamese (3), Chinese (2), Korean (2), Malay (2), Persian (1) and English (1)), 2 people professed to using Japanese language learning support websites, which is not many. However, in answering the open answer type of questions about the advantages and disadvantages of using Japanese language learning support websites, 4 out of 8 respondents pointed out advantages such as speed of use (“many words can be translated at once”). Among the indicated disadvantages, the problem of accessibility (“cannot always be used”) appears in 3 instances. There were also expressions of unease regarding the accuracy of

information (“I don’t know whether the information is correct”).

- (12) The language learning sites based on English usually cannot support certain features of the Slovene language, which presents a problem in terms of practical use. For example, while WordChamp’s so called Web Reader offers both Slovene -> Japanese and Japanese -> Slovene options, it presently cannot support inflection as it appears in the Slovene language, for example declension of nouns. This might not present a big problem while using the Japanese -> Slovene option for reading Japanese text or inputting new words (that is, Slovene definitions of Japanese words), but becomes a serious issue when the Slovene -> Japanese option is used. Moreover, dependence on English as a transitory language in the process of learning Japanese can present a problem in itself. The translation process requires in-depth knowledge of both the source and the target language, making it necessary for students of a foreign language to be proficient in their own language. After graduating from high school, however, many students never formally study the Slovene language again, and a firm grip on proper orthography and grammar is not always the case. It can be argued that using English as a transitory language between Japanese and Slovene aggravates the problem.
- (13) Regarding the topic of Japanese language research in Slovenia, Bekeš (2004) notes “(Since Slovenia is) a small country, it is difficult to anticipate that the research of Japan and the Japanese language will greatly increase in the future. In order to maintain the enthusiasm of researchers and the level of research hereafter, connecting with Japanese language researchers from other countries is an extremely important topic.” If Slovenia and the surrounding countries each

started a single site like the one proposed in this paper, the cooperative administration of those sites could contribute to the stated goal of cooperation between researchers.

- (14) The increase in the number of Chinese language scholars does not necessarily mean a decrease in the number of Japanese language scholars. There is a possibility that the results of research by a greater number of Chinese researchers who understand Slovene will lead to higher levels of functionality of software for the Japanese language learning environment. For example, an algorithm for translating a word in a Slovene sentence into a Chinese word or character might also be useful for translating it into a Japanese word or character as Chinese and Japanese share many of the same characters.

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A New Set of Staged Criteria to Evaluate the Improvement of Communication within a Regional Community

Keywords:

Regional Information System, Regional Community, Collaboration, Evaluation, Civic Engagement

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Abstract

This paper reports the progress and result of the experiments of EDCM (Evaluation and Discussion by Community Members) approach with a new set of staged criteria which aims to improve communication within a regional community. Based on the concept which the author wrote in the previous paper, the experiments of the approach took places in Sapporo City and Fujisawa City.

The execution and the discussion of the experiment gave the chance that participants became aware of new human resource networks, reconsidered the media for regional community and the level of their commitment to regional community. These are learning opportunities to improve the participants' capability to observe the present situation of the regional community and to provide motivation for collaboration. Also the results showed a more unified public and private partnerships is required in order to share the meaning and impact of the media in regional community. This experiments in spite of early stages of our study, it can be a contribution to creating a new channel for the regional community and bridging human relationships.

1. Introduction

This paper reports the progress and result of the experiments of EDCM (Evaluation and Discussion by Community Members) approach with a new set of staged criteria which aims to improve communication within a regional community. Based on the concept which the author wrote in the previous paper, the experiments of the approach took places in Sapporo City and Fujisawa City.

The procedure of this study is to hold workshops in Sapporo and Fujisawa City in the same style as was held in the Hitoyoshi case study, by using indicators⁽¹⁾. This study implements the same indicators (Table 1) that were used in the Hitoyoshi case study however with a more detailed explanation of each stage included. From the results of workshop, this paper is to analyze the utility and adequacy of the evaluation indicators.

Table 1. The indicators of community communication

	Stage1	Stage2	Stage3	Stage4
Identity(1)	Discuss the community with local residents and outside personnel.	Conduct daily community coverage	Define the purpose of the coverage and articulate to interviewees	Exchange the information from the coverage and communicate to related people
Identity(2)	Understand the operations of video cameras and content	Understand the community and be able to design a target for community coverage	Be able to capture media suited to community coverage	Edit appropriately and impart to outsiders
The role of lecturer	The lecturer and outside personnel involve the community deeply	Teach the necessary knowledge of creating content(the method of coverage and interviews,basis of records ,and editing)	Maximize citizen independence and support accordingly	Coordinate and match broadband stations and external institutions
Media Creation	Learn the basis of media creation	Make plans	Formulate group(s) for media creation	Take initiative in creating content
Communication	Set up the opportunity for community coverage with ease	Cover the community frequently	Research and study the objective of the coverage	Reflect the character of the interviewee(s) on coverage
The relationship to community development	Reaffirm the community through outside personnel who are useful to the community	Work on community projects and consider the media's manner of utilization	Practice the projects	Make a new community creation project
Recognition ranking in the community	25% of the residents recognize	50% of the residents recognize	75% of the residents recognize	100% of the residents recognize
Community creation in development	Gather leaders of various communities and put them into events and workshop	Organize the community into groups for media creation of the community	Shift the groups to organization	Cultivate a human resource system within the organization

2. The concept and methodology of EDCM approach

Recently, deteriorating communication within communities and diversification of values among local residents have become serious problems in Japan. Therefore, it's difficult to share goals and direction within regional community. ICT (Information and Communication Technology) has become an important tool for developing and maintaining a communication system. ICT allows a lot of content to be supplied and is useful for research and communication in daily life and business around the world. The information explosion has made it easier to create local content and forge relationships between people. However, face to face communication is still important to the regional community in order to share local information and connect social discussions. This is necessary for the next stage of the regional community development, because the learning process is still evolving with the regional community. For this situation, forming new communication channels is a task with pressing urgency.

Issues in regional community include how to build communication networks inside and outside of the regional community, how to respond to a globalized information society, and how to cope with an aging society. Regarding communication within regional communities in Japan, the government's comprehensive national development plans and their information policies for regional development have had a big impact on developing regional communities both in terms of transportation and information. However, with these policies, the issue remains of underutilization of the infrastructure to build social networks and to conceive and implement new ideas (Kobayashi 1997&2000). Yamanaka (1999) analyzed several

factors that affect development in and create disparity between regional information systems across cities, towns and villages in Japan and pointed out three conditions for development: ability and creativity in information use; telecommunication infrastructure; and the existence of related industries which can support regional information systems. Ability and creativity in information use is especially important. In regional development and interactive systems, belonging in various parties and face to face communication supported by media is necessary for society (Sudoh 1995). Then, the citizens' concern is determining how to utilize the community media⁽²⁾ to gather information and feedback from the regional community itself in order to support its growth and development.

To solve these problems, social discussion and evaluation by citizens are necessary. The new communication network then becomes important for various parties to share and exchange local information and knowledge. But, communication criteria are rarely met and in fact there are not clear standards on how to develop such criteria. This study considers the possibility of evaluation through engagement with the regional community to solve this present situation.

On the local level, municipalities have various evaluation methods available depending on their aim⁽³⁾ and citizen participation can take many forms⁽⁴⁾. But this is not mature in Japan. Municipalities have various resources at their disposal, however only allocate minor attention to citizens' concern. The importance of evaluation by citizen participation is to view various evaluators and learning processes, to have multiple aspects of evaluation, and for citizens to get feedback from the evaluation results. This process is connected to improving practices and situation and offers

opportunities for continual refinement and reflective learning⁽⁵⁾. However, evaluation indicators focused on citizens' knowledge and learning are immature, and there isn't a clear idea of how to develop such indicators.

The next consideration is the case of evaluation through civic engagement. In Oregon State's benchmarks, public services are based on responsibilities. Citizen participation occurs through research and study of civic groups by benchmarking and from this the potential for improvement is advanced. Another system, the Readiness Guide by Computer System Policy Project (CSPP) and J-Matrix (Readiness Guide in Japanese version)⁽⁶⁾ aims to provide new methods for creating new and improving existing projects. These evaluation styles are based on communication and idea gathering for solutions to problems. Participants share information and build up networks. The result is policy reflection and new project creation. In these two cases, learning processes and the evaluation system are invaluable. The relationship between learning and evaluation is found in civic engagement. The evaluation style is self-evaluation. Learning by evaluation includes reflection, awareness and setting new goals. Evaluation and response are connected to improvement by giving feedback on early planning and unexpected circumstances. To correct distortion, a relative viewpoint must be chosen from the multiple evaluators and discussion.

Table 1 shows evaluation indicators which were implemented in previous research (Namiki2005b)⁽⁷⁾.

In Hitoyoshi City, Kumamoto Prefecture, the result of the evaluation workshop using these indicators was increased awareness of the regional community's present state, discussion of improvement of relationships between various

groups in the city, and consensus on regional community goals by sharing information, human resources and ideas (Namiki 2005b). This study's workshop style is based on the Hitoyoshi City case study. First, 29 participants are divided into five groups (local government, creation of community, industry, media, and future generation). Each group individually evaluates the facet of the regional community they are assigned and present their findings to each other. Finally, all participants discuss the results as one group. This workshop was completed on December 19th, 2004.

3. Sapporo City Case Study

3.1 Overview

The workshop was completed on December 8th, 2006. 21 participants were divided into five groups: international tourism city, information center, youth, beautiful November project and cultural facilities⁽⁸⁾.

3.2 The individual group evaluation and issues in Sapporo city

(1) The case of bringing up the problems from the evaluation (in Beautiful November project group)

In this case, common problems and issues were found from the 'identity' and 'role of lectures' indicators, about the needs of gathering human resources with production ability. This project aimed to increase tourism in the month of November, when the number of tourists is comparatively low. The project started in 2006 to stimulate regional resources and create an attractive city with the help of citizens and tourism. In this workshop, this project consisted of about ten people and their immediate task was to gather

Table 2. The results of the comprehensive group evaluation in Sapporo City

	stage1	stage2	stage3	stage4
Identity(1)	International tourism city	Information center	Youth(3.5) Beautiful November project Cultural facility	
Identity(2)		Beautiful November project Information center	International tourism city	Youth Cultural facility
The role of lecturer		Beautiful November project International tourism city	Information center Cultural facility	Youth
Media Creation		Information center	International tourism city	Youth Beautiful November project Cultural facility
Communication		International tourism city Information center	Beautiful November project	Youth Cultural facility
The relationship to community development		Information center	Cultural facility	Youth Beautiful November project International tourism city
Recognition ranking in the community	Youth Internatinoal tourism city Information center	Cultural facility		
Community creation in development	Information center	Beautiful November project(2.5) Cultural facilities		Youth(Stage 0 △) International tourism city

various human resources. In relation to this, the issue as found from the indicators of 'Communication' and 'Recognition ranking in the community' was how to broaden the project by sending information and finding human resources. In addition, the indicator of 'The role of the lecturer' was considered highly important. For example, specialists with different backgrounds reported to others about the attractive November in Sapporo. Finally, future issues were connected to the economic level through the process of involving those people.

(2) The context in the community coverage indicators of 'Community' (in cultural facility group).

The cultural facility group consists of museums and the non profit organization Civic Media. Museums do not represent the community media directly. But, as far as community coverage is concerned, they have the ability to inform residents of their facilities and events, by introducing this information on their website and in their brochures. Within this group, the non profit organization Civic Media is in Stage 4, but the group overall is in Stage 3.

The results from all groups are shown in Table 2.

3.3 The comprehensive discussion in Sapporo City

In the comprehensive discussion, issues were raised concerning the community media.

In this case, to improve community media and communication, the opportunity to connect new groups was suggested. Through the community coverage process, citizens can form new relationships and expand the Beautiful November project. For example, during this workshop, the opportunity to discuss the question “Is Sapporo an international city?” on the city’s website was suggested. This suggestion was inspired by another group’s evaluation results, and the need to deepen discussion of local issues. The results of the international tourism group showed the ‘Communication’ indicators in Stage 2. This is because the level of information gathering and researching is low, for example, street directories are still in the process of development. Similarly, the ‘recognition ranking in the community’ indicator is in Stage 1, because large scale events like the snow festival are highly recognized but other events have low recognition. Sapporo is not considered an international city by its citizens. With this in mind, the suggestion is to ask the question again on the website and cultivate a view amongst the citizens that Sapporo is an international city.

The next case involves the media’s role in editing the information in regional community. It is necessary to utilize the media to facilitate accumulation and presentation of the local community’s information. The expanded potential of the media then helps in creating new relationships.

Once the media broadcasts community information, other media can store and replay it. It becomes possible to find new meaning and value

in the stored information, which will become archives for the regional community. As an example, everyday scenes are an important part of regional community’s history and character, but are rarely recorded on film. Similarly, day to day activities within the regional community are not known by the whole regional community because access to media and research is not easy. Community media should be stored, edited and reintroduced to the regional community. Sapporo City’s community media ‘Web City Sapporo’ is open and free of charge, and the content is easily differentiated from commercial content.

This workshop aimed to connect people who have various backgrounds. This connection assists in problem solving, issue raising and the research of citizens’ views about regional information. In both the individual group evaluations and the comprehensive discussion, participants shared their information which they previously did not have the opportunity to convey. Groups which do cover the whole regional community introduced their connections and community information which is then linked through discussion and evaluation by the indicators. Through face to face communication with a variety of people, participants discovered the human network in the regional community and the core resources of community information.

However, the issues concerning the indicators are how to clarify the community area and how to establish a recognition ranking in the discussion. This is related to the size of the regional community. Some participants suggested that Sapporo City has a large population and therefore evaluation is difficult, because the amount of information access and the level of recognition are different. It is necessary to make the groups more flexible, because it is often difficult for groups to

evaluate and decide on the appropriate stage. Also, citizen participation changes the number of people and balance of the group so the group needs more careful monitoring. Furthermore, some participants belong and commit to multiple groups in the regional community. For these reasons, more research of human resources is necessary. In Sapporo's case, to prevent scattered discussion, each district in Sapporo city was divided into discussion groups.

4. Fujisawa City Case Study

4.1 Overview

The workshop was completed on December 10th, 2006. 19 participants were divided into four groups: video imaging, local government, mapping and electronic conference room⁽⁹⁾.

4.2 The individual group evaluation of issues in Fujisawa city

(1) Relationships within the video imaging group

With regards to the 'Community creation in development' indicator, two groups were found within the video imaging group which have different aims, but a complementary relationship. One group holds big events which cover the whole community, and another creates videos on a smaller scale. In this case, only two such divisions within a group were found, however, it is entirely possible to find more groups which are able to use their complementary relationships to create a wider network in the community.

(2) The context in the 'Identity (1)' indicator in local government group.

The local government group evaluation focused

on the local government's website. They associate community communication and information gathering with the management system through administrative operations. In their view, community coverage is defined as citizen need finding and which is an obligation of the local government. In the present situation, responding to citizens' requests has limits. Since vast numbers of request may be gathered by ICT, the difficulty lies in categorizing those requests according to quality and then prioritizing feedback. However Fujisawa City supplies information on child raising and crime prevention by cell phone e-mail and is considering extending this effort to other forms of media. Accordingly, it is necessary to sort the content which is important for the regional community and to create the appropriate channels.

The results from the comprehensive group evaluation are in Table 3.

4.3 The comprehensive discussion in Fujisawa City

In the comprehensive discussion, there were noticeable issues about the relationship within the regional community.

From the results of the evaluation, a participant discovered the potential of collaboration between the local government group and the video imaging group: to improve the local government's website, which has no video footage, he suggests utilizing the contents created by the video imaging group in this workshop. The local government's website has a high recognition ranking in this evaluation, but the video imaging group has limited opportunities to introduce their creations. Therefore, they can form a partnership by sharing their issues and ideas.

Another participant pointed out that the

Table 3. The results of the comprehensive group evaluation in Fujisawa City

	stage1	stage2	stage3	stage4
Identity(1)	Video Imaging		Local government Mapping(3~3.5)	Electronic conference room
Identity(2)	Video Imaging	Local government(2.5)	Mapping(3.5) Electronic conference room(3.5)	
The role of lecturer		Electronic conference room(2.5)	Video imaging Local government Mapping	
Media Creation		Local government	Video Imaging Mapping	Electronic conference room
Communication	Local government(0.5)	Mapping		Video imaging Electronic conference room
The relationship to community development	Local government(1.5)	Video imaging Mapping Electronic conference room(2.5)		
Recognition ranking in the community	Mapping Electronic conference room(0~0.5)	Local government		
Community creation in development	Local government	Video imaging	Mapping Electronic conference room(3.5)	

electronic conference room (a web-based discussion forums on Fujisawa City's home page, in which citizens can begin conversations on a variety of topics with other citizens upload photos, ask questions and so on) and the mapping group are positioned closely in the evaluation results. The reason was pointed out by another participant, which is that two projects started from the same concept: civic participation in various styles, communication and information sharing. The advanced stage of the electronic conference room is simply due to the fact that it ten years old while the mapping is five years old. In this discussion, the evaluation stage makes clear each group's activities in the same direction within the community. The two groups have the same aim in

both communication and civic participation. Based on this, multiple systems operate in parallel and in partnership in Fujisawa City's community creation.

Next, there are suggestions on how to utilize these evaluation indicators. To provide motivation for each group, the self evaluation level is set a little higher. To advance levels and improve the present situation, it is necessary to promote collaboration between groups with a higher evaluation ranking and groups with lower rankings. Other use of this evaluation indicator is to change public opinion from criticism to praise. For example, there are a lot of critical opinions toward the local government in particular. The understanding of what has been accomplished and

developed for citizens will raise the motivation for both the local government as a whole, and individual local government staff.

The local government has a major presence in the regional community, and their new endeavors and useful services should be introduced to and understood by the regional community. This has an effect on regional community's pride, by increasing citizens' interest in and motivation to improve the running of their community. In addition to making information available, how to determine the recognition ranking is an issue, because the amount of information access is not strongly related to the level of recognition. The feedback on evaluation indicators was to continue the workshop step by step, to connect a variety of groups and participants, and to contribute a new bridge for regional community evaluation by making clear each group's strengths and weaknesses. Regarding continuing evaluation, it was considered important to determine the stage and achievement and to indicate potential new partnerships by examining the information of human resources in more detail. Selecting a variety of groups and participants is necessary in order to conduct proper evaluation and to bridge gaps in the evaluation. For this, it is necessary to investigate the groups' composition and members and to share this information with participants.

5. Glossary of the results of the experiments

The results of the workshops in Sapporo City and Fujisawa City showed that although there are some issues concerning evaluation indicators and conducting workshops, this study contributed to regional community's interaction by increasing communication and awareness of the present situation through evaluation results and

discussion.

Consideration is the issues of the indicators and the role of the community media. According to the 'Recognition ranking' indicators, the majority of the citizens is in Stage 1. Stage 1 indicates a level of recognition under 25%, which is very low. Although it may be better to adjust the criteria which define each level, we should utilize the higher stage groups and concentrate on information to promote communication within the regional community communication. In particular, more and more important information must be made available; for example, new policies, financial conditions, and disaster information. With regard to community activities, the local media pick up content such as local events, news, and issues, edit it, then broadcast or publish it. These activities raise awareness of the local community's problems and opportunities for further social education. Therefore, in order to raise the interest of the community, it is necessary to improve the recognition ranking by appropriate editing of information and civic participation.

From the evaluation results, there are opinions for separating numerical information on visitor access to the web site from the recognition ranking. To do this, it would be necessary to have more data and monitoring in the study, otherwise it would be difficult to separate them clearly. As for the recognition ranking, although there are different types of media, organizations which have public significance must be introduced to and highly recognized by the regional community.

6. Conclusion

The evaluation results and discussion indicated that this study contributed to creating new networks and partnerships within the regional

community. In this study, there are limits to consider in the operation of conducting an evaluation workshop. We must utilize the evaluation information and results, not only within the evaluation workshop but in daily community activities for the long term. This is connected to the evaluation; citizens should become accustomed to and feel comfortable with giving feedback between the practice and evaluation.

Acknowledgement

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Notes

- (1) In this study, the implementation field is Sapporo City and Fujisawa City. The reason includes the performance in areas of civic engagement with information and communication technology. The representative of civic engagement is NPO Civic Media in Sapporo City and NPO Chiikimiryoku in Fujisawa City. Each workshop of this study was held in collaboration with them.
- (2) Community media is the media to provide community information such as familiar and local information by citizen participation. (Funatsu 1994)
- (3) Weiss (1998) pp. 4-5
- (4) Creighton (2005)
- (5) By reflection, feedbacks on learning improve the situation. Argyris, C & Schon, D. (1974) and Schon, D (1983)
- (6) Technology CEO Council (2000) reports evaluation and Fearey (2002) reported the impact of the project by Readiness Guide in The San Joaquin Valley.
- (7) To develop this indicator, the author carried out a case study about Civic Director Project in Hitoyoshi-Kuma area, and drew their learning models by using a grounded theory. Then, the author

extracted the function of the learning model as indicators within the seven fields and four stages (Namiki 2005a). Participants utilize this indicator to determine which stages and unlock the potential to the next step.

- (8) The youth group consists mainly of university students. The Beautiful November project aims to increase tourism in November in Sapporo. The cultural Facility is Sapporo's Information Center. The international Tourism City consists members of relevant Sapporo events.
- (9) The electronic conference room group makes content about Fujisawa by sharing and discussing information using a web-based bulletin board. The Mapping group makes content of Fujisawa using by GPS. The video imaging group creates video footage in Fujisawa. The local government consists of Fujisawa City staff.

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The Informatic Turn—Who Observes the “Infosphere”?

Keywords:

information ethics, infosphere, observer, autopoiesis, fundamental informatics, informatic turn

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Abstract

In this paper, we discuss the *infosphere* from the viewpoint of an observer. The infosphere, as proposed by Luciano Floridi, is a core concept that integrates separated micro-level information ethics into an integrated information ethics (IE). The goal of IE is to decrease the entropy of the infosphere. When applying IE to actual situations, it is necessary to clarify by whom and from where it is observed because entropy itself is defined and measured from the observer’s viewpoint. The theory of Fundamental Informatics (FI) insists that not only human beings but also other living creatures can become observers of the infosphere. On the other hand, a machine cannot be an observer by itself, although it can constitute part of an observer when it is embedded in a complex man-machine system. The *informatic turn*, which enables this extended notion of an observer, provides criticism on Floridi’s infosphere.

1 Introduction

Fundamental Informatics (FI) is a new academic theory which we are in the course of developing (Nishigaki 2004). It aims at providing radical insights into various informational phenomena in biological, mechanical and social fields, rather than at providing basic knowledge of information and communication engineering. Since FI inquires into the philosophical foundations of information, it has strong relations to the ethics and value systems in the information society. This paper discusses some aspects of Floridi’s IE (Information Ethics) which is a part of his PI (Philosophy of Information) in the light of FI. Especially it aims to criticize the concept of infosphere (Floridi 2008), the central idea of Floridi’s argument, by extending the notion of an observer involved in informational phenomena. In FI, the observations of not only human beings but also any living creatures can be taken into consideration. This change of attitude is called the *informatic turn*, which makes us possible to discuss the worlds experienced by various living things.

Up to this time, our understanding of the value system underpinning the larger society has been based on conventional communications. In the 21st century, we need to elaborate on the value systems in the information society that are supported by developed digital ICT (information and communication technology). We especially need a new approach to ethics that is not the so-called information ethics as a *normative code* underlying the use of ICT, but an information ethics as *universal ethics* for the 21st century global society.

As we all know, however, this goal is not easily attained. The concept of *information* itself is equivocal, and there is as yet no common, widely

accepted, exact definition of the concept. In addition, ethics and morals depend on local cultures that are permeated with diversity. While each area of the globe is interconnected through globalization, it is not clear whether there can be a *universal ethics* that overcomes such cultural differences. How can we solve this chaotic problem? We argue that by taking these conditions into account, it is possible for us to take the standpoint of “monism of information”, where we look at all *beings* as having informational existence. Based on such a standpoint, we are able to seek a new approach that establishes universal ethics.

The information ethics proposed by Luciano Floridi is one particularly noteworthy approach that has attracted great attention. Its main concept is the notion of the *infosphere*. Everything (including not only human beings and other living creatures, but also natural and/or artificial beings) is defined as an informational being (informational object) which constitutes the infosphere. Floridi’s information ethics endeavors to respect all informational beings in the infosphere and to make them flourish (Bynum 2006). In his argument, artifacts such as robots also take part in ethical issues, although to date they have been excluded in conventional ethical arguments because of their inability to take responsibility. Plainly speaking, Floridi’s approach is a kind of new ecological environmental ethics that considers not only living things but also non-living things, including artifacts, as opposed to conventional ecological ethics which aims at preserving an ecosystem composed only of living things.

Incidentally, the notion of infosphere reminds us of the Situation Semantics which is one of the most refined theories for natural language processing (Barwise and Perry 1983). The theory, which captures the ever-changing situations of

real world through mathematical expressions, makes analyses of linguistic statements as a bulk of information describing the situations. This approach is called ecological realism. We might say that the approach has something in common with that of infosphere. However, the focus of Floridi's infosphere is apparently on ethical problems.

The most remarkable point of Floridi's information ethics is its broad scope as an *integrated macro-ethics*. Hereafter, we refer to this integrated information ethics as IE. Most arguments relating to information ethics used to belong to *micro-ethics*, which distinguishes between three different aspects of a moral agent's behaviors (where "moral agent" is understood as one capable of playing a role in moral issues). Namely, 1) the information that should be provided as input to the moral agent (for example, the issue of informed consent); 2) the information that the moral agent should offer as output (for example, the issue of accountability); and 3) the influence that the moral agent should have on its surroundings (for example, the issue of privacy).

In micro-ethics, each issue is discussed independently, thus enabling deep and specialized arguments. However, in practical situations, these three factors are often intricately intertwined and mutually intervene with one another (for instance, the issue of the surveillance society). Therefore, these three factors need to be approached from an integrated standpoint. Floridi's IE precisely addresses this need.

The concept of the *infosphere* is defined to introduce an integrated standpoint. The infosphere is a kind of informational environment that consists of informational beings (objects). To understand what an "informational being" is, we could imagine an "object" in object-oriented programming.

Actually, such "informational beings" are made of a set of data each corresponding to some property values that reflect a specific condition or function. As well as moral agents, *moral patients* are informational beings that are given impact by the actions of moral agents.

In brief, Floridi's IE, by regarding various kinds of informational beings as moral patients, aims at preventing them from being destroyed or fragmented. Thus micro-ethics are integrated into a single macro-ethics with a simple claim: We ought not to destroy any informational beings in the infosphere. In micro-ethics, we discuss the norms for an *agent (actor)*, but on the other hand, in Floridi's IE, it is the status of a *patient (receiver)* that we should focus on in order to construct ethics and morals.

As mentioned above, moral beings (those beings who are concerned with ethics and morals) considered in Floridi's IE include not only human beings but also natural beings such as living things, rocks and stars, and even tangible/intangible artifacts such as machines, pictures, music, and literary products. That is, any kind of being in the universe can be discussed in IE. Usually we consider only those beings who take responsibility for their actions in relation to ethics and morals. Nevertheless IE also considers complex man-machine systems including robots or computers. This is obviously one of the great merits of IE in the information society where ICT is highly developed.

Floridi's IE aims at respecting all beings in the infosphere and making it flourish. To state its goal more precisely, IE tries to keep the infosphere from increasing its *entropy*. In other words, according to Floridi's IE, increasing or decreasing entropy corresponds to bad or good, respectively.

2 Hierarchical order and entropy

Floridi’s idea is that any kind of beings (not only human beings but also other living creatures, natural beings, and artifacts) can be understood as an informational object in the infosphere, and each deserves and demands respect. This idea seems to criticize a certain element of traditional Western thought, namely, a monotheistic hierarchical order (from top to bottom: God, angels, human beings, animals, plants, minerals, and artifacts). Our supposition is that Floridi himself hopes to overcome this order. On the contrary, however, it yields the impression that all such beings are regarded and understood from the monotheistic viewpoint of the transcendental God (Demiurge) who creates everything.

God treats His creations with great compassion. And human beings, endowed with reason and especially chosen by God, have the mission to become co-stewards of God’s creations. Therefore human beings must preserve and control them to bring about harmonious prosperity. This is the typical Western understanding of how humans stand in relationship with and as responsible for the natural order. IE, as proposed by Floridi, is the development of this thought in the digital infosphere. For us human beings, it is our mission to control the infosphere in such a way as to decrease its entropy.

By taking such an approach, we are able to attain some kind of preferable effect just like the ecology movement. The strongest point of Floridi’s IE is its comprehensiveness and progressiveness. Today, classical human views are challenged by new findings of modern sciences such as molecular biology, brain science, ethology, biogenetics, robotics, cognitive science, and AI (artificial intelligence) studies. Such findings create severe

doubt about the classical western view of a human being as one who possesses reason and acts according to his own free will. Day by day, the borders between soul and body, between animals and human beings, and even between living creatures and machines, are becoming increasingly blurred.

What will happen if this situation continues? It threatens the traditional ethical view wherein only a human being becomes a moral agent who takes responsibility. And we might even be led to a fatal collapse of ethics and morals. The idea of an infosphere that comprehends all creations (beings) can be regarded as an effective strategy to establish a new kind of ethics and morals that will be accepted in the information society where complex man-machine systems play increasingly important roles. In this regard, the approach of Floridi’s IE – focusing not on *agents* but on *patients* and aiming at preserving all moral patients – is quite ingenious because we can avoid problematic discussions concerning responsibility and/or free will that always accompany a moral agent.

Nevertheless, we cannot deny that Floridi’s IE still seems to have some basic problems. In short, these problems all turn on a simple question, “Who judges something to be important and worth preserving?” (We can make the same query of ordinary ecology that insists on preserving ecological system.)

It is of paramount importance in the infosphere to define how an informational object corresponds to each being. In other words, this concerns the viewpoint towards the whole world. It is very likely that the conceptual structure of human beings will be applied. In any event, Floridi’s argument on this point does not seem to be satisfactorily clear.

Apparently, Floridi’s IE itself is a pure abstract theory that provides a framework and/or a

methodology to solve problems, and therefore it does not impose a specific conceptual structure. But when we apply IE to actual situations, unless properly handled, a conceptual structure might be chosen that is currently convenient for effective information processing. This inevitably involves the risk of oppressing humanity. For example, we can easily imagine such a situation that a computer system, initially constructed with great cost, continues to be in use for an extended period even if it is quite unreasonable and inconvenient for many people. This may happen because a computer system must be respected in IE.

In summary, although Floridi's IE proposes a comprehensive and progressive idea of the infosphere, it is accompanied with a certain amount of misleading ambiguity when applied to actual situations. If the infosphere itself is constructed based on inappropriate attitudes, and yet if this inappropriateness is not recognized, all efforts dedicated to the infosphere cannot achieve their goals.

This view of Floridi's IE reminds us of Claude Shannon's classical *information theory* and its theoretical limitations (Shannon 1948). As is widely known, Shannon's information theory, although it superficially serves as a universal theory of information transmission, is just a signal transmission theory between telecommunication devices and therefore cannot relate to the aspect of the *meaning* of information. The viewpoint of the theory appears objective, and it assumes, as it were, a hidden viewpoint of a transcendental God. It is only God who can see through man's mind and judge whether or not the meaning of information has been successfully transmitted from a sending person to a receiving person. When we human beings, however, take the place of God and become observers, we can judge, to the best

of our ability, whether or not a signal has been successfully transmitted from a sending machine to a receiving machine.

As mentioned above, in Western approaches we often find this kind of transcendental, God's-eye view of the world at least tacitly assumed, even in scientific and technological fields. Here a human being with a special mission pretends to play a role as the agent of God, and thus brings about an effect not always desirable.

In order to make this discussion more concrete, let us point out a technical question. As already stated, the goal of Floridi's IE is to decrease entropy. This forces the question: What does "entropy" exactly mean in this regard? It cannot be thermodynamic in nature. We may make a conjecture that it is the value defined in Shannon's information theory. The entropy in his theory represents the degree of *uncertainty* of the information source. More precisely, it is an average amount of uncertainty from the receiver's viewpoint concerning which signal will be transmitted by a sender. The entropy is small when the same signals are often transmitted, and it becomes large when unforeseeable signals are frequently transmitted. In general, the more a system behaves at random, the larger the entropy becomes. (This is same as the entropy defined in physics.) Hence the goal of decreasing entropy means "decreasing the disorder of the infosphere" or "regularizing the infosphere".

But we all know that technical innovations as well as dynamic and creative activities are promoted for ICTs. So we may simply ask if this is not a direction through which to increase entropy. Or is it one of the goals of Floridi's IE to suppress excessive technical innovations? Indeed, the ICT business field, where everyone is always under pressure to develop new products, is too demanding

to be humane. But if we want to draw attention to this situation, we should abandon the goal of the *flourishing* of the infosphere.

In addition, there is a more radical question: From what viewpoint should we calculate entropy? The entropy defined in information theory is calculated when we observe the behavior of an informational being (object) from a specific viewpoint. Unless we designate a viewpoint precisely, we cannot calculate the entropy. Let us imagine, for example, jungle-like display shelves in a discount shop. To a new customer, the entropy must be quite large. On the other hand, however, the entropy is quite small for a shopkeeper because he considers such a display to be well-organized. Similarly, what human beings regard as garbage usually lacks value, but such garbage can often be valuable for cockroaches.

Thus, we return to our question: “Who observes the infosphere?” or “From whose viewpoint should we keep the infosphere in order?” This issue is related to the perspective of Floridi’s notions of “level of abstraction (LoA)” or “method of abstraction”. We hope to shed light on our question in the following by applying these notions.

3 The viewpoint of an observer: Towards the informatic turn

It might be natural to take a “human’s view” as an observer of infosphere. At this point, the *life world*, as pointed out by Heidegger, should be taken into consideration. Otherwise, it will be criticized as digital reductionism (Capurro 2006). The main drawback of digital reductionism does not exist in its digitizing operation itself but in a dogmatic attitude behind the operation, which ignores the fact that a human being constructs the world through his/her daily life.

However, can we be satisfied with supposing a human being only as an observer? One of the merits of Floridi’s IE is enlarging the target of information ethics to include not only human beings but also other living creatures and artifacts. When considering the progress of modern information science and life science, it is theoretically difficult to say that only mankind should be treated in a privileged manner with regard to ethics and morals. For example, how should we treat an AI-programmed computer that manipulates human language? It may be possible to make the refutation that current AI-programmed computers never *truly understand* human language. But day by day, the development of ICT and media technologies increases the electronic and mechanical factors that intervene in our linguistic communications. In accordance with this, we cannot deny that our responses in daily communications are becoming more and more mechanistic. What should we think of such intricate situations? Moreover, genetic engineering demonstrates that human bodies are formed based on the mechanism of genetic information processing, just like other living things. Our point is that the distinctions between humans and machines that might argue in favor of taking a human perspective as the primary observer’s perspective (or LoA) are quickly blurring.

Indeed, we must take into account the very situation that the borders separating human beings from other living things and/or machines are not just blurring, but in fact beginning to melt away. First, let us consider the border between human beings and other living things (Takenouchi 2006). It has been often said that human beings are not regulated by instinct, unlike other living creatures. But this argument is no longer persuasive. Every living thing, including human beings, is an

autonomous system that has a kind of freedom to interpret the stimuli from its surroundings despite differences in degree. This freedom of interpretation may yield errors, but it can also be a source of creativity. Furthermore, this freedom of interpretation corresponds to the process of *abduction* proposed by C. S. Peirce in his theory of semiotics. And this is one characteristic that human beings have in common with other living things. It postulates that primitive creatures interpret their surroundings in very simple ways while mankind is the species which has the highest degree of freedom of interpretation. In other words, every living thing interprets its surroundings with its own degree of freedom, and therefore, it can be an observer. (A living thing incapable of manipulating language can be an observer but can never be a describer of its experience. The term *observer* means “one who recognizes the world” in wider sense, and “one who recognizes and describes the world” in narrower sense. Here we use the term in wider sense.)

This reminds us of the concept of “surrounding world” (*Umwelt*) proposed by bio-philosopher Jakob von Uexküll in the early 20th century (Von Uexküll 1970). The “surrounding world” are the environments observed by a living thing. It is not an *objective* world, but something which appears *subjectively*, caused by the behaviors of a living thing. For a fly, for example, even a very fancy ceramic dish is nothing but a resting place, and only the piece of cake on it appears as a meaningful “being.” As such, we are reminded of Heidegger’s view of the “life world” (*Lebenswelt*) that appears to all human beings. If we enlarge the scope of the arguments, we might even say that Uexküll proposed a more comprehensive concept of the “surrounding world” that appears to a living

thing.

Even if we set aside for the moment the border between human beings and other living things, then how should we consider the other border – that which separates living things from non-living things (machines)? Can a machine play the role of an observer? Here we can recall the theory of *autopoiesis* that was proposed by Humbert Maturana and Francisco Varela in 1970s and 80’s (Maturana and Varela 1980). According to this theory, a living thing is an *autopoietic* system, that is, a being which creates (*poiesis*) itself by itself (*auto*). On the other hand, a machine is an *allopoietic* system which is designed and produced by other beings (*allo*), namely by humans. These two types of systems should be strictly distinguished.

A living thing (an *autopoietic* system) is basically a *closed* system that has no input nor output. It continues to change itself based on its past operations (experiences). When a living thing recognizes its environment, it chooses what is valuable for its survival (such as food, enemies, and the opposite sex). In other words, this interpretation of the environment is nothing more than an “observation”. Observation and life are inseparable, and consequently, machines cannot be observers.

However, we have to note that although a machine alone cannot be an observer, it can be a part of an observer when embedded in a complex man-machine system. As a matter of fact, we cannot otherwise explain such phenomenon as so-called *information transmission*.

An autopoietic system is, as already described, a closed system that has no input nor output. It receives “stimulus” rather than “information” from its surroundings. According to the theory of autopoiesis, therefore, it is impossible to transmit

information between living things, at least in a literal meaning. It is understandable when we think of the frequent misunderstandings during our conversations. We human beings are autopoietic systems who can, in principle, interpret information freely, which is impossible for machines.

On the other hand, however, since we each play certain roles as a part of society, it is naturally true that we must interpret the meaning of information within some fixed framework. Without such a framework, there would be no functioning human society as it is. In human society, we can find a *pseudo-phenomenon* wherein information seems to be “transmitted” under certain conditions. Therefore, human beings appear as if they are *allopoietic* systems (machines), when we observe them from the viewpoint of the “society”. This kind of complex relationship is called “a hierarchical autopoietic system” (or “a hierarchical autonomous communication system”) in the *Fundamental Informatics (FI)* which we propose. In this case, the society is a high-ranking autopoietic system, while human beings are low-ranking ones (Nishigaki 2004: 107-115, See Note).

4 Conclusion: The informatic turn and the computational turn

The life world for human beings is disclosed through *language*. Given this, what discloses the surrounding world (*Umwelt*) for living things? This is exactly “information”. When we paradigmatically shift the human-centered argument to the life-centered one, we must replace “language” by “information” which serves as a more comprehensive concept.

This is what the “informatic turn” is. Gadamer, whose thought is deeply rooted in Heideggerian

philosophy, proposed the thesis: “Being that can be understood is *language*.” (“Sein, das verstanden werden kann, ist Sprache.”) (Gadamer 1975: XXIII). Given the informatic turn, this thesis is enlarged to the dimension of life and expressed as: “Being that can be understood is *information*”.

Our Fundamental Informatics (FI) proposes the *informatic turn* as a means to understand everything based on the concept of information that is “something significant for a living thing”. On the other hand, Floridi’s PI (Philosophy of Information) proposes the *computational turn* – a challenge to understand all kinds of informational phenomena from the viewpoint of digitization in order to overcome and integrate the confused concepts of information. This directly leads to his IE as macro-ethics based on the infosphere.

Both PI and FI aim at understanding the whole world from the viewpoint of information. Although there seem to be no classification of information within the infosphere, it is categorized into three groups in FI – *life information*, *social information*, and *mechanical information*. These distinctions derive from the consideration of an observer’s functions. The observation of a living thing and its description by human beings each bring about life information and social information, respectively. The coded symbol of social information corresponds to mechanical information. A machine, which manipulates only mechanical information, cannot be an observer by itself. But it can constitute part of an observer when it is embedded in a complex man-machine system. The fatal drawback of Floridi’s PI lies in its inability to elucidate this essential point. It would be quite interesting to investigate furthermore what PI and FI have in common and how they are different from each other.

Note

There is only the Japanese version of this book at the moment, but some English papers related to FI can be accessed here: (<http://www.digital-narcis.org/english/>). In Nishigaki (2007: 20-21), the notion of *hierarchical autopoietic system* is defined as follows:

The theory of Fundamental Informatics holds that any autonomous system, including an autopoietic system, can come into existence only when it is accompanied by an observer who witnesses its autonomy. And under a situation where this prerequisite is satisfied, if an observer watching systems A and B, which are structurally coupled with each other, obtains results (1) and (2) mentioned below, the theory holds that “hierarchically autonomous systems” are in existence here, with system A ranking higher than system B in hierarchy:

- (1) The observer observes system A, making sure that it is autonomous and making a note to that effect. Then he/she changes the perspective, observes system B, making sure that it is autonomous and making a note to that effect. Then, he/she goes back to system A, repeating the same procedure, and then goes back to system B again, and so on. As a result of this repetitive observation and description, the two systems are found to continue performing their operations in a stable manner and to continue preserving their autonomy.
- (2) While system A is observed, it is found that in system A's operation, system B is performing certain functions as an allopoietic system. And the observer can recognize that the operation of system B is restricted by system A as a result of the structural coupling between the two systems. However, while observing system B, the observer cannot recognize any restriction on system B's operation being imposed by system A.

In this situation, system A emerges as a composite system and system B as a component system constituting system A. What is important here is that even though system B's operation is

partly embedded in the organization of system A, so to speak, this fact does not affect system B's organization. The constraint imposed on system B can only be recognized through an observation of system A, with the result that from the standpoint of an observer of system B, system A remains a tacit or implicit entity (the environment), and system B's autonomy is kept intact.

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The Informatic Turn-Who Observes the “Infosphere”?

NISHIGAKI and TAKENOUCI

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Causal Relationship between Media Use and Information Literacy: A Three-Wave Panel Study with Junior High School Students

Keywords:

media use, information literacy, causal relationships, three-wave panel study, structural equation modeling

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Abstract

In this study, a three-wave panel study was conducted to examine how different media tools such as newspapers, books or magazines, TV or video programs, video games, and telephones influence children's information literacy. A total of 539 junior high school students participated in the study. A structural equation modeling analysis of the obtained data indicated that there were some positive short-term effects, which became visible within half a year, wherein the use of newspapers, books or magazines, and the radio promoted abilities related to information collection. Regarding the long-term effects that became visible within a year, however, the study showed that the use of video games had negative effects on the abilities to collect, express, and communicate information. An examination of the long-term effects of information literacy-related abilities on the use of media tools distinctly showed that children with higher skill levels read newspapers more often but read comic books or used video games less frequently.

1. Introduction

It is now more than 15 years since the Japanese Ministry of Education, the predecessor of the Ministry of Education, Culture, Sports, Science and Technology (1992; "MEXT" hereinafter), accorded importance to information education and announced its guidelines in the form of the "Guidelines for Information Education." The informatization of society has advanced steadily, and the importance for children to have correct knowledge of information and the skill to master such information, called information literacy, now seems higher than ever.

In 1998, MEXT put forth the skills that should be developed within the scope of information education; these were "the skill to practically use information," "the skill to scientifically understand information," and "a positive attitude toward participation in the information society." From these, "the skill to practically use information" is synonymous with information literacy⁽¹⁾. This skill is defined as "the skill to voluntarily collect, judge, express, process, and create necessary information, and also to communicate such information while understanding the recipients' status by using information tools appropriate for issues and objectives."

Using this definition, Omi et al. (2006) conducted a three-wave panel study, with a half-year time interval, to examine the effect of out-of-school, free Internet use on information literacy of junior high school students. A panel study, in which the same groups of variables are measured multiple times for the same population, is essentially survey-based research. Causal relationship between variables can be estimated by carrying out a certain type of analysis on the data obtained. The results showed inconsistencies in the short-

term effects such as the effect of the extent of various types of Internet use measured at Time 1 (T1) on the skill level measured at Time 2 (T2) and the effect of the extent of various types of Internet use measured at T2 on the skill level measured at Time 3 (T3). When the longer-term effects were examined, T1 website creation or e-mail program use had positive effects on the information literacy level surveyed at T3. This effect suggested that although the Internet was used voluntarily and not for educational purposes, its continuous and long-term use could improve information literacy.

Apart from the Internet, children are exposed to a variety of other media tools. Recent survey results released by the Japanese Cabinet Office (2007) show that the media tool that elementary school, junior high school, and senior high school students use the most is the TV: an average of two-and-a-half to three hours per day. Meanwhile, they spent an average of less than ten minutes and thirty minutes reading newspapers and books, respectively (magazines were not considered). These media tools, generally speaking, are used for definite and different purposes. For example, newspapers and books are more likely to be useful for information or knowledge. On the other hand, TV and video games are fun and serve to pass the time. Since individuals can watch TV while doing other things, it is considered a passive activity. Therefore, different forms of media may affect information literacy differently.

In the light of the above, we conducted a three-wave panel study to examine the effect of a variety of media tools on the information literacy level. The following media tools were studied: print media tools such as newspapers, books/magazines, and comic books; electronic media tools such as TV and radio and video games; and telephones

and word processors. Our aim was to examine whether different media tools had different effects on the information literacy level. The converse of the above was also examined: the effect of information literacy on media tool usage to see if the varying information literacy levels correlated with specific media tool usage.

In addition, it cannot be denied that some amount of time has passed since this research was originally undertaken, between 1998 and 1999. However, hardly any information has been reported so far about the effects on information literacy of the extent of media used in daily life. From this viewpoint, data collected in this research is quite significant, as it aims to fill this vacuum.

2. Method

2. 1 Participants

A two-year, three-wave panel study (T1: October 1998, T2: March 1999, T3: September 1999) was conducted with 1st and 2nd year students from five junior high schools in Ogaki city in central Japan's Gifu prefecture. Data obtained from 539 junior high school students (290 male and 249 female) who participated all the three times were analyzed.

2. 2 Questionnaire

Information literacy measurement To measure the information literacy level, the Skill to Practically Use Information Scale developed by Takahira et al. (2001) was used. Using the Ministry of Education's definition of information literacy, this scale was developed to measure the level of its six components. More specifically, this scale was designed to measure the following: (1) the skill to collect information: subjectively and sufficiently collecting necessary information in accordance

with the specific purpose by using an appropriate method; (2) the skill to judge information: selecting necessary information from a large volume of information, judging its contents, and extracting the most appropriate information; (3) the skill to express information: paying close attention to the characteristics of information expression methods and organizing or expressing information in an appropriate style; (4) the skill to process information: appropriately processing the collected information and extracting and understanding necessary information; (5) the skill to create information: creating information based on one's own ideas or opinions; and (6) the skill to communicate information: communicating information while being aware of the recipient's position or skill to process information. The total score of the scale would indicate the information literacy level. There were 54 questions, and the breakdown was as follows: 10 questions on the skill to collect information, 8 questions on the skill to judge information, 8 questions on the skill to express information, 8 questions on the skill to process information, 10 questions on the skill to create information, and 10 questions on the skill to communicate information. The responses could range from 1 (Strongly disagree) to 7 (Strongly agree). Table 1 shows some examples of the questions.

Degree of media-tool usage The students were asked about the amount of time per day spent on each of the following activities: reading newspapers; reading books/magazines; reading comic books, listening to the radio, watching TV or videos, playing video games, using telephones (including personal handyphone system and mobile phones); and using word processors. Their response options were 1 (None), 2 (Less than 30 minutes), 3 (30 minutes to less than 1 hour), 4 (1 hour to less than

Table 1 Examples contained in the scale of skill to practically use information

The skill to collect information:	I usually refer to a dictionary or a reference book when I do not understand something. I do not collect materials; I usually ask my friends to give them to me.
The skill to judge information:	I tend to believe rumors I hear from other people. When faced with opposing opinions, I listen to both to judge their merits and demerits.
The skill to express information:	I sometimes draw figures or tables when I don't fully understand the meaning of a text. I never underline the important parts when reading.
The skill to process information:	I am not good at determining common points within a large volume of information. When solving problems, I rely on my instinct rather than logic.
The skill to create information:	I prefer presenting my own ideas and opinions instead of introducing those of others. Having solved a problem employing a certain method, I avoid searching for a better method.
The skill to communicate information:	When talking to others, I note their reactions. When conveying information, I underline important parts so that others will pay attention to them

1 hour and 30 minutes), 5 (1 hour and 30 minutes to less than 2 hours), and 6 (2 hours or longer).

Demographic variables The participants were asked for their school name, grade, and sex.

2.3 Procedure and analyses

The questionnaire was administered to each homeroom class at each school, and collected on the spot by the teachers.

For statistical processing, we used Amos 6.0 for structural equation analysis and SPSS 14.0 for the rest of the analysis.

3. Results

3.1 Differences in the extent of media tool use between the sexes and between different time points

Table 2 shows the mean values and standard deviations of each variable for the extent of media tool use measured at each time; the sex differences and temporal differences were examined. Note that this paper does not include the comparisons of mean values, standard deviations, sex differences, and temporal differences regarding the information literacy level as they have been reported by Omi et al. (2006).

3.2 Examination of sex differences

All the three times that the t-test was conducted

to examine the sex differences in the survey results, the male subjects were found to spend more time reading newspapers (in order of T1, T2 and T3, $p = 0.003$; $p = 0.002$; $p = 0.020$) and playing video games than the female subjects (all $p < 0.001$). Moreover, the use of telephones was found to be significantly higher among the females than the males (all $p < 0.001$). Also, at T3, the amount of time spent on reading comic books was significantly higher for the male than for the female subjects ($p = 0.005$).

3.3 Comparison of survey results obtained at different time points

In order to examine temporal changes, an oneway analysis of variance was first conducted on each of the variables for the extent of media tool use measured at each time, followed by a multiple comparison test using the Bonfferoni method.

When the data obtained from all the students were collectively analyzed, significant temporal differences were found in the time spent reading comic books, reading books/magazines, watching TV or videos, playing video games, and talking on the telephone. The results of the multiple comparison test indicated that the extent of comic book and telephone use measured at T1 was significantly higher than that measured at T3 (in the following order: $p < 0.001$; $p = 0.014$). Also, the extent of TV or video use measured at T1 and T2

Table 2 Mean and standard deviation of the extent of media tool use

		<i>n</i>	T1	T2	T3
			Mean (SD)	Mean (SD)	Mean (SD)
Media use					
Newspaper	Total	538~539	1.99(0.69)	1.97(0.57)	2.01(0.59)
	Male	289~290	2.08(0.77)	2.04(0.64)	2.07(0.62)
	Female	249	1.90(0.58)	1.89(0.47)	1.95(0.54)
	Grade 1	34	1.97(0.46)	1.94(0.49)	1.82(0.58)
	Grade 2	504~505	1.99(0.71)	1.97(0.58)	2.02(0.58)
Comic book	Total	537~539	2.78(1.28)	2.66(1.21)	2.52(1.20)
	Male	289~290	2.78(1.23)	2.72(1.22)	2.65(1.21)
	Female	248~249	2.78(1.33)	2.59(1.20)	2.36(1.17)
	Grade 1	34	2.35(0.98)	2.59(1.02)	2.65(1.10)
	Grade 2	503~505	2.81(1.29)	2.67(1.22)	2.51(1.21)
Book or magazines	Total	538~539	2.35(1.15)	2.35(1.18)	2.22(1.05)
	Male	289~290	2.31(1.17)	2.40(1.28)	2.15(1.03)
	Female	249	2.40(1.14)	2.29(1.06)	2.29(1.08)
	Grade 1	34	2.35(0.95)	2.29(0.97)	2.09(1.00)
	Grade 2	504~505	2.35(1.17)	2.36(1.20)	2.22(1.06)
Radio	Total	534~539	1.84(1.32)	1.89(1.36)	1.89(1.39)
	Male	288~290	1.74(1.26)	1.80(1.31)	1.86(1.37)
	Female	246~249	1.95(1.38)	2.00(1.42)	1.91(1.42)
	Grade 1	34	1.50(1.02)	1.32(0.68)	1.41(0.89)
	Grade 2	500~505	1.86(1.33)	1.93(1.39)	1.92(1.41)
TV or video	Total	533~538	4.69(1.25)	4.78(1.28)	4.49(1.30)
	Male	287~289	4.70(1.32)	4.73(1.32)	4.48(1.37)
	Female	246~249	4.68(1.16)	4.85(1.23)	4.50(1.23)
	Grade 1	34	4.32(1.09)	4.47(1.24)	4.68(1.36)
	Grade 2	499~504	4.72(1.26)	4.81(1.28)	4.48(1.30)
Videogame	Total	534~537	2.22(1.52)	2.27(1.56)	2.05(1.44)
	Male	288	2.89(1.59)	3.02(1.64)	2.64(1.54)
	Female	246~249	1.43(0.95)	1.39(0.85)	1.35(0.89)
	Grade 1	33~34	2.12(1.32)	2.29(1.38)	2.56(1.56)
	Grade 2	500~503	2.22(1.53)	2.26(1.57)	2.01(1.42)
Telephone	Total	534~537	1.86(0.91)	1.78(0.88)	1.72(0.86)
	Male	288~290	1.69(0.78)	1.64(0.78)	1.52(0.66)
	Female	246~247	2.06(1.02)	1.95(0.97)	1.95(0.99)
	Grade 1	34	1.79(0.73)	1.76(0.85)	1.85(0.89)
	Grade 2	500~503	1.86(0.93)	1.78(0.89)	1.71(0.85)
Word processor	Total	533~539	1.26(0.68)	1.21(0.62)	1.21(0.61)
	Male	287~290	1.27(0.71)	1.24(0.70)	1.23(0.70)
	Female	246~249	1.24(0.65)	1.18(0.52)	1.20(0.50)
	Grade 1	33~34	1.15(0.44)	1.18(0.72)	1.15(0.50)
	Grade 2	499~505	1.26(0.69)	1.21(0.62)	1.22(0.62)

Note. Because of the missing values at each point in time of the survey, *n* represents the range of the number of items of valid data. The value of media contact is the score obtained on the scale of six response items.

was significantly higher than that measured at T3 ($p = 0.009$; $p < 0.001$). As regards video games, the use measured at T2 was significantly higher than that measured at T3 ($p = 0.002$). There were no

significant differences on the extent of reading books/magazines.

When the data obtained from the male and female students were analyzed separately,

significant temporal differences were found in the time spent TV or video use in common. Analysis of the data obtained from the male students indicated that the extent of use of books/magazines, TV or video, video games was significantly lower at T3 than at T2 (in the following order: $p=0.009$; $p=0.020$; $p=0.002$), and telephones was significantly lower at T3 than at T1 ($p=0.009$). Similarly, for the female students, the extent of comic book use was significantly lower at T3 than at T1 and T2 ($p < 0.001$; $p = 0.029$), in addition significantly lower at T2 than at T1 ($p = 0.033$). Also, TV or video use was significantly higher at T2 than at T1 and T3 ($p = 0.007$; $p = 0.029$).

3. 4 Correlations of the extent of media tool use between different time points

In order to examine the statistical stability of the extent of tool use, we obtained correlations of the extent of media tool use between different time points.

In all the types of media tools, there were significant positive correlations between T1 and T2, T2 and T3, and T3 and T1, showing certain degrees of statistical stability. Range of the correlation coefficients obtained was 0.12-0.63. The most statistically stable variable was the extent of video game use with a correlation coefficient of 0.4 or higher at all three time points. The amount of time spent in reading newspapers also showed a correlation coefficient of approximately 0.4 at all three time points.

3.5 Causal relationship between the extent of media tool use and the level of information literacy

Results of simultaneous analyses of the short-term and the long-term effects In order to examine the causal relationship between the level of

information literacy and the extent of media tool use, a structural equation model analysis was conducted. For this analysis, the cross-lagged effects model (Model 1) shown in Figure 1 was used. Path 1 and Path 2 show the short-term effects of the amount of media used on information literacy, while Path 9 shows the long-term effects. Paths 3 and 4 show the short-term effects of information literacy on the amount of media used, while Path 10 shows the long-term effects. During analysis, we examined equivalent constraints for each path and covariances of errors and selected the most appropriate model for each combination of the amount of media used and information literacy (refer also to Omi et al. (2006) for a description of the cross-lagged effects model and the procedure of examining the model constraints).

Table 3 shows the standardized coefficients obtained from the analyses. As for the short-term effects, the effect of the extent of newspaper use on the skill to judge information, the effect of the extent of book or magazine use on the skill to process information, and the effect of the extent of radio use on the overall information literacy as well as on the skill to judge information were all significantly positive for the time between T1 and T2 and between T2 and T3. On the other hand, the effect of the extent of use TV or video programs on the skill to collect information was significantly negative in both time intervals.

As regards the short-term effects of the level of information literacy on the extent of use of media tools, the positive effect of the skill to communicate information on the extent of telephone use was significant in both time intervals. At the same time, the overall information literacy and the abilities to judge, process, create, and communicate information had significant negative effects on the

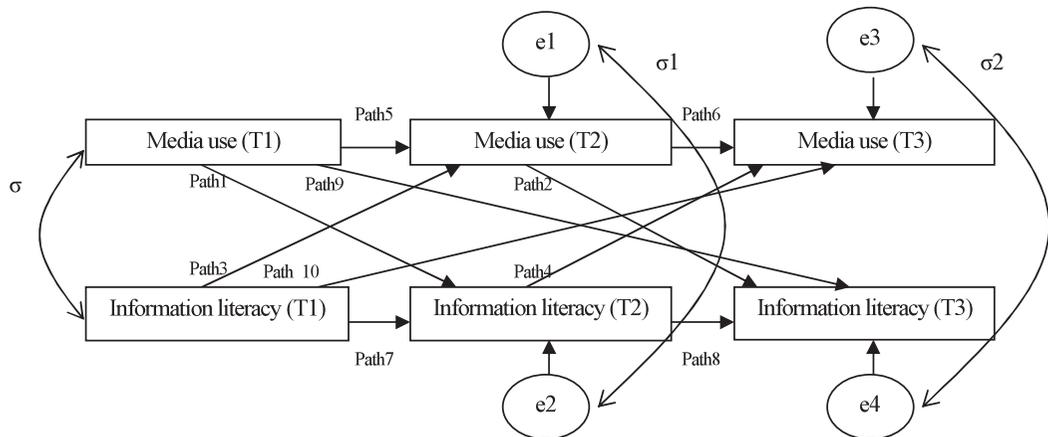


Figure 1 Cross-lagged effects model used in the present study (Model I)

Note. e1, e2, e3 and e4 represent errors, and σ , σ_1 and σ_2 represent covariances.

degree of video game use in both time intervals.

Regarding the long-term effects, i.e., the effect of the extent of media tool use measured at T1 on the level of information literacy measured at T3, the effect of the extent of comic book use on the skill to process information, the effect of the extent of book or magazine use on overall information literacy as well as on the skills to process and communicate information, and the effect of the extent of radio use on the overall information literacy were all significantly negative.

As for the effect of the level of information literacy measured at T1 on the extent of media-tool use measured at T3, both the skills to process and communicate information had significant positive effects on the use of newspapers. Meanwhile, there were some cases in which the level of information literacy had significant negative effects on the extent of use of comic books, TV or video programs, video games, and word processors.

Results of the analyses of the long-term effects only When the short-term and long-term effects of the extent of media tool use on the level of

information literacy were analyzed simultaneously, the long-term effects of the use of books or magazines and radio on the level of information literacy were the opposite of the short-term effects. Therefore, in order to directly examine the effect of the extent of media-tool use measured at T1 on the level of information literacy measured at T3, we conducted analyses using the cross-lagged effects model (Model II) shown in Figure 2. Table 3 shows the results.

As for the effect of the extent of media-tool use measured at T1 on the level of information literacy measured at T3, the positive effect of the use of word processors on the skill related to processing information, the negative effect of use of books or magazines on the skill to communicate information, the negative effect of radio use on the skill to process information, and the negative effect of use of video games on the skills related to collecting, expressing, and communicating information were all significant.

As regards the effect of the level of information literacy measured at T1 on the extent of media tool use measured at T3, there was a noticeable positive

Table 3 Causal relationships between the extent of media use and information literacy

Media use	Information literacy	From T1 to T2		From T2 to T3		From T1 to T3(Model I)		From T1 to T3(Model II)	
		Path 1	Path 3	Path 2	Path 4	Path 9	Path 10	Path A	Path B
Newspaper	Total	-.02	.17 ^{***}	.01	-.03	.00	.11	-.01	.13 ^{**}
	Skill to collect	.00	.18 ^{***}	.04	.07	.01	.05	.03	.13 ^{**}
	Skill to judge	<u>.06</u> [*]	.15 ^{***}	<u>.05</u> [*]	.03	-.01	.04	.03	.10 [*]
	Skill to express	<u>.02</u>	.07	<u>.02</u>	-.04	.01	.05	.01	.05
	Skill to process	<u>.04</u>	.15 ^{***}	<u>.03</u>	-.07	-.03	.12 [*]	.01	.12 ^{**}
	Skill to create	-.01	.13 ^{**}	-.01	-.01	.00	.06	-.04	.06
	Skill to communicate	-.04	.08 [*]	.00	-.08	.02	.14 ^{**}	.00	.12 ^{**}
Comic	Total	<u>.03</u>	-.05	<u>.03</u>	.06	-.04	-.17 ^{**}	.02	-.13 ^{**}
	Skill to collect	.01	.05	.01	.05	-.04	-.17 ^{***}	-.02	-.11 ^{**}
	Skill to judge	<u>.04</u>	-.03	<u>.03</u>	-.03	-.04	-.04	.01	-.06
	Skill to express	-.02	-.08 [*]	-.02	.01	-.03	-.15 ^{**}	-.02	-.15 ^{***}
	Skill to process	.00	-.04	.07	-.04	-.10 ^{**}	-.05	-.05	-.08 [*]
	Skill to create	-.01	-.05	.07 [*]	-.06	-.03	-.02	.01	-.07
	Skill to communicate	.02	-.06	-.03	-.01	-.05	-.10	-.03	-.11 [*]
Book or magazine	Total	.07 [*]	-.03	.04	-.03	-.06 [*]	.03	-.02	.00
	Skill to collect	.06	-.01	.05	-.01	-.06	.05	-.03	.04
	Skill to judge	.11 ^{**}	.04	.04	.05	.02	.01	.06	.07
	Skill to express	<u>.03</u>	-.09 [*]	<u>.03</u>	-.02	-.02	-.02	.01	-.05
	Skill to process	<u>.08</u> ^{***}	-.01	<u>.09</u>	-.09	-.09 [*]	.11	-.01	.04
	Skill to create	.05	-.03	-.02	-.03	.03	.01	.04	-.02
	Skill to communicate	.04	-.02	-.02	.06	-.09 [*]	-.06	-.08 [*]	-.03
Radio	Total	<u>.05</u> [*]	.03	<u>.05</u> [*]	.03	-.09 ^{**}	-.02	-.02	.01
	Skill to collect	.07 [*]	.08 [*]	.05	.02	-.05	-.01	.02	.03
	Skill to judge	<u>.06</u> [*]	.09 ^{**}	<u>.06</u> [*]	.01	-.07	.02	-.01	.05
	Skill to express	-.05	.00	.02	.00	-.07	-.04	-.09 [*]	-.05
	Skill to process	.07 [*]	-.01	.06	-.01	-.07	.03	.02	.00
	Skill to create	<u>.02</u>	-.02	<u>.02</u>	.05	-.06	-.03	-.03	.00
	Skill to communicate	-.01	.00	.02	-.05	-.06	.05	-.05	-.01
TV or video	Total	-.02	-.02	-.08 [*]	.08	.03	-.13 [*]	-.02	-.08
	Skill to collect	<u>-.05</u> [*]	.00	<u>-.05</u> [*]	.04	.06	-.11	.00	-.08
	Skill to judge	-.02	.00	-.06	.00	-.02	-.06	-.06	-.05
	Skill to express	-.04	-.01	-.16 ^{***}	-.01	.03	-.09 [*]	-.07	-.10 [*]
	Skill to process	.02	-.01	-.06	-.01	.01	-.04	.00	-.06
	Skill to create	<u>.00</u>	-.07 [*]	<u>.00</u>	.05	-.02	-.08	.00	-.07
	Skill to communicate	<u>.01</u>	-.02	<u>.01</u>	-.04	-.07	.06	-.05	.02
Videogame	Total	-.09 ^{**}	-.10 [*]	.09 [*]	-.13 [*]	-.03	-.01	-.06	-.14 ^{***}
	Skill to collect	-.10 ^{**}	-.01	.02	-.04	-.02	-.09	-.08 [*]	-.13 ^{**}
	Skill to judge	-.04	-.07 [*]	.07	-.08 [*]	-.03	.01	-.02	-.05
	Skill to express	-.17 ^{***}	-.05	.01	-.05	-.01	-.10 [*]	-.09 [*]	-.14 ^{**}
	Skill to process	-.11 ^{***}	-.09 ^{**}	.09 [*]	-.10 ^{**}	-.03	.00	-.06	-.11 [*]
	Skill to create	-.01	-.10 ^{**}	.05	-.11 ^{**}	.00	.02	.02	-.10 [*]
	Skill to communicate	-.04	-.10 ^{**}	-.01	-.10 ^{**}	-.05	-.02	-.07 [*]	-.12 ^{**}
Telephone	Total	-.04	.09 [*]	-.01	-.03	.00	.02	-.05	.01
	Skill to collect	-.02	.08 [*]	.03	-.06	-.03	.01	-.05	-.01
	Skill to judge	<u>-.02</u>	.03	<u>-.02</u>	.02	.02	-.05	-.01	-.03
	Skill to express	<u>.00</u>	.10 ^{**}	<u>.00</u>	-.04	.02	.02	.00	.02
	Skill to process	<u>-.01</u>	.06	<u>-.01</u>	-.05	.01	.06	-.03	.03
	Skill to create	-.07 [*]	.01	.04	.01	.00	.02	-.04	.03
	Skill to communicate	-.03	.07 [*]	.00	.07 [*]	.03	-.06	-.02	.00
Wordprocessor	Total	.07	.04	-.08 ^{**}	.01	.00	-.05	.01	-.05
	Skill to collect	.04	.06	-.06	-.02	.03	.02	.02	.00
	Skill to judge	.09 [*]	.01	-.03	.01	.01	-.07	.04	-.07
	Skill to express	.06	-.01	-.07	-.01	.02	-.06	.03	-.07
	Skill to process	.12 ^{***}	.10 [*]	-.08 [*]	.04	.03	-.03	.07 [*]	.00
	Skill to create	.01	.01	-.05	.01	-.02	-.03	-.05	-.04
	Skill to communicate	.01	.06	-.05	.06	.01	-.10 [*]	-.01	-.06

Note. Values shown the table are estimated causal coefficients (standardized coefficients). School year and sex are controlled. The underlined parts show that the equivalent constraints are imposed between the paths. * $p < .05$, ** $p < .01$, *** $p < .001$.

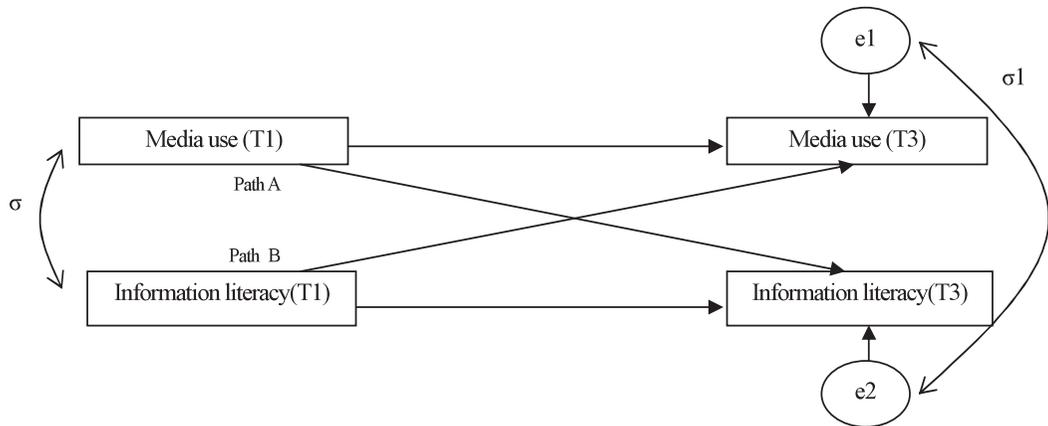


Figure 2 Cross-lagged effects model used for the long-term effects only (Model II)

Note. e1 and e2 represent errors, and σ and $\sigma 1$ represent covariances.

effect: a higher level of information literacy increased the degree of newspaper use. A noticeable negative effect was also observed: a higher level of information literacy decreased the degree of comic book and video game usage.

4. Discussion

4.1 Sex differences and temporal changes in the extent of media tool use

When the extent of media tool use was compared between different time points, the amount of time spent in reading comic books, watching TV or video programs, playing video games, and talking on the telephone measured at T3 was significantly lower than that measured at the other time points. Since the extent of Internet use increased with time (Omi et al., 2006), the extent of time spent on media tool use may have been replaced by the Internet use. Note, however, that when the stability of the extent of the media tool use was examined, all types of media tools showed significant positive correlations between time points; therefore, it was confirmed that the extent of media tool use was relatively stable. The stability was especially high

for the amount of use of newspapers and video games, suggesting that children who used these media tools would continue to use them in the future.

As for the sex differences in the extent of media tool use, the same sex differences were in the extent of newspaper use (Institute of Socio-Information and Communication Studies, 1997; 2001; Interfaculty Initiative in Information Studies, 2006) as in the extent of use of video games (Institute of Socio-Information and Communication Studies, 1997; Interfaculty Initiative in Information Studies, 2006), and our study thus seemed to have confirmed the same tendencies. As for the extent of landline telephone use, the survey conducted with Japanese undergraduate students indicated that the female subjects made more calls and talked longer than the male (NTT Service Development Department, 1991), and our study suggested that even junior high school students showed the same sex difference. However, there also exists data indicating that male individuals use both landline and mobile phones more often than female individuals (Institute of Socio-Information and Communication Studies, 1997;

Interfaculty Initiative in Information Studies, 2006). The age of participants for surveys reported by Institute of Socio-Information and Communication Studies ranged from teenagers to the elderly. Therefore, sex differences in the extent of telephone use may differ by the age of the participants. In addition, we would also like to refer to Omi et al. (2006), where variations in information literacy between points in time is discussed.

4.2 Causal relationship between the amount of media tool use and the level of information literacy

This study found that the effect of the extent of media tool use on the level of information literacy and vice-versa was different for each type of media tool.

As regards the former effect, short-term positive effects of the extent of use of newspapers, books or magazines, and radio on the skills necessary for collecting and judging information were indicated. On the other hand, the extensive use of TV or video programs hindered the development of the skill related to collecting information. Therefore, the study suggested that daily use of print media tools such as newspapers and books or magazines or electronic media without images could contribute toward the development of skills related to collecting information whereas watching TV or video programs could hinder the same. The negative effects of TV or video program use can be attributed to the fact that the large amount of time spent on watching TV or video programs led to a reduction in the amount of time that should have been spent on activities necessary for development of the skill to collect information.

On directly examining their long-term effect, it was found that extensive use of books or magazines

hindered the development of the skill related to communicating information, and the extended use of radio hindered the development of the skill to express information. In the light of the above fact, the very least that we can conclude is that the daily use of these media tools would not affect the development of these skills desirably. Since this study indicated that the use of word processors had a long-term positive effect on the development of the information-processing skills, the use of media tools enabling individuals to actually process information may be necessary for them to develop the said skills. The study also indicated that the use of video games had a long-term effect through which it hindered the development of overall information literacy. The apparent cause for the same seems to be the fact that video games were primarily used for entertainment and the collection or organization of information was not focused on. Moreover, video games were not used to collect or organize information either.

The effect of the level of information literacy on the extent of media tool use greatly differed with the type of media tool used, especially where long-term effects were concerned. The overview of the analysis results suggested that while children with a high information literacy level read newspapers more often than those with a lower level, the former did not use comic books or video games. Since newspapers were considered to be less entertaining than the other types of media tools and were assumed to be used for the purpose of obtaining socially meaningful information, children with a higher information awareness level were expected to use newspapers more often. On the other hand, comic books and video games were primarily entertainment tools and did not function as information collection or processing tools. Their use, therefore, may have been easier for

those who had a low information awareness level and whose skill to use information was of a low level. At the same time, these may be the types of media tools that would be preferred by these types of children. The negative effect of information literacy on video games in particular was also consistently observed in its short-term effects, and it was possible that a long-term adverse effect was generated as a result of the accumulation of short-term adverse effects.

4.3 Focus of future study

This study only examined the causal relationship between the extent of media tool use and the level of information literacy; the effects of moderator variables were not examined. However, given the same media tools, children with a high information awareness level and those with a low information awareness level are considered to have different purposes (e.g. collecting information and passing time) or methods (e.g. selective viewing of desired TV programs, and lazy or relaxed and unintentional viewing of other TV programs) of using them. These differences then change the effect of the amount of media tool use on the level of information literacy. Also, different content such as the genre of a TV program or a book may change the type of effect on the level of information literacy. Regarding video games also, in recent years various types of software for learning English, computing, and kanji have become popular and their contents have become increasingly diversified. Therefore, in the future, it is necessary to examine the moderator effect of the extent of media tool use on the level of information literacy and to further examine in detail the relationship between the kind of conditions and their resulting effects.

Notes

- (1) The term information literacy is not usually used in Japan. It is instead expressed as the skill to practically use information. Since both terms basically have the same meaning, the globally used term information literacy was used unless otherwise specified in this paper.

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A Study of Remote Support by IT Volunteer Group for Senior Citizens

Keywords:

Remote support, Senior citizens, IT novice, IT volunteer group, Remote control software

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Abstract

In this study, we analyze existing IT support methods and senior citizens' support needs through a local IT promotion project, e-namokun. We then propose a remote IT support method, e-RemoSupp, to help senior users improve their IT ability and efficiently solve computer- and Internet-related problems under the support of IT volunteer groups by using remote control technology. Starting with a short introduction to the project and early research, we examine e-RemoSupp through a four-month experiment, and then discuss its social issues, technical issues, and essential elements in implementing a successful remote support in cooperation with IT volunteers.

1. Introduction

The digital divide among age groups (Loges 2001) has become a major concern around the world, even in developed countries such as Japan. Currently, many elderly persons do not have the knowledge to fully utilize the potential of computers and the Internet, and many studies have been conducted on Internet support methods, but most have focused on support for children and working adults, not for the elderly. When senior citizens use computers and the Internet, they have difficulty finding convenient and effective ways to access material, solve problems, and improve their information literacy.

To bring more senior citizens into touch with the information age, an IT promotion project, e-namokun (Iribe 2005; Goto 2006; Zhou 2007; Yokoi 2009), was started in Nagoya in 2004. In the project, not only software tools were developed to help senior citizens easily use the computer and Internet, but also many IT support methods were considered and carried out. During the support process, we found that existing support methods did not fulfill senior users' needs, so we proposed a remote IT support method by using remote control technology. The technology is often used in business, but has received little attention from IT volunteer groups in IT promotion activities for senior citizens.

In this paper, first we introduce the project, and then analyze senior citizens' support inquiries, usage barriers and requirements through analyzing existing support methods implemented in the project. Next, we propose a remote support method, e-RemoSupp. Through a four-month experiment, e-RemoSupp was proven to be able to efficiently perform IT support in coordination with IT volunteer groups. Finally, we discuss the

possibility of implementing e-RemoSupp, its social and technical issues, and essential elements of how to implement a successful remote support.

2. Existing IT support methods

2.1 Introduction of a local information promotion project: e-namokun

The e-namokun project was started in Nagoya, and has been developed to give senior citizens, especially IT novices, a convenient support and learning environment (Zhou 2007.1). In contrast to other famous information promotion projects for senior citizens in Japan, this project aims to develop a total support environment for helping senior citizens use the Internet. E-namokun includes technical aspects and a social support mechanism through joint government (the Lifelong Learning Department of the city of Nagoya), university, and IT volunteer groups, the first project of its kind in Japan. The activities include: (1) the development of e-namokun software (Iribe 2005; Goto 2006), which provides simple, user-friendly Internet tools; (2) e-namokun courses at each lifelong learning center in Nagoya with about 2,000 seniors citizens enrolled; (3) computer rental service with very low fees; (4) and a support center to provide telephone support and face-to-face consultations (Zhou 2007.1; Zhou 2007.2). Such activities are viewed as key processes because a convenient support and learning environment can have a significant impact on whether users will maintain their interest in using computers and the Internet.

2.2 Analyzing senior novices' support needs

In the e-namokun project, senior users can use two kinds of traditional face-to-face support methods: 1. periodic e-namokun course and

consultation room in lifelong learning centers; 2. home-visiting service for those users who rent recycled computers. However, these methods are restricted by place, time, and class attendance number. Although these face-to-face methods can give high satisfaction to meet user's demands and requirements and can be seen as the best way of offering support, many senior users do not have an appropriate chance to use them.

Therefore, in order to provide efficient and easy access to support services, non-face-to-face support was considered and a support center was set up to provide telephone support and an FAQ website service. In the support center, a helpdesk system (Zhou 2007.1) has been developed and implemented to gather senior users' telephone inquiries since December 2005. Thus far, hundreds of inquiry cases have been recorded in the system. Based on the case statistics and interviews with senior users by telephone, we analyzed these cases and ascertained their support requirements and the existing limitation of support.

Many senior novices were satisfied with the telephone support method because they thought that talking to specialists was the best way to solve their problems. However, most novices worried that when talking over the telephone, it may not be possible to clearly describe the problems they encounter. Because many seniors retired without having used computers and the Internet extensively during their working careers, they have not necessarily learned good conceptual models of how these technologies work, which makes it more difficult for the operators in the support center to understand what the users are saying.

As a result, based on these inquiry cases we developed a FAQ system (Zhou 2007.1), which is a web-based support tool (Anton 2003). As for this FAQ web system, senior novices thought that they

could obtain much more useful information and improve their problem-solving ability by reading these FAQs. However, in many cases, questions and problems they encountered were different from the FAQ cases and users could not find a satisfying answer.

In addition to the FAQ web system, many other web-based educational programs and community websites, such as seniornet.org¹⁾ in the US, have been established to provide a digital learning and communication environment. Seniors are just like everyone else in that they want to obtain solutions as quickly as possible through online methods they can study anywhere and anytime, but these online methods have not shown any satisfying problem-solving effect for senior novices. This is because novices do not have sufficient self-learning ability to find suitable content easily and quickly.

Therefore, in addition to these existing support methods, we propose a new support method: remote IT support, which integrates both the face-to-face method and non-face to-face-method to improve support effect, with the aim of not only solving senior novices' IT problems quickly, but also improving their Internet literacy and their ability through a complete problem-solving process.

3. Proposal of a remote support method for senior novices

3.1 Related studies

Based on former studies' results on senior IT support, and considering senior novices' attributes and their support demands, we propose a remote IT support method named e-RemoSupp, which works by using remote control technology.

Remote control technology²⁾ is often used in remote system administration to allow use of

computers and other hardware at a separate location. A typical use is to control a computing server or desktop computer from another desktop computer. It transmits the keyboard and mouse events from one computer to another. The controlling computer displays a copy of the image received from the display screen of controlled computer, and the copy is updated on a timed interval, or when a change on screen is noticed by remote control software.

Recently, as remote control technology comes into maturity, it is gradually used in custom support centers and distance education. However, for senior citizens and novices, there are not many case studies and discussion about this technology. In Japan, although many companies such as NTT³⁾ have remote support services, their users are mainly company users and general users, not senior novices, and the cost is not low. An IT volunteer group named Pico⁴⁾ has provided remote service to seniors for about one year, but very few users have used it and the support effect has not been demonstrated.

IT is one of the important tools for helping seniors participate local community activities (Yamada 2009). In a local community, senior citizens have many IT support needs and IT volunteer groups are actively devoted to senior IT learning and support. One example is the Japan Council on Disability (JD project 1997), which has proved that computer volunteers can exert a great influence during IT support activities. However, in many cases, IT volunteer groups mainly conduct support activities through courses and consultation rooms, rather than through remote support. Therefore, related discussions and studies on remote support methods used by IT volunteer groups are necessary and important.

3.2 The purposes of this study

In the e-namokun project, many IT volunteer groups contribute to the senior IT education, so it is necessary and important to introduce the remote support method to IT volunteers. Meanwhile, although many expensive remote control software tools exist and are widely used in business, the possibility of using free software tools to implement the remote support should be considered and verified. Furthermore, such research questions as the following should be explored. Can remote support services be used for elderly people and novices? What problems exist in implementing the remote support? What factors are important in implementing successful remote support?

We propose e-RemoSup in coordination with IT volunteer groups. As Figure 1 shows, IT volunteers use frequently used software to support senior IT novices remotely, guide their IT learning and resolve their computer-related questions. The purposes of this study are to:

1. Verify the possibility of IT volunteer's participation,
2. Verify the usage possibility of free remote control software tools,
3. Discuss requirements, necessary conditions, and difficulty in implementing successful support for senior citizens.

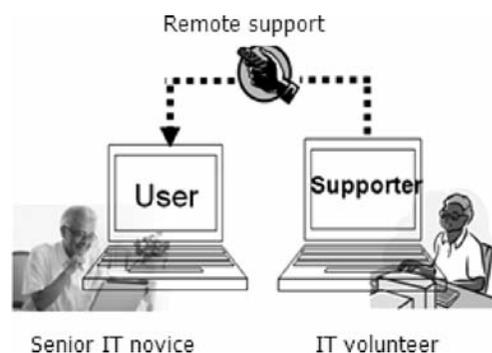


Figure 1: The usage image of e-RemoSup

4. Experiment outline

We tested e-RemoSupp in a four-month experiment. Before the experiment, we had a discussion with about 10 IT volunteers about e-RemoSupp in December 2006, in which we received many valuable suggestions and support. The experiment ran from December 2007 to March 2008, and six IT volunteers participated. They exchanged information, reported the experimental process by mailing list, and learned related technology and knowledge through lecture meetings. During this period, 132 e-mails were sent and five lecture meetings (2-3 hours each) held.

Participants were from 60 to 80 years old; three of them had relatively rich IT teaching experiences, and the others did not have a high level of computer skills. During the experiment, they were divided into 3 fixed groups to give support and receive support peer-to-peer. They used remote control software tools in their homes, where ADSL and optical fiber are mainly used to connect to the Internet and they got a private IP address from their Internet providers.

In order to give them a better experiment environment, six sets of devices, including a recycled computer (Mobile computer, OS: Windows 2000 and service pack 4, hard disk: 20G), a sound and microphone set, and a web camera, were provided to participants.

4.1. In coordination with IT volunteers

The e-namokun project focuses on working in coordination with IT groups who are playing an important role in IT education and support in local communities. This is not only because the purposes of this project are consistent with volunteer groups' aims so that we can share knowledge and

experience easily, but also because volunteer groups have strong social awareness and motivation to create new value in corporate activities.

Our research and social activities receive a lot of valuable advice and direct support from IT volunteer groups. The experiment is being supported by a volunteer group, the Aichikyu Club⁵⁾, which has nearly 30 volunteers, most of whom are retired senior citizens. Some volunteer members had computer experience during their working careers so that they can solve more complex computer problems. Some members can instruct computer novices vividly and kindly because they had the same worries and problems when they studied computers before.

4.2. Support content

In the experiment, support content includes:

1. Software instruction

Two types of software are taught. One is e-namokun (Iribe 2005; Goto 2006), which can be used to send email and explore websites. The other type includes software tools frequently used in the classroom by local volunteer groups, such as "Paint," "Notepad," and "Microsoft Word."

2. Problems solving

Problems solving is an important support content, and includes virus checking, hard disk cleaning, sample file transferring, and security related problems.

By using remote control software tools, volunteers can access senior users' home PCs from anywhere to do instructing and problem solving. Senior users can also use a sound and microphone device to talk with the support person.

5. Usage of remote control software

5.1. Selection principles

There are many kinds of remote control software, so we have to take care in selecting suitable products and solutions for e-RemoSupp. We considered many selection issues such as the following. Which functions are necessary: remote control function, file transfer function, or sound chat function? Which is better, browser-based software or client-based software? What content is suitable for remote instruction and support? We discussed these questions with volunteers and decided upon the software selection principles listed below.

(1) Easy to use: Both the support person and novice have to prepare and pre-install remote control software on their computers, so an easily connected network environment is necessary. Meanwhile, giving senior novices an easy way to start the software, and a barrier-free, anxiety-free (virus, security) usage environment is important. Another consideration is to give volunteer supporters a convenient and easy way to access the remote computer and use it as if actually sitting in front of it.

(2) Having necessary functions: Many support actions can be performed in the support procedure; for example, volunteers use the remote control function to access a user's computer, the file transfer function to give users learning material, the sound chat function to talk with novices and teach in real time, and so on. We select products that not only have a remote control function; many assistant functions are also considered, and from them we find which functions are necessary.

(3) Low usage fees: The cost of software tools or usage licenses should be as low as possible. If it is too high for senior users, they would not use the

service any longer.

5.2. Classification and evaluation

There are many kinds of software tools that have remote control and remote instructing functions. Most senior users have not used this technology before, so in order to give them a clear understanding and efficient and useful solutions, we classify these frequently used tools into four types listed in Table 1. All of these tools are popular and most of them are free.

Table 1: Four types classified in the experiment

Classification	Example tools
Type 1: Multi function type	Laplink, RemoteCall
Type 2: Simple function type	LogMeIn, VNC tool
Type 3: Communication type	MSN with remote assistant, Skype with VNC tool
Type 4: Remote instructing type	MSN, Skype

Type 1: Multi function type

There are many commercial software tools that have multiple functions and perfect after-services, such as RemoteCall,⁶⁾ Webex Support Center,⁷⁾ and Laplink.⁸⁾ Most of their users are large-scale companies, and the cost is high.

Laplink was selected and tested in the e-RemoSupp experiment. Laplink software has been a global leader in PC connectivity and enjoys more than 15 million customers worldwide. The Japanese version has been widely used. In the experiment, we bought six licenses costing about 40,000 yen. Participants have been satisfied with its functions.

Type 2: Simple function type

For senior users, although tools in Type 1 have multiple excellent functions, some are not often used, so Type 2 are those tools that have only necessary and essential functions. Its remarkable

feature is low cost even free for use, such as the LogMeIn⁹⁾ free version and the VNC¹⁰⁾ (Virtual Network Computing) tool. The LogMeIn free version was tested in the experiment.

LogMeIn is also a famous tool that many IT service providers use to deliver remote end-user support, access and manage computers and other Internet-enabled devices effectively and efficiently. Unlike Laplink in Type 1, which is a client/server-based tool, it is a browser/server-based tool. In the experiment, we use its “LogMeIn free” version with no fee and no usage period limit. The free version only provides the remote control function, no file transfer, no sound chat, and so when using the tool, free telephone talk or Skype¹¹⁾ software was used to let supporters and novices talk to each other.

Type 3: Communication type

In general, remote control technology is used for IT professionals to do server management and administration, and the concept has not been popular or familiar for senior users, so most of them do not have confidence and experience using it. So we select easy-to-understand and popularly used tools: Instant messaging¹²⁾ (IM) tool (a form of real-time communication between two or more people based on typed text or sound) plus remote control software tools. We call this the communication type, which includes MSN¹³⁾ with remote assistant, and Skype combined with a VNC tool.

Skype with VNC tool was tested in the experiment. Skype is a well-known free IM tool. VNC is a graphical desktop sharing system for remotely controlling another computer. Most VNC tools need a global IP address, whereas in Japan most Internet providers provide private IP addresses to home users. In order to combine

Skype and the VNC tool, a middleware tool, SkyGateForVNC,¹⁴⁾ is used so that the user can use the VNC tool in a private IP network environment through Skype’s protocol.

Type 3 has the merit of privacy protection. By Skype’s user and password authentication, a senior novice can permit and control the access time made from the remote support person, while in Type 2 most tools cannot allow the user to control the supporter’s access time.

Type 4: Remote instructing type

This type emphasizes remote instruction by using a live camera, while not using remote control technology. This type is the easiest to use for senior users; one need only talk and transfer live images to communicate with others. This includes MSN, Skype, Google Talk¹⁵⁾ and so on. Skype with a live web camera is tested in the experiment. Although Type 3 (Skype with VNC tools) is a good solution, it is not an easy method to allow novices to use the three tools smoothly to keep pace with the support person’s actions. Therefore, the solution of combing Skype and a live web camera is considered, which is a very easy method for letting senior novices receive support.

6. Discussion

During and after the experiment, we collected participants’ usage experiences and their attitudes toward e-RemoSupp. All of them agreed that the remote support method is an interesting, important and necessary method to support seniors, especially novices, in solving problems and questions regarding computer usage and the learning process. Moreover, they gave us a great deal of advice about how to effectively use this method. In this chapter, we discuss six essential

issues about how to implement e-RemoSupp successfully under the support of an IT volunteer group.

6.1. Function

To support a computer novice remotely, two functions are necessary: a remote control function and a voice talk function. In the experiment, participants commented that the word-input chat was difficult for computer novices, yet the voice talk was convenient and necessary. Remote control tool combining with sound talk can be as helpful for novices as if the assistant was actually there, just like face-to-face support.

Other option functions are not essential but in some cases they can be very helpful, such as the file transfer function to give a learning sample or important file, the log function to record the support process, and the printer sharing function.

6.2. Cost

Most IT volunteer groups would like to use free or low-cost software because they do not have big budgets for paying licensing fees or buying software tools. The support objects always change, so the software and user management issues are troublesome. Furthermore, to senior users, if the cost is higher than expected, they will not continue to use the service.

Moreover, one benefit of using free software is that it can be downloaded directly from the Internet, so license management effort can be saved.

Free tools are good but they have many related security risks, such as virus problems, information leak dangers and so on. Therefore, famous and well-used tools should be selected. Although the functions are not sufficient, combining two or three kinds of tools is a good solution.

In the experiment, Type 2 (LogMeIn free version), Type 3 (Skype with VNC tool) and Type 4 (Skype with web live camera) received higher evaluations by participants.

6.3. Usability

Usability¹⁷⁾ means ease of use, which is a most important issue to computer novices and even to senior supporters. To use the remote support, the following steps should be taken.

1. Both sides preinstall the remote support tool.
2. Both sides setup his/her usage environment (Internet), user account and password.
3. Access time is decided by both sides.
4. The novice gives his/her user account and password (in some cases) to the support person.
5. The support person accesses the novice's computer at the decided time to do remote IT support.

For senior novices, how to install remote support tools, how to set the Internet environment to create an account and password, how to send a support announcement and permit the support person's access are important issues for implementing a successful remote support.

Besides the usage processes listed above, many tools' interfaces are not suitable for seniors, such as difficult IT terms, small buttons and menus, etc. In the experiment, we did not find a satisfactory tool for senior users because most remote control tools are designed for general users. Therefore, studying the selected tool face-to-face beforehand is necessary.

6.4. Internet environment

In a general family home, ADSL and optical fiber are mainly used to connect to the Internet. Most providers give private IP address to users, which

lead to many remote control tools not being able to work, such as Laplink and VNC. To senior IT novices, it is difficult to change network configurations to meet the global IP address requirement. Therefore, the web-based tools (such as LogMeIn) and P2P based services (such as Skype, MSN) are better solutions because they do not have IP address limits and do not require network re-configuration.

6.5. Security and privacy

Although many tools in Type 2 (such as the LogMeIn free version, and VNC) have very powerful control ability that can do remote support easily and efficiently, they are often used for remote system management, which means one party is a person and the other is a machine. However, in remote support both parties are persons, so security-related problems exist. Using these tools, once a support person gets a user's password and is permitted access to a user's computer, the support person can gain access anytime even if the user has not invited the support person. This is dangerous and may lead to anxiety for senior novice users.

Many senior novices are worried about privacy-related problems. They do not want to show their personal file (such as family photos and videos, personal e-mail, and document files) to others. Therefore, if their computer is accessed without their permission, senior users will not continue to use the remote support method. In order to solve this problem, participants gave us the following suggestions. 1. Before the remote support service is used, a privacy policy should be agreed upon between the support person and the novice user. 2. It is better that support is done within one IT volunteer group, or in a trustworthy relationship as between teacher and student.

6.6. Quality of support

There are many factors that can affect support quality, such as speed of the network environment, computer performance, and remote support software quality.

Most remote control software tools consist of two separate computer programs, a "host version" that is installed in the computer to be controlled (novice side), and a "client version" that is installed in the controlling computer (support person side). In the support person's computer, two windows' interfaces are shown; one is his computer and the other is the novice's computer. Many cases showed that because the support person is not very familiar with others' usage habits, the first time it often takes much time to master.

When remote support does not run smoothly, some optional support methods should be considered and prepared. For example, when remote control software does not work, Type 4 (such as Skype with web live camera) should be used as a solution. Most senior novices are not aware of which problems would occur, so guidebooks should be prepared and related notices should be announced in advance.

In the experiment, recycle PCs are rented to participants, while in the actual environment, user-owned computers are used and some work such as tool pre-installation and environment preparation should be considered.

6.7. Remote control tools' comparison

Through the experiment and discussion, we compare the four types. Table 2 shows the results. Type 2 (Simple function type) and Type 3 (Communication type) have beneficial factors and have received the most recognition from participants. Although Type 1 has many merits such as multiple functions, high security and good

support effect, to many senior IT volunteers and novices, higher cost is the main weakness. Type 4 is an easy-to-use and convenient solution, but in many instructing and problem-solving processes, only using video and sound without remote control cannot provide a better support effect.

Tested tools were continued to be used after the experiment. More new software tools are planned to help verify and introduce the developing remote control technology.

Table 2: Comparison of four types in experiment

	Type1	Type2	Type3	Type4
1. Function	○	○	○	×
2. Cost	×	○	○	○
3. Usability	△	○	△	○
4. Internet environment	△	△	○	○
5. Security and privacy	○	△	○	○
6. Quality of support	○	○	○	△

(○: excellent △:normal ×:worse)

7. Conclusions

We proposed a remote support method named e-RemoSupp for senior citizens in cooperation with an IT volunteer group, which aims to give senior novices a convenient support environment. Through a small-scale experiment, we drew the following conclusions. It is possible to implement e-RemoSupp in IT volunteer groups for senior citizens, using free software tools. If certain conditions are met, a successful remote IT support can be implemented on a large scale.

e-RemoSupp can be seen as a solution for bridging the digital divide owing to age. Also, it is necessary to realize that without technological innovation in terms of making the man-machine interface much friendlier, the digital divide cannot

be closed, and a senior-friendly training program is necessary (Kuttan 2003).

In the experiment, there was only a small number of participants, so the tools' comparison and recommendation (in section 6.7) were easily dominated by participants' personal experience. Also, the experiment was done over a short period, so the effects of how the novices' skills developed and volunteers' support effects cannot be shown well. This research concerns many areas: IT technology, social organization, senior citizens characteristic, e-learning, and so on. It is significant and more topics should be discussed. In the future, a large scale experiment will be implemented to explore these issues.

Acknowledgements

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Notes

- 1) Senior net, <http://www.seniornet.org/>
- 2) Definition of the "remote control software": http://en.wikipedia.org/wiki/Remote_control_software
- 3) NTT, remote support service: http://flets.com/osa/remote/s_outline.html
- 4) NPO Pico, <http://www.npo-pico.jp/>
- 5) Aichikyu Club, <http://aichikyu.net/>
- 6) RemoteCall: <http://www.gfblog.jp/remotecall.html>
- 7) Webex Support Center: <http://www.webex.co.jp/>
- 8) Laplink, <http://www.laplink.com>
- 9) LogMeIn, <http://www.logmein.com/>
- 10) VNC: Virtual Network Computing
http://en.wikipedia.org/wiki/Virtual_Network_Computing
- 11) Skype, <http://www.skype.com/>
- 12) Instant messaging (IM): <http://en.wikipedia.org/>

wiki/Instant_messenger

- 13) MSN: <http://messenger.live.jp/>
- 14) SkyGateForVNC: <http://www4.ocn.ne.jp/~dragonoo/>
- 15) Google talk: <http://www.google.com/talk/intl/ja/>
- 16) IT Support Volunteer Net, <http://vfbunka-itvol.sblo.jp/>
- 17) Usability: <http://www.usability.gr.jp/>

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The Internet is not a Highway to the “Promised Land,” but rather a Pathway to an Actual Community: Employment and Participation for People with Disabilities in Japan

Keywords:

Information Communication Technology, Social Participation, Employment, Disabled People (and Disability Studies), Internet Community, Actual Community.

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Abstract

Over the past few decades, the use of Information Communication Technology (ICT) as a beneficial tool in the lives of people with disabilities has been brought to public attention. It has been proposed that “people with disabilities achieve fuller social participation, especially in terms of economic self-reliance, with ICT use.” Japan’s welfare policy, introduced recently, compels disabled people to use ICT in order to gain and conduct their employment. Economic self-reliance is regarded as a prerequisite for the social participation of people with disabilities, and obtaining employment is the consequential and implicit goal. Acquisition of ICT usages has been seen as the key that will help disabled people to achieve social participation.

This paper intends to present the results of an investigation that was conducted into the effects of ICT on disabled people’s social participation. This investigation was based upon a log analysis of the online mailing list (ML) as well as fieldwork conducted in the offline arena. This fieldwork in the offline arena revealed that there were many social barriers that could not be overcome through ICT use, even by those with consummate ICT skills.

In contrast, we observed that an “online community” allowed each member of the disabled working community to communicate his or her living situation, a communication that broke down barriers and encouraged social participation. These results led us to the conclusion that ICT is not the “highway” to the “promised land” of social participation; instead the evidence suggests that ICTs can instigate a “pathway” to an actual community of disabled people.

1. Introduction

In the last few years, numerous attempts have been made by scholars to demonstrate that Information Communication Technology (ICT) can be used as a “highway” to bring disabled people into fuller participation within society. Today, many devices and services have become available for people with disabilities, as different assistive technologies, knowledge of universal designs, and ubiquitous systems all come together to provide the right conditions for the proliferation of such devices. Indeed, it is becoming clear among the wider community that “ICT must be available to everyone, especially people with disabilities.”

In fact, people with disabilities have been somewhat excluded from almost all areas of social participation. ICT has been regarded by the disabled community as the perfect “highway” to take them to increased social participation. Indeed, numerous cases have been reported where disabled people have succeeded in achieving increased social participation and employment through the usage of ICT (Swain, et al., 2004). It is clear that these examples of success must be investigated further and similar efforts in the future supported. However, the following important questions need to be asked: What is the most important factor in ensuring this success? Does the evidence support the theory that using ICT successfully is dependent on the acquisition of ICT skills? Does ICT usage live up to its promise of ensuring that people with disabilities actually exist in society? Is it, in fact, a “highway” to a “promised land?”

As part of this inquiry we must also note that it has been suggested that the social participation of people with disabilities is connected with

encouraging their economic self-reliance.

“In order to realize normalization, which is the fundamental principle in promoting measures for persons with disabilities, social participation through employment will serve as its basis. Therefore, it is important to help people with disabilities so that their employment opportunities are maximized according to their qualifications and skills.” (Cabinet Office, 2006: 47, Translation by Author)

Many disabilities studies have criticized the approach of “coercing” disabled people to be economically self-reliant. In addition, there are a wide variety of ICT applications that can facilitate various areas of their daily life, that can be imagined.

Employment is by no means the only approach to social participation. The definition of “social participation” may, in fact, be determined by the people themselves in terms of whether they feel socially fulfilled. Nevertheless, in many cases today, the social participation of disabled people is basically seen as synonymous with the achievement of employment. We must not overlook the fact that the current support system for people with disabilities emphasizes the following formula: employment = economic self-reliance = social participation.

2. Key issue: “New forms of employment” as the “promised land” for disabled people

A large number of employment support measures that help disabled people realize economic self-reliance have already been implemented, with the notion that this will act as a prerequisite for social participation. The most desirable scenario is one that has disabled people

employed in ordinary companies, but the reality is that this is not so easily achieved. Therefore, a new form of employment, one that is different from the conventional or standard type of employment, has been drawing attention in this area. The crucial tool that is hoped will enable this new form of employment is ITC, a hope that has been emphasized in recent years.

These new models of employment include people working in a home office, where a person works at home after becoming self-employed or participates in a small-scale SOHO. The number of people engaged in this model has increased in line with the spread of personal computers and the expansion of the Internet. Indeed, it is this new model of employment, above all, that is regarded as offering the most opportunities for disabled people and toward which people with disabilities are mainly directed.

“Due to the recent evolution of technologies such as IT, people with severe disabilities who find it difficult to commute to a workplace, now have more employment opportunities, particularly as they can now work from home, due to the Internet. Therefore, it is becoming increasingly important to provide support to the home office model of employment, in order to expand the employment opportunities for people with disabilities.” (Cabinet Office, 2006: 47, Translation by Author)

Indeed, the expectations of the disabled community have been heightened, in the hope that this new form of employment will provide further opportunities for social participation and employment. In fact, the number of disabled people who do work in this model has increased. Having been encouraged by these expectations, intensive support has been provided in recent years to those disabled people who are in home

office employment and who use ICT. Common sense suggests that people with disabilities who have better ICT skills than the competition, as well as access to a high-performance personal computer, will be more employable; it appears that this does hold true. If, for instance, a disabled person has high-level technical skills that allow them to create more beautiful Web sites, are competent in techniques that enable them to carry out outsourced works more efficiently, they may expect higher earnings than others.

For persons with disabilities who have been excluded from the labor market of general employment, this new form of employment can look like a miraculously fast way to achieve social participation. The idea that those with disabilities should learn ICT skills and take advantage of this new form of employment is now widespread, and ICT support provisions are basically following this trend. In fact, ICT is appears to be drawing expectant attention from people who could not obtain general employment. ICT can be seen as a “highway” that helps disabled people experience a future will fuller social participation. Today, most Japanese support measures for disabled people urge them to continue their efforts to acquire ICT learning. Many young disabled people in Japan believe that high-level ICT skills are the key to make a promise them to truly participate in the society; in fact, they expect that this new form of employment will take them to the “promised land.”

There are two reasons why we use a metaphor of a “highway” in this paper. The first reason is that, in order for people with disabilities to reach the destination of social participation, they need to get on the route of employment and therefore (economic) independence. There should be alternative models for disabled people to realize

full social participation in the first place, but because an overwhelming portion of welfare policy resources has been invested in the construction of this “highway” in recent years, it is difficult to opt for another approach.

The second reason is that this way is a toll road. It requires a combination of access to a personal computer (= the “toll”) and ICT skills (= “driving techniques”). For the “toll,” the necessary devices are now becoming prepared, as mentioned earlier. However, it is inevitable that one must pay to acquire them. Also, for the “driving technique,” the roles of “skill development and job training” have been stressed in recent years in the context of support activities for disabled people.

It is clear that ICT skills must also be acquired by all people with disabilities. The issues that must be discussed emerge after this recognition has been made. The next step in the process is to examine the following questions: If people with disabilities use ICT, will they really be able to achieve social participation? If yes, then what kind of social participation will that be, and if not, why not? Therefore, in this paper, we will consider, using specific examples, whether ICT usage is really a “highway” for the social participation of disabled people.

3. Purpose and method

At this stage the questions we will address are given below:

- What kinds of problems and benefits are involved with the new form of employment in the context of people with disabilities?
- How can people with disabilities achieve social participation by using ICT?
- Is ICT really a “highway” that can promise to bring disabled people to fuller social

participation?

If we are going to think about these new forms of employment that use ICT, then the best approach is to analyze a situation that is actually aiming to realize this. Specifically, a case that includes the following two domains will be required. First, we need to analyze the online domain of the new forms of employment that use ICT. Since this is done as telework, most tasks such as progress management and data sharing will be carried out via ICT, including the Internet. Therefore, we need to analyze how the tasks in this specific case of a new type of employment are conducted over the Internet. In concrete terms, we will analyze the past logs of mailing lists (ML) that were used as the main media in the actual case.

However, it is also important to note that this new form of employment is not limited to the online domain. Since ICT is actually used in the living space of people with disabilities, we must also understand and analyze how tasks are carried out in the domain where the work is done face-to-face, with other people. In short, we need observe participants to see exactly how work is done with ICT in the offline domain. Conventional ICT studies have inevitably focused only on the online domain, meaning the offline world of this work has not been examined adequately. At the same time, there are only a few fieldwork studies that have analyzed, in a detailed manner, the actual state of the telework that is done by people with disabilities.

We may now proceed to combine the analysis of past logs with fieldwork, and then discuss what ICT might offer to this new form of employment for people with disabilities, from the perspective of both the online and offline domains.

4. Case Study

4.1. Case overview

Having clarified the objectives of this paper, we will now discuss an actual case the new form of employment has been attempted with ICT. The specific case that we are going to deal with here is called the N-Kobo, a scheme in which disabled people played a central role due to the opportunity to work from home. The N-Kobo scheme was conceived in a personal computer school for people with physical disabilities in Taihaku-ku, Sendai in Miyagi prefecture. The N-Kobo scheme was set out according to the sole proprietorship model, after appointing “A” as the president. They then set out to receive jobs. The business involved developing Web sites, and creating and delivering them from a “home office,” through telework—an excellent example of the new form of employment.

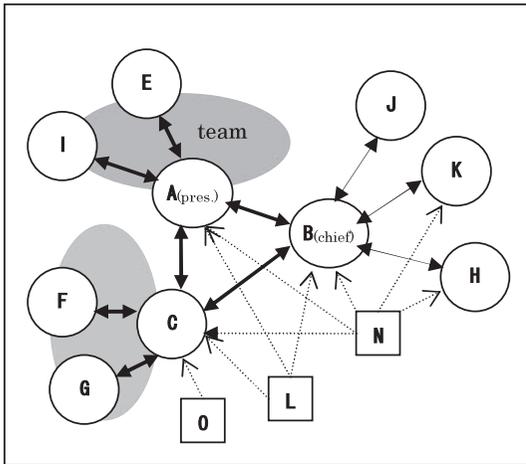
N-Kobo’s members mainly consisted of those who were confined to a wheelchair because of muscular dystrophy syndrome and other disabilities. Their living arrangements varied—some lived in places such as care facilities, and some lived in their own home. From the very beginning of the project the goal was for the work to be conducted remotely, using telework through the Internet, rather than gathering at one place to work. Members who lived in a care facility, including president “A,” could use personal computers and the Internet via assistive technologies, without difficulty, but did not have work experience. In addition, when they wanted to leave the facility, they had to independently submit a leave-out form and arrange for a welfare lift car and nursing volunteers. Thus, while this model aided their employment opportunities, they were still far from fulfilling their social life, indeed, their

group activities tended to be restricted within the facility. Only one of the members who lived at home could move using a private car. Since this person, “B,” had work experience at a Web site creation company and a wealth of technological knowledge, “B” served as the “technology chief” or coordinator of N-Kobo. In addition, about three volunteers, who had helped N-Kobo since it began at “A”’s personal computer school, participated in activities that could not be done by the members alone.

4.2 Analysis of Fieldwork (1) Cooperation of workers

Let us examine in more detail how the workforce of N-Kobo cooperated. In the case of N-Kobo, since the composition of the ordered Web site could be roughly divided into two parts, the members were grouped into two teams and the workload was broken down into smaller portions. This was done to make sure that none of the members had to work for a long period of time, as their specific physical conditions meant that working too long may harm their health. In addition, the rhythm of their daily life could not be changed easily as the significant routine aspects of their life, such as eating and sleeping, were dependent on their caregivers and family members and the amount of time that was entirely at their disposal was limited. If they were living in a care facility, then the times when they were due to take a bath, or go to bed, were strictly determined. Therefore, when carrying out group work, they had to coordinate each person’s free time in order to complete a particular work task, and ensure that the various tasks were completed without a clash. Figure 1 clearly shows that cooperative activities were carried out under the direction of president “A” and with technology chief “B” working as the

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[Figure 1 Cooperation of workers]

In this figure, we must note the contribution made by volunteers, who were an external resource for each team. This contribution includes completing tasks that supported the members of N-Kobo, tasks such as liaison, shopping, errands to the bank, and the preparation of papers, as and when the members needed them. Even though the employment was based around telework, not all the tasks could be completed using ICT. Depending on the circumstances, the members might have had to ask the volunteers or even their caregivers—the members’ primary help resource in their everyday life—to prepare printing papers or exchange the storage media. It was clear to us when observing the workers of N-Kobo trying very hard to obtain employment, that this situation—in which they have to partly rely on their caregivers (their own life resource) in order to work—is extremely unjust. Closer observation of the progress of their telework can enable better understanding of the nature of this problem.

4.3 Analysis of Fieldwork (2) Progress of telework

At this stage, we should focus on the actual telework at N-Kobo⁽¹⁾. It is worth noting that the tasks and meetings involved in N-Kobo’s work were frequently carried out in the offline domain, without using ICT. This offline arena was particularly significant in important aspects such as relationship-building with the client. As a general trend in the Web site creation industry, personal connections are extremely important in the sales department; this is especially the case in small-scale businesses. Therefore, it is important to note that the Internet is not particularly helpful in creating these kinds of personal connections. Most personal connections in these types of businesses are initiated first and foremost by staff members marketing themselves. This relationship with the client needs to be maintained through swift responses to those issues that always occur in business. With this in mind, the question of whether the client can be visited immediately and their needs responded to, is particularly relevant in the context of a company such as N-Kobo, as this question has a substantial influence on the selling power of a company.

Thanks to the client’s understanding and thoughtful consideration, the best part of the N-Kobo’s jobs could be carried out based on ICT. But face-to-face negotiation and client visits were often required in N-Kobo’s work. With the help of a welfare vehicle with a lift, President A and other members could be relatively mobile and on some occasions conducted client visits. However, due the importance of prompt responses when running a business, in some instances a volunteer visited the client on behalf of the employees of N-Kobo, or alternatively, “B” (the technical chief) would drive to the client in his private car.

The concept that became apparent through observing the telework at N-Kobo was the fact that ICT is not a suitable media through which to conduct the informative discussions that are essential when establishing a business relationship, i.e. one that is not particularly close. In important aspects such as concluding an agreement, brainstorming, deciding on designs, and responding with urgency to various issues, face-to-face communication is required. These situations can not be responded to using ICT skills.

Employment in general involves many different kinds of situations that can change kaleidoscopically as the work progresses. This is also true of telework. The workers can try to control the situation as much as possible, by investing in various resources including their skill level, time availability, physical commitment, colleague relationships, and relationships with other associates who work around them. However, despite these investments, the fact remains that workers with disabilities tend to experience a shortfall in the resources required to control these situations. ICT skills are just one of the resources required. Indeed, if improvement is made only in ICT capabilities, then it is highly likely that the fruits of this investment will not reflect the amount of the investment. The current situation, in which valuable life resources are invested in situations that will bear very little fruit, may expose disabled people to even more difficult social situations, instead of promoting social participation.

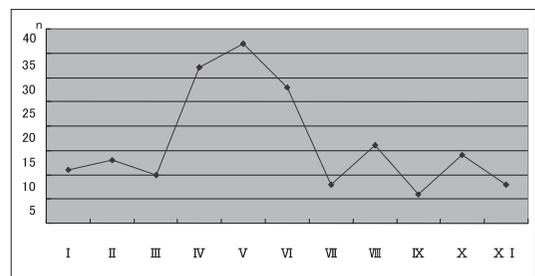
4.4 Analysis of Logs (1) Trends of Comments

From our observation of the processes of telework, the benefits offered to disabled people by this new form of employment, a form of employment that relies on ICT, are not clear. However, it should not be assumed that ICT is

useless. With these issues in mind, let us now turn to the online aspect of working at N-Kobo. The ML (mailing list) of N-Kobo functioned as the main online media for the communication between those involved in the telework, and it is to this that we now turn.

Even though N-Kobo's work was a type of telework, the creation of Web pages itself was done by individual members using their personal computers, each of whom was in charge of the relevant sections. Since N-Kobo's members were working individually, either at home or at a facility, it was crucial to have a media that was suitable for giving work instructions, reporting progress, and sharing information and data. Many members were restricted in terms of transportation and the hours when they were available to talk on the phone. The ML was an ideal media because not only because it was a platform for sending and receiving messages, but also because it enabled the attachment of data files to the messages, at any stage of the creation of a Web site. At N-Kobo, the ML was introduced in order to operate the tasks efficiently without delay.

The trends observed in the comments on the ML were as follows⁽²⁾:



[Graph 1 Trends of Comments of N-Kobo's ML] (N=183)

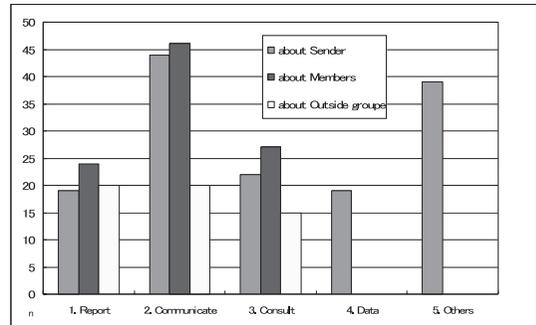
The majority of comments were posted from phase IV through to phase VI (see Table 2). These phases corresponded to the period of designing

through to the period of coding, the period that is just before provisional delivery and therefore the busiest period for N-Kobo. The fact that the number of comments was proportionate to the progress of the work also highlights the fact that the ML was primarily introduced as a media that was aimed at facilitating task operation.

[Table 1: Codes and numbers of comments]

Reference	i. Sender himself or herself	ii. Other members	iii. External parties
1. Report	19 (10.4%)	24 (13.1%)	20 (10.9%)
2. Communicate	44 (24.0%)	46 (25.1%)	20 (10.9%)
3. Consult	22 (12.0%)	27 (14.8%)	15 (8.2%)
4. Data exchange	19 (10.4%)		
5. Others	39 (21.3%)		

The contents of text-based communications such as e-mails can be classified with greater ease than face-to-face conversations. Generally, it is said that three types of communications are required for running a business, namely: “1. Report, 2. Communicate, and 3. Consult” (Nemoto, 2006: 162). The business of Web site creation was conducted through business conversation at N-Kobo, and these conversations can also be classified into these categories of the business communication. The details are explained below⁽³⁾:



[Graph 2 numbers of comments] (N=183)

Judging from the above graph, attention should be given to the large number of comments that fell into the categories of [2. Communicate] and [5. Others]. Category [2. i. Communications referring to the sender oneself], in particular, included a large number of comments. As this is an interesting category, let us examine it in more detail.

4.5 Analysis of Logs (2) Comment for self-presentation

In category [2. i.], each member communicated the contents of her or his own specific work, in order to encourage cooperative activities among the members. This use reflects the original purpose of the ML as it was originally outlined at N-Kobo. However, in the course of organizing the comments in a detailed manner, we came across unique comments that fell outside the ostensible scope of this category.

[Comment example 1 (2. i.)]

No. 03: A caregiver comes to my place during the daytime on Thursdays, so I won't be able to work before 5 pm.

No. 100: I'm going to leave my room at noon for another meeting and some private stuff. I'll be back by around 9 pm. If you have any questions, send them in.

No. 102: I'm going to take a bath in the afternoon, so I'll do the remaining work tomorrow.

These comments hardly referred to work contents at all; rather, they referred to the worker's (mail sender's) own living conditions and circumstances. In the case of telework, those who use the ML are only connected remotely and so the reader of a communication will have no knowledge of the sender's working conditions or current living conditions and environment. It is clear that, the sender feels that he or she must make the readers understand the current situation that he or she is living in, as well as his or her outlook on future living conditions. We can say that the mail sender becomes the presenter of self (Goffman, 1959).

In fact, maximizing opportunities for the sender to convey information regarding his or her own personal situation, as well as making each member understand this situation, are both very important elements of communication when carrying out cooperative activities via telework. We have pointed out before that the work done by people with disabilities using ICT is significantly restricted by the availability of resources that they own or the resources around them, as well as their external environments. The fact remains that all members are in an inconvenient situation, although the extent to which may vary. If someone's work gets behind schedule due to a sudden change in their situation, this will have a significant impact on the work schedule of other members and will also influence their situations. This may cause repercussions and further worsen the situation of the person who first brought about this change. In order to prevent this from happening and continue the work, it is important for members to share information regarding their individual situations. Therefore, communications that act as a "self-presentation" (Goffman, 1959) are presented in relation to their physical conditions and the

external environment⁽⁴⁾.

Of course, there are cases where work cannot be performed due to emergency situations and in these cases too, comments that present the sender's situation are posted. What is important here is the promotion of an understanding among all members of individual situations, in order to protect both the sender as well as the other members, by communicating the sender's situation in advance.

4.6 Analysis of Logs (3) Comment for consideration

However, these kinds of communication, which present the sender's "self" and her/his situation, may eventually lead to a dependence on other members, or a postponement of the deadline. This, in turn, may result in a delay of the entire cooperative activity. However, comments that attempt to prevent the group from getting into this kind of situation can be seen in [2. ii.] and [5. Others].

[Comment example 2 (2. i.)]

No. 114: I'm lying down all day. My condition has really improved, but I haven't fully recovered yet. If I can't get back by 8 pm today, would somebody else please take over my work?

No. 116: This is not the first time that I have heard that your conditions are bad, so I think *** will take your work as an exception. It can't be helped. But thanks for letting us know early.

[Comment example 3 (2. ii.)]

No. 91: ** is in charge of the text parts only, but because the project is still in progress, we may ask ** to do some other work.

No. 110: **, how is your prototype? We're not in a hurry, so please work carefully.

As in [2. i.], most comments in [2. ii.] were posted in order to communicate users' overall

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situations, rather than to inform others about the specific situation of the reader. These comments were put in place either to express their expectations that they were holding at that time toward the readers or to facilitate the work through showing thoughtful consideration (Ishikawa 2004) after carefully observing the situation the readers were in.

When one member withdraws from his/her work, the decision affects the entire group who are then in danger of falling into a serious crisis. To avoid this, the members made efforts to motivate each other and demonstrate thoughtful consideration, in advance, to prevent the other members' situations from getting worse. It appears that it was important that the sender ensured that their attitude reflected a respect of the readers' situations and placed value on the readers' autonomy, without forcing her//him to take action. If the sender instructed one reader to “try harder,” for instance, then this pressured the reader and made the situation worse. For communication to have been effective, the sender should have encouraged the other members to continue their work, by showing an attitude of thoughtful consideration consistently and continuously.

The communications seen in [2. i.] and [2. ii.] were trying to promote collaborative work by communicating individual situations to all members, as well as showing an attitude of thoughtful consideration. We can see that the ML was used as a space for coordinating situations, and that its use helped to strike a balance between the sender's situation and other members' situations (Meyrowitz 1985).

The task of providing support for other members, whose work may be delayed because of problems arising from their physical conditions or a deterioration of their living environment, can be

onerous. Even if a member knew that the provision of support to other members was important, those members who also have the same kind of risk could sometimes find it difficult to contribute to an instantly supportive atmosphere. However, the communications that emerged in this “space for coordinating situations” indicate that this area became a space in which the members considered their fellow members' circumstances carefully and actively helped each other out. It appears that this space became a space for mutual reliance where members could be supported without a sense of guilt or embarrassment.

By presenting and coordinating their situations (instead of taking the support for granted), receiving support from others was justified within the group. There is a natural justification for this atmosphere of support. It is widely known that, when a group is functioning in an online domain such as the ML, the overall mood of the group is determined by the “atmosphere” (air/Kuki) of this space. In this particular case, this “atmosphere” evolved into one in which members actively helped help each other. It is clear that the ML offered a space that promoted mutual support among the members, by creating a space where members coordinated by exchanging information on their individual situations.

4.7 Analysis of Logs (4) Conversation spaces that function like Actual Community

We also observed another type of unique communication that occurred in the “space on the ML that was coordinating individual situations”. The remaining comments, which were not directly related to work and did not fall into one of the other categories, were classified into the remaining category: [5. Others].

[Comment example 4 (5.)]

No. 80: Workshop A's project is running smoothly thanks to the members' kind cooperation... Thank you all.

No. 133: Hi everybody... My PC's is going really slowly when I work... Oh well. Three hours have passed..... It's still really slow. I'm going to activate the task manager... "CPU load 100%" (omitted) It's strange that its running with 100% of load...

No. 140: Usually I use my computer basically as a hobby, but now that I use my computer for work, I feel stimulated and it is a bit exciting (omitted).

No. 144: I'm glad that I have had a chance to experience the work of Web site creation. I understood the overall flow and learned the rigorousness of work by observing the communications with the client regarding the delivery timings, etc. I'll keep checking my e-mail carefully until all payments are transferred to the bank account.

Close analysis reveals that these comments, posted on an ML that is ostensibly for interacting about Web site creation work, actually functions in a similar way as having a daily chat, a chat that focuses on issues that are irrelevant to the business that all participants are involved with. Despite this, on the ML, these kinds of comments were positively encouraged. By sharing their experiences and work responsibilities through the ML, the members created a "sense of belonging community".

These communications demonstrated that the ML had a wider function than merely a media of contact for issues surrounding Web creation. While this sense of belonging may not have raised the work efficiency of each individual, it seemed to have increased the members' motivation to fulfill their roles. The space for presenting and coordinating the self situations, seen in categories [2. i.] and [2. ii.], offered a sense of security—a confidence that other members would work on behalf of a member who would not fulfill his or her tasks due to a worsened physical condition. In addition, the sense of belonging engendered by the ML created a motivated attitude, where members felt galvanized to fulfill their role

responsibly. Owing to this sense of belonging, the members were unlikely to abandon their work irresponsibly, which minimized the likelihood of adversely affecting other members stress levels and conditions. Precisely because there was a space that engendered this sense of belonging, a place was created where members could share the responsibilities of work and conduct their work, despite the fact that some posted comments may seem irrelevant. Indeed this mechanism seems to have allowed members to continue their work, and also to complete more tasks than when they worked individually.

Therefore, the members working ability was measured within an entire space where members presented and coordinated their individual situations, which means it was impossible to separate each individual's abilities and skills. It seems that the foundation that allowed people to share responsibilities was generated throughout the entire space of N-Kobo.

5. Discussion

By conducting a log analysis, it is clear that the members made good use of the ML as a place where they could coordinate their situations with those of other members, as well as a place where they could communicate matters related to work and carry out reports and consultations. By using the ML in this way, each member facilitated other members' tasks, by showing thoughtful consideration to each other, motivating each other, and creating a situation that minimized the likelihood of other members delaying their work or withdrawing from the work completely.

The ML is an ICT tool that can promote the sharing and coordination of individual situations, a characteristic that was demonstrated in this case

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study. Since the ML is a text-based media, the sender must write detailed letters if he or she is to communicate his or her situation. Background information that, in face-to-face communication, is implicitly conveyed and received through the “feel” of the language tends to be written clearly and intentionally when face-to-face communication is not possible. All participants were encouraged to read the comments. For future use, it should be noted that the contents of the comments on the ML must be clear, but the readership, to whom these communications are directed, does not need to be well-defined. In fact, these comments should be able to easily be shared, as this contributes to the creation of the “atmosphere” of the place. These features, which are implemented in the ML, contribute to the formation of a space where senders communicate and exchange details about their situations and coordinate these details with other members. This kind of space is essential if the telework is to be completed without members dropping out.

We suggest that these kinds of mutual actions may have transformed telework at N-Kobo into something beyond a mere business. In this case study, the workers found far greater pleasure in taking part in cooperative activities, enabled through the telework model, than they gained from just earning an income. This can be seen in the following comment that was posted: “I feel like doing more work from now on. You should get more jobs (laugh).” It should also be understood that the ML space supports not only the financial income of individuals but also acts as a supportive framework for employees to work or participate in society.

In fact, while employment and financial income are important incentives in telework, it seems that daily communication offers the real benefit. The

telework conducted at N-Kobo by people with disabilities was carried out by careful coordination. Indeed, this system may not have offered efficiency in terms of gaining a high income and it may fall a little short in terms of providing disabled people with economic self-reliance. However, this new form of employment still has the possibility to act as an impetus to encourage disabled people to achieve economic self-reliance. The steps that are being taken by disabled people themselves—through mutual actions of telework—may not be large, but, at the very least, these steps offer an opportunity for a forward-moving structure to be used in daily life, a structure that can help bring them closer to social participation. It has traditionally been difficult for people who have not had much exposure to these arenas that allow mutual interactions, to achieve social participation in the offline world. Therefore, by providing disabled people with this space, via ICT, while they are at home or a facility, opportunities for social participation are opened up.

If the ML, which was initially established as a workspace tool, can become a space that generates a sense of belonging, it should be renamed it as a “community,” in order to better communicate its true nature. It is clear that the ML is used as a “community” through which the members can coordinate their situations and that ICT enables this.

Therefore it is noteworthy that the research results suggest that ICTs, originally used just a media to support tasks, can transform an “actual community” through daily encouragement and regular tracking of the progress of employment. ICT usage in this context has been transformed into something quite distinct from its original goal⁽⁶⁾. This shift in the function of ML usage, to one that represents an actual community, was born

out of the normal and autonomous communications of the users, used in their daily communication. The significance of this resides in the fact that this space was produced voluntarily and self-motivating, on the back of the ICT usage that was in place to support their work. This is a valuable process that should be recognized for the fact that it highlights the opportunities that the new form of employment can offer to disabled people in terms of the social participation.

The current employment support measures of conventional approaches to this new form of employment are not designed to support this kind of ICT usage. This is a relevant point in terms of understanding the key issue associated with the new form of employment: The Internet has been suggested as a “highway” to the “promised land,” where the “toll” for traveling that highway is the preparation of the equipment and connection lines and the acquisition of the driving techniques, or “ICT skills.” Although this idea may offer economic self-reliance to people with disabilities whose living conditions happen to be favorable, it is clear that the Internet will not necessarily help many disabled people achieve social participation. The evidence suggests that even those disabled people who already have the high level of ICT skills that are required for the work, will not succeed without the inclusion of an arena to enable an “actual community to coordinate situations.”

For these reasons it is evident that it would be somewhat dangerous to assume that the current success of the new form of employment is dependent wholly on the worker’s abilities and ICT skills and, on the basis of this assumption, narrow down the support measures for disabled people to focus solely on the education of these skills and abilities. Indeed, using this success as an impetus to focus on individual workers’ abilities

may, instead, create situations where ICT skills are assessed and judgments made, such as “you are not trying hard enough to learn ICT skills” or “you are not capable enough because you have disabilities.” If we believe the Internet’s promise to lead us forward to the “promised land,” even if we pay the “toll” of education expenses and acquire the “driving techniques” in advance, it may still not be the highway we hoped for and it may, instead turn out to reach a dead end.

On the other hand, the space that was transformed into an “actual” community, through ICT usage, may well serve as a pathway to greater social participation. While it may not help disabled people realize their economic self-reliance in a single step, by gradually coordinating independent disabled people’s situations and encouraging them to share their experiences with others in daily life, it may well encourage social participation. Social participation is not inherent—it is enabled through this kind of communication space. The space that was transformed into an “actual” community—an Internet community—with ICT usage, is one of the indicators that the Internet certainly can serve as a “pathway” (not a highway) towards fuller social participation.

6. Conclusion

The results of this case analysis into a new form of employment clearly show that there are many problems that cannot be resolved easily. However, we have identified a pathway towards fuller social participation for disabled people, a pathway that emerged from an area that is totally distinct from those areas traditionally thought to offer the “highway,” and approached only with high-level ICT skills. The analysis of this case offers only one possibility garnered from a single case. We must

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take care not to make easy generalizations and inferences. As far as the development of current support systems for disabled people and the new form of employment is concerned, it is clear that there are some misconceptions that have informed expectations toward ICT. In fact, ICT will not benefit disabled people unless we reshape our approach and examine this area from a different perspective.

The notion that the Internet community can function as a pathway for social participation, allows us to propose two suggestions. First, that actual communities like those studied here may be found widely in our daily lives and that these communities urge us to review the essence of our “abilities,” “work,” and “social participation.” Especially in today’s highly informational society, many of us will achieve social participation through the Internet, as well as through those spaces that have been transformed into a community by the Internet. It may be said that this space promotes social participation by coordinating the participants’ situations both explicitly or implicitly. Or, it may also be said that the power of social participation is decided by the coordinating power of this space. Further investigation should be made into reviewing the spaces that function in our daily lives and the role of ICT in them.

Furthermore, it may also be said that the largest problem in social participation is that people with disabilities have been deprived of living spaces, a privation of community that can be addressed by the Internet. Even if a person with disabilities is released from their welfare facility, is assisted with his/her job hunting, acquires ICT skills easily due to the various discounts that are available for the “toll,” he/she will still not be guaranteed fuller participation in the society. The answer to this participation can be found in an actual community

that will serve as a pathway to social participation for people with disabilities. Today’s support measures should help create available “communities” that will serve as a pathway that leads to society of people’s daily life, rather than forcing the “highway” upon them. This pathway, which may seem like a roundabout, will eventually become the foundation for social participation. The Internet is not a “highway” to the “promised land,” but a pathway to an “actual” community and the society.

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Footnotes

(1) The progress and stages of telework at N-Kobo was carried out as follows:

[Table 2 Progress and stages of telework]

Phase I	Preparation (9/7-9/10)
Phase II	Planning (9/10-11)
Phase III	Bidding (9/12-10/22)
Phase IV	Designing (10/23-11/16)
Phase V	Processing materials and creating parts (11/17-11/27)
Phase VI	Production and coding (11/27-11/29)
Phase VII	Integration and inspection (11/29-11/30)
Phase VIII	Provisional delivery and proofreading (12/1-12/4)
Phase IX	Delivery and follow-up (12/5-12/10)
Phase X	Billing (12/10-12/28)
Phase XI	Collection of payments (12/29-2/4)

(2) Data were gathered from September 7, 2003 to February 5, 2004. The total number of comments received was 183.

(3) In the case of N-Kobo, “1. Report” is a vertical relationship that includes instructions given from the president and technology chief, and progress reports that must be produced as part of the business. On the other hand, “2. Communicate” includes horizontal and equal communications among members regarding their specific work contents. “3. Consult” includes questions and answers. We also added the categories “4. Data exchange” and “5. Others” that were unique to this business and created a total of five categories with codes one to five assigned to each of them. We also classified the comments according to what they are referring to, using the sub-codes “i.

Referring to the sender him/herself” and “ii. Referring to matters inside the group.” Furthermore, we added the sub-code “iii. Referring to external parties” for comments that are referring to external parties such as the client.

(4) This process is quite similar to the concept of “situation and self-definition” from Meyrowitz (Meyrowitz 1985:31).

(5) We can find this mechanism in all kinds of social activities, including employment. According to an extreme logic, as long as we can form a “community for coordinating the situations,” we may not have to use ICT. Nevertheless, using ICT as a promoting tool for the establishment of a community certainly promoted social participation.

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- IV. If the revision of manuscript is not finished by the printing of JSI Vol.3 No.1, the manuscript may be printed on JSI Vol.4 No.1.

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When the manuscript is received by the Editorial Board, a notice indicating the reception will be e-mailed to the author. Rejected manuscript will be abandoned and a note indicating the reasons for reject will be sent to the author. After acceptance of the manuscript, the acceptance will be notified to the author. The author is requested to submit the final version of the paper in the form of electronic file (MS-WORD, or Written text only in Text File). Extra cost for printing figures and tables is author's responsibility. After the manuscript is accepted, proofreading will be performed one time by the author. No insertions or proofreading other than related to printing errors will be accepted. Original manuscripts will not be returned to authors.

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The Editorial Board has plans to publish Vol.3 No.1 of the Journal in the spring or the summer of 2010. One who would like to submit a paper on Vol.3 No.1 of the Journal must send the attached submission form to submit-jsi@yahoogroups.jp until September 30, 2009. The original manuscript and copy without authors' information must be sent to submit-jsi@yahoogroups.jp until October 31, 2009.

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Abstract

This document is prepared for authors to submit papers of JSI Vol.3 No.1 2010. All authors are recommended to use this document as a template of a manuscript. However, it is not obligatory to use this document as a template, if each page is basically two columns and 39 lines.

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For the limits of manuscript length, refer to Requirement of Submission of CFP of JSI Vol.3 No.1. Note that the number of pages includes the title page of a manuscript. The maximum number of pages of Paper is 12 and the number of pages of Research Note is 6 or 8. Since tables or figures may require a bigger size to their text part readable, one column tables or figures may be permitted.

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