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2012 the Society of Socio-Informatics, SSI, Annual Conference, Keynote Symposium

Socio-Informatics and the World: Toward New Sharing and Creation (Theoretical Session)

Toshiyuki MASAMURA, Tohoku University
Mamoru ITO, Waseda University
Masaru YONEYAMA, Nagoya University
Kaoru ENDO, Gakushuin University
Kenichi ITO, Gunma University
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Masamura: Let us now begin with the keynote symposium.

This symposium is the first for The Society of Social Informatics. There are two symposiums being conducted with the same theme, namely "Social Informatics and the world: Toward new ways of sharing and creation." This is the theoretical section of the symposium, and its purpose is to discuss how Social Informatics should be viewed theoretically.

In terms of these theoretical aspects, I think there are three issues in Social Informatics. The first issue is the type of theoretical framework to be constructed as a basic theory of Social Informatics. The key issue here is how "information" or "media," which are the core concepts for Social Informatics, should be defined. This is not merely an issue of terms, but an important issue that will establish the analytical perspectives of Social Informatics, I think.

The second issue is how we analyze today's society as an information society based on that theoretical framework. It has been over ten years since the establishment of the two societies — the Japan Association for Social Informatics (JASI) and The Japan Society for Socio-Information Studies (JSIS) — which were the parent organizations of this society. During this time, information technology has dramatically advanced, and "informatization" has had a remarkable impact in terms of its spread and depth. The way in which we view this kind of information society is the basic issue for this society.

The third issue is how Social Informatics will address the various issues of today's society. Prof. Hiromatsu took up the issue of the Great East Japan Earthquake yesterday. The issue of

the earthquake, especially the nuclear accident, is something that we who study Social Informatics also cannot ignore. This is because although the advancement of science and technology has been positively evaluated as a factor supporting the development of society, it became obvious through the accident that science and technology involve great risks, and as such, sometimes pose a danger to today's society. We deal with information technology, and I think it is necessary to properly consider the risks brought about by technology as well as the relationship between technology and society. There are many other issues, but it is also a task imposed on Social Informatics to solve various societal issues.

Let me introduce the professors who will take the podium today. The first presenter is Prof. Mamoru Ito of Waseda University. Prof. Ito has studied various issues related to today's society with a focus on mass media from a social theory standpoint. He recently wrote a book entitled *Terebi wa Genpatsu Jiko wo Dou Tutaetanoka (How was the nuclear accident reported on television?)*.

The second presenter is Prof. Masaru Yoneyama of Nagoya University. Prof. Yoneyama specializes in philosophy. He has studied Leibniz, a famous figure from the seventeenth century. He recently wrote books entitled *Johogaku no Kiso (Basics of Informatics)* and *Johogaku no Tenkai (Development of Informatics)*. Some of you may wonder why we should study Leibniz now: Leibniz's philosophy is the origin of informatics. I think that it is meaningful to have Prof. Yoneyama discuss Social Informatics from the perspective of philosophy.

The third presenter is Prof. Kaoru Endo of Gakushuin University. Prof. Endo has also studied various issues pertaining to today's society from a social theory basis, with a specific focus on electronic media. In relation to today's presentation, she will publish a book entitled *Meta Fukusei Gijutsu Jidai no Benjamin (Benjamin in the Age of Meta Reproductive Technology)*.

Finally, the fourth presenter is Prof. Kenichi Ito of Gunma University. Prof. Ito has studied the theory of Habermas, who is well known in Social Informatics. Today, he is going to discuss the public sphere. In addition, Prof. Ito has recently published a book entitled *Shakaigaku wo Tou (Questioning Sociology)*.

These are the professors who are going to talk today. Prof. Hideyuki Tanaka of the University of Tokyo will be the commentator. Prof. Tanaka specializes in network or information economics. He will comment from the perspective of an empirical researcher.

Now, let us proceed with the presentations. Prof. Mamoru Ito, please begin.

Ito: I am Ito from Waseda University.

Today, I would like to give a lecture which speaks to the question of what is information?

Speaking for myself, I have spent my life working primarily in the field of media and cultural studies. My mainstays have been empirical analyses of representations in media texts, its processes and its relation to social movements. However, I have had enduring interest in defining what information is.

What is information? There have been many a predecessors who have provided invaluable definitions of 'information'. Seeking an answer to this question must necessarily be

a recursive process, as it serves as the basis of academic activity, providing the raison d'être for the existence of informatics and socio-informatics. Moreover, this question is intimately related to the issue of how we may seriously engage in the analysis of information phenomena that are burgeoning in various forms even as we speak. It is with this in mind that I would like to proceed with my lecture.

In short, today, I have no intention of stating 'Information is such and such' at all. It is more important to contemplate matters from multifaceted perspectives, where information serves is the foci. So rather than define information, I would like to use information as a corner stone from which to begin our discussion.

Now, let us recognize that we have encountered several significant definitions of information thus far. The presiding chair of the session, Toshiyuki Masamura, as well as Tamito Yoshida included, many academics have provided invaluable prescriptions on information. Given such preceding conceptualizations of information, I am of the opinion that a more encompassing conceptualization of information is desirable, and is indeed crucial to invigorate academic discussions.

So, how may we think about information? Initially, information as a concept was inserted within inquiries into what it informs or communicates. Considered to relay knowledge or facts about its natural or material objects, information was characterized as that which informs or communicates knowledge or its objects. That is to say, conceptions of information were founded within a basic framework of thought that privileged cognition and intellectualism.

Emphasis being put on the act of informing or communicating itself meant that within the field of information science and technology, elimination of 'noise' in order to achieve accurate transmission came to figure centrally in conceptualizing information. However, we may say that such conception of information prefigures a modern subject. That is to say, it requires an actively conscious subject. Thus, the concept of information is founded on a modernist thinking which presumes the modern subject with conscious intention.

Tamito Yoshida was one of the most rigorous thinkers to have conceptualized information from the modernist perspective. His work is so well-known that we need not dwell on rehashing his work in detail here. Suffice it to say that Yoshida concept of information as transformation and expression of pattern was supremely simple. That is to say, a pattern is transformed, expressed and then accurately transmitted to the next pattern by a subject who can accurately recognize it as such.

Needless to say, the contributions made within this modernist framework are vitally significant. Yoshida situated his concept of information vis-a-vis resources and information-filled space, thus defining a resources-information space processing paradigm. This model posits a resources-filled space on the one hand, and on the other, there is an information-filled space. By measuring changes in the resources-filled space, observable data is begot. This is cognitive information. Premised on this cognitive information, evaluative information which assesses data can then be yielded. Finally, premised on this evaluative information, command information is achieved, enabling resources-filled space to be processed. If

resources-filled space is reorganized, this changes what is observed and thus changes cognitive information. This feedback loop which connects resources-filled space and information-filled space is the characteristic of resources-information space processing paradigm.

The information in circulation in this model need be noise-free and accurately relayed from input to output. The information involved in cognition and recognition serves as the basis of the information model here, and it is obviously important to consider information from this perspective.

For instance, Masamura just now addressed the issue of scientific technology and information technology, and SPEEDI system in reference to the nuclear accident can typically be situated within the resources-information space processing paradigm. It is a system comprising a monitoring system that measures and records radiation, and a simulation system based on predicted wind direction and weather shifts, which amalgamates the information into an evaluation and produces command information in order to aid in the evacuation of residents.

This kind of information system of which SPEEDI is one example is very invaluable in order to find a solution to e.g., an environmental or resource problem caused by a complex web of factors. It is the imperative of socio-informatics to contribute toward society's needs by constructing and appropriately evaluating such information systems.

However, it is also important to recognize that on another level, there were other issues surrounding SPEEDI that socio-informatics must now raise. That is to say, let us recognize that as an extension of this information system is a social information process which we might call a human-machine system.

The nuclear accident was a wakeup call to investigate this issue. Enormous budget was expended on creating the resources-information space processing system which we call SPEEDI, but this time, it did not function well. Many of us here are well-aware of this. Due to a power failure, the monitoring system in the disaster-stricken areas of Fukushima did not operate as it should have. It did, however, configure a numerical value to the radiation that was being released and was actually simulating outcomes of the disaster. This we came to know of after the fact.

However, for a significant period of time, the simulated outcomes of the accident based on configured radiation amount were not publicly released. The rationale for this, as we all know, is that because the data was based on a theoretically configured radiation amount that was seen as equivocal, it was deemed inaccurate and thus not worth an official public release. This was the initial judgment of the Ministry of Education, Culture, Sports, Science and Technology (MEXT), but then, it was later released. However, the data was released such that the geographical names in the data were concealed. It was only much later when local residents and local government authorities came to know of the existence of such information that they came be able to access the data.

What I am trying to point out here is that an information processing system which seems to be an exclusively machine system does not remain so, because the information it yields must,

in the final instance, pass through a human-machine system where human decision is involved in the information process. Distinct from the mechanical function that the system serves, human intervention gives rise to various distortion, bias and problems.

Intervention by humans or other organism gives rise to the generation of new information which may or may not be accurate; it may also create a situation where needed information is not transmitted, or only select pieces of information are passed on. Such was the focus of Nishigaki Tooru's discussion which grappled with this particular characteristic of social information.

I would like to revisit another illustrative incident. Nihon Housou Kyoukai (NHK) changed the manner in which they provided tsunami information after they came to recognize their shortcomings after the recent state of affairs. Previously, whenever they would broadcast information regarding when and where a tsunami had hit, they would include specific information as to whether the first wave was '30-centimeters' or '50-centimers'. However, this, they realized, led to the residents experiencing a false sense of safety which discouraged them from taking evacuation measures. NHK thus took the decision to change the style of their initial reporting. They saw that providing the information that the first wave was '30-centimers' could, in a sense, be a mis-communication, and that how a piece of information is interpreted by each and every resident and determines their course of action need be taken into consideration.

It may be said that the sphere of information processing system which sees it as a human-machine system, this system of interface between human beings and machinery, is the battleground = research field of socio- informatics which calls for synergistic cooperation between the humanities and sciences.

Having recognized this as such, my lecture is an argument to proceed toward a more encompassing conceptualization of information.

So, let us return to the first query that was posed and consider what is conveyed through information. Put plainly, I would like to extend the argument that just like knowledge or objects of knowledge, aspiration, will and affection, which could not be fully apprehended within a framework of intellectualism, can also be conveyed. Aspiration, will and affection do not take on apparent 'forms'.

It may thus be that my argument is not so new. For instance, when I am lecturing, students do not just receive the meaning content or knowledge of the lecturer's words. They also apperceive the level of aspiration, power and energy through taking in whether or not 'this teacher is sincere/insincere' or 'this teacher has enthusiasm' or 'is cutting corners'. That is to say, aspiration, power or energy is being transmitted.

It is likely that we perceive such matters as we lead our everyday lives. Moreover, we should not neglect to see that besides human vigor and sincerity, there also exist the emotions of pleasure and displeasure. It may perhaps be that our full sensations are receptive to pain and delight. This seems to be such a natural, obvious point, but have researchers specializing in information or information phenomena not neglected to address this issue? Is it not necessary to fully engage with these aspects

more?

Just now, I indulged in giving a somewhat scrappy example through my discussion of the student-lecturer relationship, so I ought to perhaps invoke the words of a 20th century literati, Hugo von Hofmannsthal, for more sustenance. He speaks of 'a feeling of infinite ecstasy that words cannot convey' or 'that which do not take certain forms'. What these wordings literally refer to is information and what may be called information phenomena.

Now, the philosopher who most drew attention to the non-cognitive nature of information was whom Masamura just introduced as the foundation of informatics, Gottfried Wilhelm Leibniz. In *The Monadology* (1714) we see him make a concerted effort to think through this problem, the problem of affection.

Simultaneously, when we begin to consider information which takes into account aspiration and affectivity, another plane which we must consider is the realm of 'the virtual of things'.

When we receive information, a framework of intellectualism premised on a conscious subject, a modern subject equipped with conscious intentionality, has long neglected to address the plane which is 'as yet not fully made conscious'. It has neglected to recognize the importance of examining information phenomena which has already given rise to and generated affectivity and has already been accepted by the body, even while it as yet remains to fully be made conscious. Yamauchi Shirou, whose field is in Medieval Philosophy, expressed this plane as 'not that which is recognized in revelation, but is recognized symphonically.' I do want to make the assertion today that when we consider information processes and information, taking into account that which remains in the sphere of 'the virtual of things' is extremely important.

In terms of thinking about today's media environment, it intimately informs how we can theorize collective behavior mediated through internet today or such social phenomena that we might regard as a form of collective eruption.

Finally, I would like to suggest that by broadening our conception of information in this manner, information theory which is fully engaged with the virtual of things and affection can play a decisive role in constituting the shape of future society which need deeply wrestle with the future shape that an advanced information society will take. I cannot stress enough the importance of wresting the concept of information away from the confines of cognitive or intellectualistic perspective, that is to say, from a perspective which privileges the values of efficiency and convenience, because while these values may be necessary for our survival, surely it is not sufficient, and thus the concept of information must be released into another theoretical space.

In considering how the field of socio-informatics will develop henceforth, there are two pressing issues that must be addressed, the first being how to promote technological advancements in the mechanical information processing system, and the second being how to measure social maturity of human-information processing system. I believe myself to understand the distinction between these two issues. However, I am still of the belief that the first and second issues should be considered relatively, and that the concept of information, or

the very abundance that the concept of information can still offer to us must be the springboard for further research. I will end my discussion on this final note.

Thank you for your attention.

Masamura: Thank you very much Prof. Ito. The concept of information we have so far may have been captured within the intellectual framework premised on the modern subject. The new society of the future needs to be free of such an intellectual framework. For me, this is what this stimulating presentation pointed out. Next, please begin your presentation Prof. Yoneyama.

Yoneyama: Hello, I'm Masaru Yoneyama. The title of my talk, "What is Beauty to Information?" may not make much sense, but my subtitle, namely "Connecting Informatics to Culture", sums up what I want to discuss today.

Firstly, allow me to look at the word "symposium", which is derived from the Greek word *symposion*, the "drinking party" favored by Plato for his *Dialogues*, so if we remain true to the original meaning, we should be discussing the subject of love as we sip wine. It is actually in that vein that I want to talk today. In fact, what I'm going to talk about is probably better said and listened to with the help of a drink or two, but I hope you'll bear with me despite being stone cold sober.

From the time of ancient Greece onwards, truth, goodness and beauty have tended to be uttered in the same breath almost as an inseparable triad of values that are very closely tied to all human endeavor, including scholarship. However, it would appear that over the space of time, scholarship has been whittled down inexorably to the pursuit of truth, and it is this worrying imbalance in human endeavor that I take as the departure point for my talk today.

Despite embodying value in itself, truth has been deemed to bear no relationship to value judgments, and at the same time discussions of good and evil have tended to be expunged from a great many disciplines and sciences. As for beauty, it appears to be seen as almost completely irrelevant today.

Once, when I said, "I'm involved in aesthetics now," one fellow academic even retorted, "Oh dear, you're beyond the pale, then." Despite this situation, it is precisely because issues such as beauty have become so alien to so many scientific disciplines, and because I don't want to see our discipline falling into the same rut that, at this important juncture in time when the two socio-informatics societies in Japan have united to create the Society of Socio-Informatics, I have chosen to discuss the likes of beauty in relation to information and informatics.

Such a statement will likely elicit the immediate response that there are any number of examples of beauty being talked about in relation to scholarship. People would say "What about the beauty of mathematics?" and point to the elegance of this or that theory. I am of course not totally unaware of such matters. After all, on entering college, I gained an appreciation, however limited, of the beauty of math when I joined friends in the Department of Mathematics in reading tomes on the subject, and my graduation thesis was in fact in the field of mathematical economics.

However, I couldn't help feeling that the

beauty of math had very little connection to the real flesh and blood me and the life I was leading. I think, in fact, that my interest in math was perhaps spurred by a longing to get away from my messy real world existence and immerse myself in the world of ideas. I was eager to escape reality.

In a book that I wrote later, I described the beauty of math as "an exquisite, frozen beauty", adding "I don't want to snuggle up to that beauty and freeze to death." I found the beautiful truth of math to be immensely abstract and removed from the outcries of raw humanity. And I also felt it to be totally ineffective as a tool to counter wrongdoing.

This might be a good point in time to recall the very human agonies of Pascal, who was an outstanding mathematician. Though I don't bear comparison with the likes of Pascal, the agonies that I myself went through when I was studying theoretical economics as an undergraduate were of a similar nature. There was of course a certain elegance to the general equilibrium theory solutions presented by my professor, but I couldn't help feeling, excruciatingly, that something was being lost or maybe hidden behind all that elegance.

Something, for example, like what is lost when you define man as Homo *economicus*, or the feelings of a scholar trying to defend his particular discipline, or the exclusion of value judgments, rejection of interpersonal utility comparisons, or acatalepsy — the impossibility of comprehending the feelings of others, or so-called market fundamentalism — the primacy of markets and individuals. Things like this, although they all overlap in parts.

And that's why I think that it's important to note that the things I mentioned just now brought on the second crisis in economics (the first crisis being, of course, Marx's critique of classical economics), and — this is the important part — this second crisis has been designated by the likes of Joan Robinson and Hirofumi Uzawa as the crisis of economists. That's whistle-blowing. The issue here is how the way of life of people involved in a certain academic discipline relates to that discipline. There are even people who say that economists are immoral. And there's a part of me too that says that such people are dead right. I feel that informatics specialists must avoid becoming like that.

Surely we have learned from 1987's Black Monday, which was brought about by a field of information processing theory known as financial engineering, and from subsequent events related to the global economy — and also from 3/11 where Japan is concerned — how misleading it can be to blab constantly about the wonders of the Information Age. Surely we who are involved in the field ourselves need to rethink the way we live. Rather than excluding goodness and beauty in the name of truth, shouldn't we be taking a fresh look at truth in the light of beauty and goodness?

So, how can we do that? Well, if our stance is that our research concerns only the truth, and that goodness and beauty are irrelevant, then I think we need to ask ourselves, "Aren't you ashamed of such an attitude?" But what can we do in more concrete terms? I think that what I'd do is pose the question "How does scholarship move people?" This leads on to another question, namely "Can the truth really move people?" and then straight on to another

about what exactly could be regarded as the exemplar of truth.

Ordinarily, you might think that the answer to that last question is fairly obvious. If you're a young student eagerly searching for the truth, you would probably respond with "objective truth", the kind of truth that, in all fields except math, you arrive at by establishing proof. But we no longer live in such a happy-go-lucky era. Most fields of philosophy of science have abandoned the concept of reality. Cognitive theory too has abandoned its traditional normative and critical approach to science, and even while taking a positivist approach, people feel that truth is clearly something that can no longer be discussed and doubt is being cast on the ideal of objectivity.

Holding the idea of objectivity up as a golden rule forces us to think of beauty or love as mere impulses based on body organs and substances circulating through them, and to equate them with justice, honor and other concepts that are in the final analysis just trends, since one automatically tends to ignore anything that cannot be formulated objectively. Put in a nutshell, you end up viewing knowledge as the same as things that can be made explicit.

That's the same as trying to rely on things that appear to be clear without any commitment from people. What you could call a logical inevitability bolsters that. Inevitability compels it. But the same inevitability may well be powerless with respect to moral wrongdoing.

Do people really act out of compulsion? Might it not be attractiveness that motivates us? Surely it's because we feel that we can commit to something that we act, isn't it? The fact is that commitment is indispensable to information. You can't expect an audience to understand jokes and such like unless you have their cooperation, and without such cooperation, no information of any kind can be communicated. It's precisely because information can stimulate action that it is information. It certainly doesn't prompt action because it is the truth. It is precisely because people choose to recognize certain information as the truth that they are moved to take action.

To give an example of how this can work in a negative way, self-fulfillment of a prophecy is the same kind of thing. There are countless examples of actions that people take that cannot in any way be regarded as rational decisions. Professor Masamura's analysis of financial panics is an example in the area of economic rationality. There's very little you can do once people get taken in by such an event.

In his *Passions of the Soul*, Descartes wrote about the need to wait until a passion subsides to a certain extent before reason can determine our actions. Passion is roused by external events — the sadness, for example, caused by an earthquake or tsunami. But even if passion is sparked by external events, surely we should at least talk about aspects of rational efforts made after that passion has subsided to a controllable level. And if that's the case, then the issue becomes one of the level at which we talk about how we act or move others. That includes things like taking an action because we believe it to be good, or beautiful.

Surely it is only when things like this are talked about hierarchically by various entities that information concerning matter, life, society, and culture can be properly discussed, and it is only when it stands on this foundation that

socio-informatics too can attain a solid position.

There are all kinds of beauty. There is the natural beauty of, for example, the crystalline structure of many substances or the logarithmic spiral of snail shells that so impressed the mathematician Jacob Bernoulli that he asked that it might be engraved on his tombstone (which was, however, in the end apparently engraved with something else). There is also the beauty to be found in works of art or in the way in which people lead their lives. And I can't help feeling that any discussion of society would be incomplete without touching on these various kinds of beauty. But we don't do that in reality.

In reality, particularly in Japan — and this applies to academia too — we tend to be so immersed in the society in which we were born and raised that we just allow inertia to carry us along, and seem incapable of conducting ourselves in anything but set ways pre-ordained by that society. This is what Bergson referred to as the closed society and closed morality. But even when talking about goodness or morality, should we really be satisfied with sticking to this closed stage? I'm talking here also about academics clinging to and trying to defend a discipline that they've created.

It's only when something is recognized as open rather than closed that there can be any interactions between it and other open entities. Tarde's revision of Leibniz to provide his concept of open monads shows this kind of possibility. Organisms come together and coexist. People come together and form a society, and cultures come together to create a new beauty. Actually the same thing could happen even when things of a completely different nature, for example people and machines, make contact. But despite this, we normally never get to talking on that level, and I think we need to ask ourselves why.

I think it's because, even when we're talking about culture and such like, we rarely get further than dealing with it on the same level as substances. Even if we notch up success at the substance level, we need to recognize that the same atomistic approach cannot be applied to society and culture.

We need to remind ourselves of the existence of concepts such as Auguste Comte's hierarchical classification of sciences, which is rarely ever discussed seriously these days. One of the reasons that I attach importance to Leibniz's *Monadology* when thinking about informatics is that I can make use of that kind of hierarchical approach.

In the sense that two objects cannot occupy the same space, they are impenetrable. They cannot be penetrated. If each is thought of as a very tiny object, it's like ignoring whatever is inside even if it exists. That's been the atomistic approach from ancient times. However, looking at this in the context of what Leibniz was trying to say using the concept of monads, even if we reject the theory of interactionism at the substantial level, we should be able to talk about interpenetration at the emotional or spiritual level, since it is possible to think about the relationship between monads and their similarities and differences.

So, let's try thinking about individual cultures as monads. When considering various cultures, rather than being satisfied with multiculturalism, which atomistically says nothing more than that there are many different cultures, and

rather than beating about the bush with the message of joining hands and acceptance of other cultures contained in the term “interculturalism”, I think that we should go for a more proactive perspective of spanning and going beyond individual cultures. The term “transculturalism” has been coined recently for this approach.

Taking this perspective would also enable us to talk about the failures, if you will, of present-day research at universities and other institutions. I suspect it could be used to criticize conventional so-called interdisciplinary research — what we used to refer to as natural science/humanities integration. We call it interdisciplinary research now, but in effect it’s just like a chain of isolated foxholes. We might be able to talk about interpenetration between various disciplines in university. If information is to communicate anything about sociocultural affairs, I feel that it can only do so through this kind of approach.

Thinking about beauty in relation to information is about more than simply information design. I’m not talking here about improving the way a website looks. Any attempts to make do with such moves are just going to hide a great deal of stuff. Information society theory up to now has actually seen a lot of that kind of thing, but the written word, books, works of art, learning, individual people or society, and in a nutshell, information are surely about more than just appearance. Information is suffused with a force that compels us to make a commitment, whether we like it or not. I believe that beauty should be talked about within such a framework.

Let’s return to the original question. What is beauty to information? My answer is that it is what accompanies information when the power to elicit the maximum commitment and interpenetrability of both sides in a situation in which information is mutually treated as information is brought about not as the result of a kind of natural inevitability or moral command, but rather as attraction.

Let me provide just one specific example — an impressive piece of prose, even if an academic paper. The words “prosaic soundness” come to mind. They refer to prose whose words have the power to stir people into action. I feel that such a situation should make clear the pointlessness of discussing an impressive piece of prose without paying attention to the society and culture brought into existence by the lives of each and every person who writes and reads that prose.

The conduct of scholars who, like those in the example of economics that I mentioned above, do nothing but try to defend their existing body of knowledge is neither a laudable nor beautiful. So, I repeat, we must avoid falling into the same kind of rut.

Lastly, I would like to add that I think this report is probably very close in nature to Professor Mamoru Ito’s approach of connecting the concept of information to emotion or passion, since it should be possible to talk about beauty as the purification of passion. When talking about information, looking at things such as the fear of risk, emotional contagion or mimicry, and panic should also highlight points at which informatics connects with the *Passions of the Soul* tradition and the aesthetics based on that tradition.

I chose to tackle the theme of this sympo-

sium, namely "Socio-Informatics and the World: Toward New Sharing and Creation" in the way I have because I feel that any genuine consideration of the subject requires going through what may well be described as a fairly tiresome discussion like this to reach beauty.

It is my hope is that the Society of Socio-Informatics pays heed to the concept of transculturalism and practices to the hilt the openness that it advocates in its mission statement.

Thank you.

Masamura: Thank you very much Prof. Yoneyama. This presentation has raised important issues. Some points were also quite relevant to the presentation just made by Prof. Ito. The presumption is that established modern science, which excludes virtue and beauty and focuses only on truth, is intellectualism, and that this intellectualism should be relativized. Social Informatics needs to be constructed in this way. This is what I think the presentation highlighted. Next, Prof. Endo, please begin.

Endo: I am Prof. Endo at Gakushuin University.

Today, I have the privilege of speaking to you on a theme "Social-Informatics in the Age of Electronic Reproduction".

When technologies such as photograph and movie came up as the new media, a German critic Walter Benjamin called them "mechanical reproduction" and wrote "The Work of Art in the Age of Mechanical Reproduction" in 1936.

I'd like to perceive the today's information environment as "the age of electronic reproduction", referring to the issues discussed by W. Benjamin.

(Video)

The video I showed you is a TV ad of Google Chrome. It expresses today's information environment, introducing Multifaceted aspect of a virtual singer "Miku Hatsune".

"Miku Hatsune" is originally a trade name of voice synthesis software, which is also called "vocaloid", released in 2007.

Using this software, you can easily make a song and can have the software sing your song. This twin-tail-haired girl is the personification and Illustration expression of the software "Miku Hatsune". Thus, sharing the imaginary situation as if a girl "Miku Hatsune" really exists and she can sing any song, users have started to upload their own compositions. They also post their illustrations and films.

The songs which Hatsune Miku sings exceed 100,000 now. As for some of popular "Miku Hatsune" songs, the number of the access exceeds 10 million times. Even live events of Miku Hatsune materialized as hologram have been held. Not only in Japan but also in the world. A state of the collective Effervescence right occurs.

In addition, a lot of albums collecting "Miku" songs and "Miku" games have been released. Flesh-and-blood persons enjoy costume-play of virtual idol "Miku Hatsune". Such unprecedented phenomena have been caused.

The backgrounds of such a phenomenon include appearance of so-called UGM (User Generated Media) such as Nico Nico Douga and YouTube, where users can upload freely their own making contents. As for "Miku Hatsune", it is said that Nico Nico Douga played a great role.

In addition, Crypton Future Media, INC which developed HATSUNE MIKU set up a posting site "PIAPRO". Users can post their own composition such as songs, illustrations, texts and 3D models to this site. Furthermore, this site incorporates the licensing system which easily enables secondary use and fan-fiction of posted contents.

Via such posting sites, users can refer, follow and remake the others' compositions, and create new contents in sequence. They are similar to each other, but differ from each other. Despite difference, they share the same image. "Miku Hatsune" represents the whole process of linked collective creative activities. "Miku Hatsune" phenomenon can be called a "Artwork in the Age of Electronic Reproduction".

Before proceeding to a discussion, we shall consider "The Work of Art in the Age of Mechanical Reproduction" written by W. Benjamin in 1936. This is a very influential essay which almost every researcher on media has read.

However, the title is strange, isn't it? It is so famous that few feel it's strange. Benjamin looked at the media in the light of mechanical reproduction. Typical mechanical reproduction is mass production of machines such as cars. Benjamin also called printing technology as "mass production of texts". Benjamin is naturally regarded as a media critic, and it is true. But we should pay attention to his title in which the questions "what is information" and "what is media" are incorporated. He had tried to understand photograph, film and so on in the same framework as mass production of cars.

The media history is generally periodized by budding media such as orality, printing, audio-visual, TV and Internet. McLuhan divided the media history before and after Gutenberg, and also divided the latter as the ages of explosion and inplosion. Adorno and Boorstin, two of Benjamin's contemporaries, called the their age "Graphics Revolution", while Benjamin called it "the Age of Mechanical Reproduction". They saw their age from the standpoint of media.

Benjamin discussed his age as "Change from the manual reproduction to the mechanical reproduction". It is very strange viewpoint, by some definition.

Why Benjamin considered the media, using the term "reproduction"? Usually, we regard media and information as immaterial, as against physical bodies as material. But aren't we missing a important point?

Recently, (physical) materials seem to be unpopular. Since the 1980s, the word "Information Society" has become moch-much-touted. Experts have started to insist "from material affluence to spiritual affluence" and "from material consumption to spiritual consumption". And they have started saying "The material industry is destined to decline. In the days ahead, immaterial industry such as the service industry and the information industry have potential for growth". So to speak, mind-body dualism (material-immaterial dualism) or "information rather than material" perspective has been promoted.

However, the word "material" ("mono" in Japanese) has profound meaning. According to the Japanese dictionaries, "mono" means "person", "material" and "spirit" as well. They explains "mono" as "universal substance (materiality) supposed to give rise to a phenomenon", while "koto" represents a phenomenon

changing over time.

The dictionary describes the language system which we are using in everyday life but not conscious of. And the language system which implies our recognition of the world incorporates the monism of person-material-information potentially. Additionally, let's check a dictionary for the Japanese word "koto" which means "thing". Then, you can find "koto" also means "event" and "word". The dictionary explains "koto" as a facet which "mono" is brought to realization as some sort of action, function, state or relation. Recently, a catchphrase "From "mono" to "koto"" with the intention to cause events rather than producing real goods is popular in Japan. However, from their primary meanings, "koto" is realization of "mono" and "koto" can't be caused without "mono". Such catchphrase above won't appeal because of losing the primary meanings embedded in our fundamental culture.

That is, our fundamental culture viewed the world as follows: There are various "mono"s invisible in the world. They eventually collide with each other and crystallization occurs, which cause some "koto". Such "mono" might be called "information". So, we can regard this crystallization as the information process, and can think that the world appears as it is at a certain time by such linkage.

From this point of view, we can understand the "Miku Hatsune" phenomenon as follows: People have various "mono"s (= aspirations) in their mind. They are connected each other, mediated by the software "Miku Hatsune", and could be realized as a song. I think that the ideals "mono" and "koto", which are traditional concepts from the ancient days, could explain the cutting-edge "Miku Hatsune".

Furthermore, "mono"s are clustered together to form a "koto". "koto"s constitute the world at a certain moment. Then a "koto" becomes a "mono", and forms another "koto" gathering other "mono"s. "Miku Hatsune" is realization of such processes. Someone creates a song of "Miku Hatsune". Then, based on the song, the others create another Miku songs. This feedback process is the function of information.

Up to here, we have considered "mono" and "koto" in Japanese. Then, is it a phenomenon indigenous to Japan? But, probably not. For example, a folklorist Kazuhiko Komatsu pointed "The concept "mana", which is used in the Polynesian Islands and regarded as homologous with "soul" in Japanese by Shizuka Maruyama, plays the same role with "mono" in Japanese" in his *Belief of Possession*.

Social anthropologists such as Marcel Mauss and Claude Lévi-Strauss had marked "mana". Mauss noted "Mana is not only a power nor an entity but also a function, a quality and a state". "Mana" creates various values and means "money" as well. It expresses the same thing as "mono". They are similar in sound.

In the West, there is a word "mono" meaning "only one". According to a linguistic scholar Benveniste, a lots of words such as "money", "memory", "mimesis" and "mother", which are related to the foundation of society, are derived from "mono". And it is well-known that a German mathematician and philosopher Gottfried Wilhelm Leibniz got the idea "monad" which means "simple substance" from "mono".

Also, a French sociologist Gabriel Tarde left many papers on monads and mimesis which is interaction of monads.

Benjamin also had developed his own monadology. He wrote "An idea is a monad. That is, briefly speaking, each idea includes an image of the world. The task of description of a idea is nothing less than envisioning the image of the world in condensed form". Put simply, though an idea is an individual constituting the world, the individual contains an image of the whole world. Benjamin also said "A group of concepts being used for describing an idea lets the idea appear as a asterism (constitution) of materialistic elements. And ideas or monads are connected each other by "mimesis"".

Now back to "The Work of Art in the Age of Mechanical Reproduction". In this essay, the most famous thesis is "The art loses aura by mechanical reproduction". But what is aura? Is it a problem that aura is lost?

In the context of criticism, extinction of the aura is regarded as extinction of the reality or the sublimity of the world. Critics such as Adorno, Baudrillard and Boorstin claimed that reproduction technologies deprive the art of the authenticity.

However, Benjamin seems to welcome the extinction of the aura. The important point to be paid attention is that the title of this essay is "The Work of Art in the Age of Mechanical Reproduction" includes "Work of Art". Why "Art"? It seems that words such as "art" and "aesthetics" become obsolete. Has the extinction of the aura truly resulted in the death of the art? Did Benjamin write this essay to insist that? To answer this question, we should consider the concept of the art.

The origin of the word "art" in the title of the essay translated in English is "techne" or "ars" meaning "technology" or "skill". In fact, the ancient Greeks regarded art same as technology. Plato insisted "Whatever it is, when non-existence shifts to existence, the reason of shift is production. Thus, production belonging to any technology (techne) is creation (poiesis) and a producer engaging in it is a creator" in his "Symposium".

That is, "techne" in ancient Greek means "creating something new" despite the value of the object created. And a created object is called "poiesis" in ancient Greek. In other words, "techne" is an act to crystallize hidden, invisible mono/mana and realize a new world by creating new "now, here". Such interpretation clarifies the importance of the title "The Work of Art in the Age of Mechanical Reproduction".

However, in Benjamin's view, creation is not producing anything from nothing but producing non-existing yet from already existing, by crystallizing mono/mana. Such act is "techne". Thus, though it is "poiesis" (origination), it can be regarded as reproduction in fact. Benjamin stated that creation is poiesis (origination) because it is reproduction, I think.

Now, let's think about "loss of aura", the most famous thesis in "The Work of Art in the Age of Mechanical Reproduction". Benjamin drew the comparison between artwork in the age of mechanical reproduction and that of the previous age. He thought the authenticity of artwork had been singularity, uniqueness and the value of adoration, which Benjamin called "aura". When the singularity (aura) was lost by the mechanical reproduction, the authenticity became guaranteed by nothing. Did Benjamin insist that though the artwork had been su-

preme before the age of mechanical reproduction, it has lost their aura and has been popularized and commodified as Adorno, Boorstin and Baudrillard?

Although aura which had guaranteed the authenticity of the artwork in the previous age has lost, if "poiesis" remains, "loss of aura" means the birth of new art. I think Benjamin had thought in such a way. That is, he criticized the authoritarianism or art supremacist based on the exclusive value of uniqueness and singularity. And he regarded such authoritarianism would lead the world to the fascism.

But in reality, Germany plunged into World War II, Benjamin who was Jewish lost his life on the way of asylum bid. Then, would the art in the age without aura really lead up to release the culture from gnosis? Apprehensions of Adorno was right, wasn't it?

The question is left to us. Also, though Benjamin lived the age of mechanical reproduction, we are facing the age of meta-mechanical reproduction, in other words, the age of electric reproduction or bio-reproduction (biological reproduction).

However, electric reproduction or bio-reproduction is related to the root of vital activities or human beings. So, it is not new phenomenon but fountainhead. Then, it is important to capture the essential features of bio-reproduction not from the material-information dualism from the perspective of mono/mana discussed before.

But the representation of bio-reproduction is new like "Miku Hatsune".

Benjamin was concerned with the movie and the photograph as the art work in the age of mechanical reproduction. We are concerned with the realization of illusion in the age of electronic reproduction. In June 2012, Miku Hatsune performed live in Los Angeles. The flesh-and-blood audience was enfevered with Miku Hatsune realized by hologram. After the concert, many live performances were held.

On the other hand, the Perfume, an idol group, copies the action of the android. The Perfume consists of 3 girls. But sometimes they perform with their hologram on the stage. Flesh-and-blood persons can be copied.

In the age when both images and actuals are copied repeatedly as seen above, how should we face the technology, the art and the creation?

Benjamin discussed "the first technology and the second technology" in his "The Work of Art in the Age of Mechanical Reproduction". He stated "The first technology can be described by "Only Once". …… The second technology can be described by "as many times as one would like". …… The origin of the second technology is playgame". This statement might provide us with a clue, I think.

Benjamin wrote an essay "On the Concept of History" at the end of his life, and talked about a painting by Klee called Angelus Novus. He wrote "The Angel of History must look just so. His face is turned towards the past. Where we see the appearance of a chain of events, he sees one single catastrophe, which unceasingly piles rubble on top of rubble and hurls it before his feet"[1]. That is, he insisted that we should abandon the fantasy of progress, and that our

[1] Translated from German by Dennis Redmond. (http://members.efn.org/~dredmond/ThesesonHistory.html)

society could get along without the fantasy of progress.

Thank you for your kind attention.

Masamura: Thank you very much Prof. Endo. Reproduction is an important issue for Social Informatics. Benjamin wrote a classic book on reproduction. Regarding his interpretation, Prof. Endo said that the loss of uniqueness in an object through reproduction should not necessarily be interpreted in a negative sense, and that reproduction is linked with poiesis, and such reproduction is seen more often today. I think that this is what this interesting talk focused on. Next up, Prof. Kenichi Ito. Please begin.

Ito, K: My name is Ito Kenichi from Gunma University.

Since the title of my speech is "Deliberative Democracy as a Social Information Process", whose focal point is something close to goodness rather than beauty. But perhaps I could find some common points to preceding speakers who emphasized that we had to extend the concept of information concerning not only truth but also something else.

I would like to talk about the possibility of the public sphere in information societies. As you know, the public sphere is a famous concept, which Habermas, the German sociologist, suggested in his book, *The Structural Transformation of Public Sphere*. I think that it is an important theme for socio-informatics to consider how we can realize the ideal of the public sphere in information societies or how the conditions for it have changed.

When people noticed the coming of the information society, especially that of the Internet, they expected that bidirectional communication would become available. In the age of mass media, almost all the information had come from the central part of the social system, therefore all they could do had been only to accept it. However, the age of mass media is over. With the coming of the Internet, people expected that they would have a common space where everyone could be an addresser and as such she or he participate in arguments freely.

In his book Habermas argues that the public sphere which once had come into existence and had functioned well gradually became corroded. It was not only because the public without property and education has participated in the public sphere, but also because people quit arguing itself. He said that the role of the public changed: from the public who argues to the public who consumes.

The role ordinary citizens were expected to play were not to argue but to consume the information which they were given. In this context the Internet emerged, and people expected that perhaps they could make something like a public sphere on the Computer-Mediated Communication (CMC) space in the Internet, where they could, or easily participate in arguments, or reveal some facts under the veil of anonymity.

However, when the Internet actually had spread, people found that it did not go as expected before. For example, in an anonymous bulletin board system, it was true that they could post messages freely, but after a while people found that the BBS was full of vulgar, childish messages neither rational nor reasonable, and they also found countless personally

identifiable information which one should not have exposed. Some blogs were made into the target of flame attack. People also found that it was much easier on the Internet the tendencies like group polarization would occur, which means that people will support their attitudes or opinions mutually and get a more and more extreme conclusion than they would have if they were off-line. People thought the Internet space they had made was perhaps not reasonable space of argument, but something else.

An American jurist, C. Sunstein pointed out in his book *Republic.com* (Princeton University Press 2002, whose title in Japanese is *Is the Internet an enemy of democracy?*), that the information society or CMC space looked completely different from the arena of democratic argument.

Nevertheless, on the other hand, I think there must be some positive possibility in the Internet, which will promise of reproduction of the public sphere. For example, one of the topics in 2003 or 2004 was Blogosphere. This means the space made of blogs and their interconnections. Of course the term reminds us of public sphere. It was said that the public sphere of blogs had played a role of the watchdog to politicians in a certain sense.

In addition, the Internet is said to have played an extremely positive role in the political changes in Tunisia or Egypt, which is called "Arab Spring." Since people expected that the Internet played such kind of positive role, it is difficult to judge rightly. But I think that must be possible.

Besides, as Mr. Fumihiro Murakami pointed out at yesterday's symposium, the Internet functioned and helped people in many ways in the earthquake of 2011 as well as 9.11 terrorism in 2001 and the Hurricane Katrina in 2005. I think that there must be possibilities of the Internet to play a positive role to make democracy really work according to conditions.

My theme is on deliberative democracy, which is a little distant from the Internet, however, it may give us some ideas. By 1990s deliberative democracy became one of the common issues in political theories in the English speaking world. The theory of Habermas provided one of the foundations of this idea. In short, it is a political theory which considers it as a decisive process to deliberate, in other words, to discuss and to draw various conclusions.

Many theorists discuss and they share some points in common; they criticize the conventional understanding of democracy, assert rehabilitation of interactive political processes and expect realization of justice through them. These theorists don't consider people's interests and preferences to be given and aggregated, but consider them to be made in discussions or social and political situations, and that's why they claim that it is important to execute discussion or deliberation.

Prof. Ryosuke Hirai summarized the merits of deliberation as below: Firstly, since selfish preferences will be removed during deliberation processes, one can expect a strong justification of the result which will not be obtained in a mere aggregation of preferences. Secondly, people are supposed to learn from each other mutually what they did not know, so deliberation has an educational effect. It is to widen the perspectives of them. Thirdly, it is said that competence or virtue as a citizen --- it may

sounds somewhat anachronistically --- or sense of community and solidarity will raise among people. This is another educational effect.

Recently, Prof. Hajime Shinohara edited and published a book whose title was *The Challenge of Deliberative Democracy*. This book is obviously a reaction to the Fukushima Daiichi nuclear disaster. The editor wants readers to consider the present way of social decision-making on technology. In this book, various experiments using mini-publics are introduced. These experiments make mini-publics which consist of a rather small number of people, so they are different from the public sphere which Habermas proposed, and the participants are asked to get into deliberation there. Various experiments are carried out. One can find diversified attempts in this book: In one case, a questionnaire to thousands of people may be exercised; In another case, tens to hundreds of people may actually be gathered to a place, participate in discussion, and have deliberation upon various problems in order to get some conclusions which will help decision-making or public opinion formation.

I think Deliberative Poll (or Polling, DP) is the most famous. The Democratic Party Administration of our country carried out DP on the problem of the energy policy also in Japan the other day. I think many of the audience must have read about it in newspapers.

Besides, there are various ways of deliberation, such as consensus conferences, planning cells (*Planungszelle* in German), citizen's juries and so on.

Like the behavior of the on-line space, our actual behavior of the off-line world is also much influenced by the architecture such as procedures or rules. Therefore if we make appropriate designs of deliberation process, reasonable discourse and discussion may become possible. I think there must be such possibility.

Many of the audience must have seen or read the news last month (August, 2012) about the DP carried out in Japan. Some people criticized the DP of the Japanese government because the time spent for the DP was too short and they claimed that they could not accept this attempt as an authentic DP. Anyway, in this DP, the participants discussed whether the nuclear power plant ratio in 2030 should be zero, 15%, or 20 to 25%. As a result, those who chose zero increased considerably after the discussion. In DP, it is considered positive that the participants change their opinion during the deliberative process. It is because people's preference or values are not unchangeable but they are made up during the discussion with other participants. This approach pays great considerations to this point. Of course it is possible that this DP ends up with merely degasification or the result might be really reflected in a policy. Nevertheless we have to admit the fact that the Democratic Party Administration exercised DP.

The space DP realizes is different from the public sphere which Habermas broached at that time, where anyone who wanted to participated can participate. This is not the large public sphere but a small, mini-public. Although this is a small group and only a part of the whole society, DP is designed so that participants have a reasonable discussion and make a contribution to create an informed and stable public opinion. Why is this supposed to be reliable?

One of the important point is that participants are drawn from a random sampling without deviation. This is in order to avoid self-selection bias: If anyone who wants to participate can do, many of the stakeholders would come in. Since in ordinary public hearing or meeting about an energy policy, many stakeholders like the employee of an electric power company participates, it looks like a "biased public," far from neutral one. DP is designed to avoid this kind of distortion.

Otherwise some activists will participate who engage in various civic movements, and such activists behave factionally. Their dogmatic attitudes are a little bit different from ordinary citizens' sense.

It is also important to learn over many hours or days. In usual opinion polls, even if people have little knowledge about the issue they asked, they have to disclose their attitudes for or against some options, then their answers are aggregated and becomes public opinions. Actually, in many cases they only follow the images told or showed in mass media, or they make their options without considerations since it is troublesome. In addition, since they know that their opinions are hardly reflected in total aggregations of thousands or tens of thousands, it is quite rational not to study or not to collect information. Of course not everyone is necessarily interested in various social problems, therefore it is natural as an ordinary citizen not to pay attention to some problems. The design of DP takes these circumstances into considerations.

During DP, participants are given some opportunities to ask experts whatever they want. For example, a layperson who has little knowledge of the nuclear power plant problems or energy policy can ask experts to explain merits and demerits of this technology plainly enough for someone without expertise to understand. Or one can ask them related questions like "If we turn the nuclear power plant ratio into zero, what will happen to radioactive waste?" During the discussions for a few days, participants come to make their final conclusions. Since DP is nothing more than a poll, participants don't make the conclusion as a group. However, it is said that after DP the distribution of opinions becomes stable and it hardly change at subsequent polls.

Just now I said "layperson," it is important that arguments must be understandable enough. This is just like jury which consists of layperson of laws gives a verdict of guilty or not guilty in a trial. The experiments of mini-publics aim to introduce the sense and judge of ordinary citizens into political decision making.

There is one idea that Prof. Munenori Suzuki of Hosei University pointed out in his book recently, with which I was very impressed. Although one of the antecedents of deliberative democracy is Habermas, the focal point of the deliberative process has changed. In the public sphere of Habermas's type, the openness was the key. Whoever wanted to get in could enter the public sphere. However, in DP participation was rather limited. An expert could participate in DP only as an experts. DP was designed to promote reasonable discussion and got a fair conclusion by means of restriction of each actor respectively.

Therefore, the ideal of public sphere which Habermas's theory demonstrated was accepted as a too impractical or dreamlike, and some

people say it is valuable just because it keeps counterfactual. However, we can think of the way that ideal vision comes into existence. The experiments of mini-publics show some possibilities. We may discuss reasonably with the help of some inventions where way our society will go, how we should control technology, or how we make decisions on energy policies.

We tend to talk about CMC space or network and consider only the on-line communications, however we should not think that only those networks constitute the public sphere but we should also take the whole process of communications which encompass the on-line communications into consideration. Some argue that it is decisively important that architecture of the space influences the behavior of the people especially in the cyberspace. But in my opinion it is also important in off-line world, which will be one of the really relevant themes of socio-informatics. This issue has been hardly argued but is worth studying.

This is the last point. The title of this symposium is "Socio-Informatics and the World" which reflects the tendencies of globalization of these days. In the globalized world, we have to think of the possibilities of trans-national public sphere which transcends the borderline of the nation-states. It will be critical if people can imagine the trans-national communities which consist of various nations who are also the partners of argument. But this is too large a theme for this occasion. I just mention the existence of the problem.

Thanks for your attention.

Masamura: Thank you very much Prof. Ito. This was a very timely report. Since the Great East Japan Earthquake, the way in which decisions should be made has been questioned in terms of the issue of nuclear power stations. In the past, only the government, electric power companies, and experts supportive of the use of nuclear energy have decided the direction of nuclear energy policies. From now on, however, various people, including experts who are negative about the use of nuclear energy and citizens, should participate in the decision-making process, which is also what people now demand. How can we achieve this? And how do we explore the role of the public sphere in the age of globalization? This presentation has raised these points.

Since we are already behind schedule, let us continue with the discussions. Prof. Tanaka, your comments please.

Tanaka: Would you let me comment.

As Prof. Masamura summarized each report every time, I want to ask questions to each speaker.

As a whole, I can consider theoretically what information is and what the task of Socio-Informatics is. Now, I'd like to give each question.

To start with, it is for the report of Prof. Mamoru Ito. In this report, there was a topic about the plane of the virtual of things.

As the subtitle of this conference is a new sharing and creation, I want to ask according to keywords, 'sharing' and 'creation'. They are common in my questions.

I want to return to the question to Prof. Ito. There was a topic about the importance of the plane of the virtual of things. For example, it

was mentioned that the proof analysis is like intellectualism rather than unconscious, and I think that it can be shared because of conscious things. Now, there were topics about the first level, the second level and the importance of the plane of the virtual things, then, how can the plane of the virtual things be shared in any manner? Although I don't know whether it is not to be shared, I want to ask you how to share the plane of the virtual things, if you have any idea.

For example, I think that scientific analysis start with how to observe the unconscious behavior in behavioral science.

The second question is for the report of Prof. Yoneyama. You mentioned that beauty has been estranged from many scientific terms. As I also thought that beauty was difficult, I put exactly myself apart from beauty. However, as today's lecture is very impressive, I can learn many things from your lecture. In that sense, as the question may be literally naive one or very primitive, I want to ask you what beauty is, a little more. In today's lecture, as you mentioned the promotion of the commitment, through your lecture, I have been considering whether it may be related to beauty or not.

For example, in the lecture of Prof. Endo, there was a case of Miku Hatsune, and I think it may be beauty in the sense that it also commits. So I want to ask what beauty is, and simultaneously, from the viewpoint of sharing, I wonder if beauty can be shared. For the promotion of the commitment, I want to ask how to share it in spite of diverse values.

Next, I want to ask Prof. Endo about creation. Yesterday in the bus while talking about Perfume, you said that the live performance was not a real live performance. That is, the singers didn't sing even if they song something, and then the performance must not be a live performance. In that sense, according to the definition of the traditional voice live performance, it may not be creative. I want to ask you what a creation or a new creation should be in the age of meta cloning technology.

In particular, as you mentioned free from the illusion of progress, I concern in *the second technology*, the entertainment. Furthermore, I'm also interested in the relationship between creativity and the illusion of progress.

If anything, creation or innovation is considered as progress or economic growth. Namely, it is useful for quantitative expansion. On the other hand, I think that there is a limitation to pursue only the quantitative expansion because of a variety of factors. In that context, I want to ask you free from the illusion of progress and a new creation in the future.

The final question is for Prof. Kenichi Ito. In the Government case of deliberative democracy, numbers differed greatly. In your lecture, there was a topic that the preference of people and values of people may vary. It was very impressive for me. So, I want to ask you the possibility of the convergence of the changes, at first. Otherwise, will they change all the time kinetically?

With respect to the keyword sharing, if they change forever without a convergence, by the slicing time point or the time point to share the conclusion, the decision will differ. That is, it may be hard to conclude the decision.

However, as you mentioned the effect that mutilated change public opinion in the last part of your lecture, while it is assumed that the

preference and values may vary, how will we share? Please answer these questions if you have any idea.

That's all.

Masamura: Thank you very much Prof. Tanaka. Although all the questions are important, we don't have much time. Please limit your response to about three minutes. First, Prof. Mamoru Ito, please continue.

Ito, M: First, to address Tanaka's question, I believe the question was in regards to how to share research space in addressing the virtual, which is invisible and cannot be easily perceived.

It is of course with utmost difficulty that we can apprehend the virtual of things in empirical terms. I share your concern and see the obstacles of problematizing it in empirical studies.

First, it must be recognized that the virtual is invisible by its own nature. But this does not mean that there is no reality to be found. It may be that this theoretical perspective of the virtual of things is what enables the consideration of the paradox that it must be real because it is the virtual.

Let us consider the issue of justice or beauty which was one of the debates raised today from a perspective which allows for the virtual.

Sometimes, we may think 'It seems that what he is saying is right, but I still don't like it.' Or we may, on the contrary, think 'It seems that he is telling a lie, but let's go along with him anyway.' Such situations do occur frequently in our lives. These are paradoxical situations, and if we turn our attention to such phenomena, do not the problems contained in what I call the level of the virtual become clearer? They are difficult to see and hard to apprehend, but they do function, and they do formulate the real. Is it not necessary to turn our 'gaze' to these things?

In terms of how we may consider sharing, I believe that the concept of interpenetration that was proposed by Yoneyama as a keyword is important. It serves a vital role in discussions about information phenomena. We may perhaps interchangeably use the word imitation, but it may be that what remains in the level of the virtual is the stratum that facilitates sharing. Far more than sharing what is visible and is clearly apprehended consciously and thus can be debated, it may be that there is less obstacle in sharing what stays in the unconscious at the 'level of the virtual of things' and thus easily interpenetrative. Does not what we see in society and in information phenomena indicate this?

This point is related to Kenichi Ito's paper. In other words, we speak of deliberative democracy, but should we be satisfied with simply debating about democracy? Should we not consider the role of affectivity which compels us to engage in politics and how to understand its relationship to political intelligence? This, perhaps, is a question that should be addressed to Kenichi Ito.

We should note that American political scientists have already pointed out the importance of considering the role of affection in deliberative democracy.

Yoneyama: There were two questions, weren't there? What exactly is this thing we call beauty? When I heard this question, I was remind-

ed of the times in classes when I've been asked by students "Professor, what is existence?"

Put in very simple terms, beauty is in a nutshell the purification of passion — purification as in septic tank water purification, the purification of dirty things. Our lives are normally pretty messy. How can we make order of them? Beauty is what happens when we make order of things. Take anger or sadness or some other kind of emotion that represents passion. There are for example songs that tell a sad story, but such songs are also often beautiful. When passion is tidied up and tamed in this way, when people are freed from the messy condition of their everyday lives, something else comes into existence, and I want to call that something "beauty".

And so, regarding the second question about how we share beauty, take a person who is being spurred by passion, for example. That person doesn't want to share it. "Leave me alone. It's my business." That's how the person feels. "I want to be left alone with my sadness, so don't bother me." Somewhere in our hearts, we all have this tendency not to want to share passion. However, if that passion is purified, just look at how beautiful it becomes. I already used the word beauty just now, but works of art of various kinds, beauty of character, the beauty of nature when something in the natural world excites you, all of these point to how passion can be purified, and as I said in my report just now, this is not a matter of compulsion or inevitability, but rather attractiveness. When attractiveness emerges as a force, I think people come around to liking the idea of sharing it. I think it's when people realize that there are ways of purifying passion and that they too could do so that they begin to want to share rather than say "Leave me alone!" and turn their backs.

Endo: I appreciate Prof. Tanaka's radical question. It was just as well that I told him about a Japanese popular idol group, Perfume yesterday (Laughs). A lot of music videos of Perfume are uploaded on YouTube. They are not pirated, but officially uploaded for promotion. It is a marketing strategy to increase sales by providing music video freely. Perfume, originally a local idol group, became popular because of their mechanically converted voice, music videos on YouTube and their parody videos created by net users. Though they really have flesh-and-blood bodies, their charm appeared by faking mechanical bodies.

Miku Hatsune has no flesh-and-blood body. She is just an image. Her live performance is only a course programmed beforehand. She has no aura, that is, "now and here"-acy, uniqueness and singularlity.

However, Benjamin welcomed the deprivation of "aura". In the view of Benjamin, "aura" guaranteed the authority of artworks before the emergence of mechanical reproduction. Benjamin might have thought the artworks should be de-authorized.

But provided that "now and here"-acy is such emotion as committing any poiesis (creation) and encountering various manas, it does not necessarily rise live. Being reproduced preserves "now and here"-acy, I think.

Even if I were here as hologram, the fact remains that you and I are talking here and now. In this sense, It is quite indifferent whether I am hologram or not.

As for the question of copyright, I think the copyright is firmly associated with "aura" discussed by Benjamin. The copyright is a concept based on the uniqueness of the creation. A certain work of art is endowed with the copyright because of the fact that the work is unique and created by identifiable person(s). Under the Copyright Act, the person credited and others are distinguished sharply.

Meanwhile, in the case of Miku Hatsune, weakening restrictions of the Copyright Act made many users possible to join to create Miku music. "New creativity" in the present days changes from creation by one person to creation by co-laboration, or co-creation.

Then, I'll take the question about the second technology. Benjamin stated that the first technology is for the presence in time and space. This statement shows that Benjamin didn't appreciate the uniquness and the singularity of the works of art.

While on the other hand, Benjamin discussed "The second technologies fit right in with the proverb "Once is counted none". They are experiments trying various methods under various conditions unflaggingly. In other words, they are playgames."

For example, the core problem of Fukushima Nuclear Plant Accident is just the problem of the only-once technology which one mistake results an irreversible catastrophe, as U. Beck pointed out in his famous book *Risk Society*. In this sense, the second technology is important in the present age.

The only-once technologies and the works of art authorized by "aura" or uniqueness are supported by the progress belief, that is, a belief that there is only one unique truth and only it is right. The progress belief justifies only the first technologies. Emancipation from the first technologies means release from the progress belief, that is admitting plural truth, continuing trial-and-error, and standing on the side of actualist.

That's all I have to say.

Ito, K: Thanks for your comment, Prof. Tanaka. I told in my presentation that after the deliberative process participants changed their opinions. The question Prof. Tanaka gave me is whether people change their opinions repeatedly or they find their own final position. The DP the Japanese Government exercised last month was directed by James Fishkin of Stanford University. Prof. Fishkin exercised follow-up surveys and investigated how people changed their opinions, for example, six month later of the DP. According to Fishkin, in many cases, after the deliberations participants' opinions became remarkably stable. This stability might exhibit that they learned something and acquired informed opinions. I am not quite sure about other experiments apart from DP, however, in many experiments people's opinions got convergence. Of course this doesn't mean that people always reach a consensus. In many cases values opposed to each other violently. Nevertheless distribution of the opinions hardly wave after the deliberation process.

I tell you one more point which Prof. Ito mentioned. The problem of affection or passion. I feel that it is understandable that someone says "I admit your reasoning is right. But I cannot accept your conclusion in passion." In the political process, passion plays an important role and we should not get rid of that aspect.

For example, many people surround the Prime Minister's official residence and hold a demonstration against nuclear power plant at present. They are driven by nothing but passion. We have to admit that passion is an essential element of political process although it sometimes coerce people into brutal violence. Therefore, we have to take into consideration both elements at the same time. On one hand, we cannot help feeling passionate movements of people, and on the other hand, we have to investigate the possibilities of reasonable deliberations. This is what we do actually.

Masamura: Thank you very much. It is already past the closing time. So, let me summarize today's symposium. I would like to say two things along with my personal opinion.

First, at the beginning of the symposium I mentioned three Social Informatics issues. The presentations by the four professors seem to have addressed these three issues.

The presentations by Prof. Mamoru Ito and Prof. Yoneyama focused on the concept of information, which is the first issue, the basic theory. Next, Prof. Endo's presentation viewed the issues of the information society from a reproduction technology viewpoint, this addressing the second issue. Also, Prof. Kenichi Ito's presentation addressed the public sphere, which is a contemporary issue after the Great East Japan Earthquake. This is the first point I want to make.

The second point is that I think there was a certain commonality in the presentations by the four professors, although this was not explicit. That is, to put it plainly, today's society is being disconnected from the modern society of the nineteenth century.

When we say modern society, we think of society after the sixteenth century. But it was in the nineteenth century when the system of modern society was established in a true sense. The sixteenth and seventeenth centuries comprised the age of transition from medieval to modern, in which medieval elements and modern elements coexisted. Given this, I think that the presentations by the four professors suggested that today's society is gradually being disconnected from the state of society or the state of intellect of the nineteenth century.

First, Prof. Mamoru Ito and Prof. Yoneyama raised a question about what intellect should be followed. Intellectualism represents the superiority of reason over emotion. Modern science was established in the nineteenth century, and the two spoke of liberation from that intellectualism. Prof. Endo reported that reproduction is spreading further as "informatization" advances. Come to think of it, for example, the nineteenth century was the age of individualism, which is the attitude of claiming uniqueness. This attitude is also seen in copyright protecting the uniqueness of books. But, copyright has become gradually shaky with the development of reproduction technology. This should not necessarily be interpreted in a negative sense, which is what I think Prof. Endo spoke about. Also, the topic of the public sphere discussed by Prof. Kenichi Ito seems like a modern subject on the surface, but as you all know, the concept of the public sphere began in a coffee house. Coffee houses arose in the latter half of the seventeenth century through the first half of the eighteenth century. The modern public sphere was suppressed in a way dur-

ing the nineteenth century, but this is now being reconsidered. This was explained by Prof. Kenichi Ito.

As just described, today's society has been gradually disconnected from the modern society of the nineteenth century. However, there are various interpretations as to what this means at all. In terms of the transformation of today's society, I think there are at least three viewpoints.

The first is the "idea of postmodernism," which means that society is now no longer modern. The second is the "idea of reflexive modernization," which means that it is now a new modern era different from the modern era of the nineteenth century. And the third is the "idea of new medievalism," which defines today as a new middle age. The reason these various ideas were born is that the contemporary period, in a way, has aspects similar to those of the seventeenth century. In other words, medieval elements and modern elements coexisted in the seventeenth century, and, in terms of phenomena, our current period is similar to that era. I think that the fact that Leibniz came out in the seventeenth century has a very symbolic meaning. Leibniz linked the scholastic philosophy of the medieval times with the modern philosophy typified by Descartes. If you look at this as an activity of intellect, he did this with a really great vision. Perhaps we too have to establish Social Informatics during a major turning point such as this. Through this symposium, I think that it has become obvious that Social Informatics is an area of study that has emerged at a major turning point of the era.

We now would like to close the symposium. Everyone, thank you very much.

2012 the Society of Socio-Informatics, SSI, Annual Conference, Keynote Symposium

Socio-Informatics and the World: Toward New Sharing and Creation (Empirical Session)

Takeshi HIROMATSU, Institute of Information Security
Toshizumi OHTA, The University of Electro-Communications
Yoshiaki HASHIMOTO, The University of Tokyo
Fumihiro MURAKAMI, Mitsubishi Research Institute
Atsushi IWAI, Gunma University
Yoshinori TOMIYAMA, Gunma University

Hiromatsu: Now, we will start the keynote symposium in 2012 annual conference of the Society of Socio-Informatics, SSI. I am the chair of this symposium and my name is Takeshi Hiromatsu of Institute of Information Security. Thank you very much.

While the Society of Socio-Informatics is abbreviated as SSI, this academic society was born as a newly integrated academic society based on the fruitful results of JSIS and JASI. In contrast to the fact that the initial character "J" of the two old academic societies denotes Japanese, the initial character "J" was removed positively from the name of the new society. Because of the globalization of economy and society, the meaning of national border has been almost lost. Especially, phenomenon of information has a borderless tendency. According to this tendency, the target of the new society is expected not to be the domestic region, Japan, but the world. Another expectation of SSI is the role of not only viewing the world but also dispatching our new findings. The planning committee of this conference determined a unified theme "Socio-Informatics and the World: Toward New Sharing and Creation" based on this background and the idea. The two keynote sessions, Empirical Session and Theoretical session, are designed for the theme.

Today's session is the Empirical Session. In this session, we will discuss from the viewpoint of how socio-information is used or which functions of socio-information are performed or should be performed in the real world. Each speaker will talk about what is socio-information, which functions/roles of socio-information are performed or should be per-

formed and socio-informatics in the future, according to each expertise, then we will discuss with a commentator and audiences.

The first lecture is entitled as "the changes observed in information behavior or media information behavior over the past two years" by Prof. Hashimoto. Prof. Hashimoto, please start your lecture.

Hashimoto: My lecture will mainly deal with the changes observed in information behavior or media information behavior over the past two years. First of all, the role or the importance of socio-informatics, especially that of survey researches as scientific endeavors, is undoubtedly to contribute to the understanding of the social condition or the social fact.

Simply and concretely speaking, the average use of social media, a topic I have personally been investigating, can be conceived as a social fact, for example. The public generally refer to "the percentage of so and so", but even surveys released by carrier companies are hardly reliable. To be relevant, such surveys require a counting method with a precise given target population. To give another example borrowed from natural sciences, i.e. seismology, it is commonly thought that "earthquakes are frequent in Japan", but in order to have a clear sense of how often quakes of magnitude 4 plus occur yearly in Japan, a thorough and minute observation is needed.

Secondly, socio-informatics or survey researches seek to put to the test the so-called common beliefs. For instance, it is widely spread or thought that the youth have lost interest in reading newspapers or watching TV. The role of socio-informatics will be to subject such a widely spread opinion to the test and show if it is accurate. Again, obviously, nothing reliable can really be said about the relevance of common opinions without a scientific proof or a survey research. In correlation with seismology, for example, it is commonly believed that "catfish romp about to predict an earthquake". To verify such a common belief, there are no other ways but to conduct scientific or empirical observations of facts.

Thirdly, socio-informatics or survey researches also seek to provide answers to interrogations and queries of the public. The issue of the internet addiction, for instance, might lead people to interrogations such as "why would a person abandon his/her family or work in order to devote himself/herself to the internet?". Data are needed in order to explain the mechanism behind such behavior. Back to the correlation with seismology, the public might ask themselves, "why are earthquakes so frequent in Japan?" To give a proper answer to interrogations of the like, an accurate analysis is required.

The fourth reason lies in the fact that humanities and especially social science-related fields have necessary connections with administration and governmental policies. In some respects, suggestions and insights from socio-informatics or survey researches are valuable to policymakers. The results of a survey I have personally conducted revealed, for example, that people who make use of the internet enjoy a higher feeling of happiness than those who do not. Several reasons such as annual income can explain this result, but even interview surveys tend to confirm that when a person starts using the internet she/he feels happier. I have

not conducted a survey on the issue, but encouraging the use of the internet might help curb the suicide percentage. I have no solid grounds to confirm that, but in order to provide suggestions and insights for sound governmental policies, scientific and positive researches have a vital role to play in this respect. It is sometime discussed in seismology, that a high enough sea wall can always crumble. As it has been seen in Matsushima Bay, rather than building a sea wall, it would be safer to construct a number of artificial islands within the bay, which could contribute to hold down tsunami heights. Thus, such an expert-recommendation to build artificial islands can be given to policymakers. I have no clue, however, if in reality there are experts who give such advice to the administration or not.

There are many other roles of socio-informatics or survey researches that can be invoked. At least in correlation with the four aforementioned roles, I am convinced that social survey researches have to adopt observation and experiment as practiced in natural sciences.

Now, I am going to expand on two or three recent surveys which analyze social facts. First of all, my presentation will be based on the results of surveys I have been conducting for years on the Japanese information behavior. In fact, I have been carrying on surveys on the Japanese information behavior every five years since 1995. The most recent survey was conducted in June 2010. Each of the surveys recorded about 1,500 valid respondents. Nationwide males and females between 13 and 69 years of age were the target population of the surveys. The methodology adopted was the double stratified random sampling method which consisted of leaving a questionnaire to the respondents in order to be recollected after a period of time. Concretely, the surveys took the shape of time-budget survey and simple questionnaire forms.

Today, I will also compare the nationwide surveys conducted until the year 2010. The results of the first semester of the ongoing survey of the year 2012 have also been considered. It should be mentioned that partly due to budget restrictions, with 1,050 valid respondents, the target population of the survey of the year 2012 consisted of males and females between 15 and 49 years of age. The methodology of the survey was based on the “Survey on Japanese information behavior”. In the cases where previous surveys were compared with that of the year 2012, the age of the target population was matched to that between 15 and 49.

To consider but the diary-style records, as expected, results of the surveys have shown a decrease in TV watching time. Over the past 17 years, TV watching time has been steadily decreasing, especially among teenagers, persons in their twenties and thirties. The decrease has been markedly significant the past two years. Of course, the decrease has been observed so far, but the past two years recorded a sharper slump in TV watching time.

Besides, the rating of the behavior of the acting population was also a matter of interest. The surveys were conducted during 2 days and intended to measure the rating of respondents who switched on their TV sets once one of those days. Even among the youth, the percentage of action (the frequency of the action of turning on one’s TV set) did not decrease. Pre-

sumably, the acting frequency of respondents did not decrease between 2000 and 2010, neither. Consequently, even younger people did turn on their TV sets once a day in the morning, perhaps. It has, though, been observed that the acting frequency has sharply decreased among teenagers and the twenties over the past two years. Such a remarkable decrease in the acting frequency among the youth is unprecedented in the past 17 years of survey. This truly indicates that younger people are not switching on their TV sets anymore.

The common opinion about this phenomenon tends to be as follows: the fact that younger people surf the internet results in the decrease of their TV watching time. This is partly accurate. As it can be proved concerning the use of the internet, our research team delivers far more accurate data than the "Living Time Budget Survey of Japanese people" conducted by NHK, since we include a broader sample of items in our surveys. Looking into the internet use time, the results indicated that over the past two years the use of the internet via PCs by teenagers has increased. However, if the general use of the internet, including mobile phone usage, is taken into account, the total amount of the internet use time has shown a slight decrease. Consequently, that the TV watching time decreased among teenagers does not necessarily indicate that it is because of they switched that time to the usage of the internet.

When it comes to the youth in their twenties, the general usage of the internet, including mobile phones, has decreased. The internet usage time has reached the point of saturation. A comparison between teenagers and the youth in their twenties indicates that in 2010 the latter devoted more time to the internet, be it via PCs or in general, while the former superseded in their usage of the internet via mobile phones. Over the past 2 years, however, teenagers have topped their counterparts in the time they devoted to internet not only via mobile phones, but also via PCs, be it at home or elsewhere.

The time devoted to watching TV has decreased while the time allotted to the usage of internet did not increase, neither. Then, what are young people busy with? There are no clear-cut answers to this question. Based on our surveys, an evaluation of trends among the youth in their twenties indicated, however, that they divide their time into doing several little chores. A relative increase has been observed, for instance, in the youth busy with watching a recorded TV program video or playing offline games with their mobile phones. Listening to the radio or playing with radio-controlled model toys are also among activities that increasingly occupy the youth. Needless to say, such activities are far from exhaustively explaining the decrease in TV watching time among the youth. The bottom line is that the information behavior of the youth has undergone an increasing fragmentation resulting in its decrease.

Furthermore, the common opinion holds it that the internet is devouring TV. In other words, media cannibalism, i.e. a phenomenon of media erosion is profusely noised about, but plausible media cannibalism is a far cry from occurring.

In order to demonstrate this assertion, we utilize the so-called time lag matching analysis method. There seems to be no point comparing just TV watching time and internet using

time since people's status might interfere. For instance, younger people frequently make use of the internet. It also depends on the annual income of a given individual. Thus, it is irrelevant to just consider the correlation between the aforementioned "two times" since a host of factors might interfere. Our time budget surveys are conducted during 2 days. We pick out only respondents who have made use of the internet via PCs during one of the two days. We, then, compare the "times" these respondents watched TV on the day they used the internet and the day they did not use the internet. By analyzing a statistically identical population, factors related to status interference mentioned supra (demographic factors) can be thoroughly excluded. The result indicates that TV watching time is longer on the day of the internet use via a PC and is shorter on the day the internet is not used. The case referred to concerns only teenagers and the youth in their twenties, but the same results have been observed concerning men and women in their thirties and forties. The surveys conducted in 2005 and in 2010 have both consistently pointed to the same results.

This can be explained by what I refer to as "the theory of rational assignment of free time at home" (the theory of rational apportionment of domestic free time). It means that media cannibalism might occur if one considers only the way each individual apportions his/her time to different activities, but taking the average population into account, it can be asserted that at home Japanese people divide their time into a range of information behavior. For the past 20 years, Japanese people of all ages have enjoyed an unchanged average of 20 percent of free time at home.

We have divided respondents into four categories depending on the length of time spent at home. The results revealed that depending on the length of time spent at home, respondents equitably apportioned their time to TV watching or internet usage. Those who spent a longer period of time at home both watched TV and used their PCs.

When the difference of age was closely taken into account, the average time of watching TV decreased proportionally to the decrease in age. Moreover, since 1995 the average time younger people watch TV has gradually decreased. Since the year 2000, our questionnaire has inquired about the way respondents had information related to their hobbies and to entertainment. Among the six choices given to them, namely, TV, the radio, newspapers, magazines, books, and the internet, the internet has since gradually and neatly come to the top of the list. TV, which occupied the top position of the list so far, has finally been displaced by the internet in 2010. It is a clear indication that the proportion of the internet use has overtaken the proportion of other choices. By the year 2012, figures showed that TV was no match to the internet when it comes to the young people's source of information related to entertainment. Of course, TV has maintained its superiority over the internet when it comes to the content, but young people are satisfied enough with the information they have about entertainment via internet. Young people do not anymore feel like watching TV.

We incidentally tried to compare between 2010 and 2012 what young people were concretely doing while surfing the internet. The past 2 years, teenagers tend increasingly to

watch moving images using PCs. 44 percent of the time when teenagers use the internet via PCs is devoted to watching moving images.

In relation with apparatus use, the usage of smartphones by young people in their twenties has already reached 57.7 percent. I think that from now on smartphones will be used to accomplish a big deal of activities that require the internet. In such case, the internet usage time in general is also likely to increase.

Let us now switch our analysis to social media. Our survey on the average usage of social media revealed that 3 among 4 young people in their twenties and 40 percent of men and women in their forties are already using social media. Social media have already become a social commodity.

How to explain the change that has been witnessed over the past two years? To put it simply, it is partly because Japanese people tend to have the same tastes and use social media because everybody uses them. One feels urged to use them because friends and people around use social media. My students responded that they felt urged to use social media because they constituted the class contact network. Housewives responded that because their most picky friends who they had made friends with through their children started using social media and they were somehow forced to follow suit to avoid being nitpicked. The aforementioned reasons are true. Especially, after March 2011, social media have been constantly referred to by traditional media and it is possible that many people found it good to start using them. Also, for young people social media, with their numerous mail functions, constitute an alternative to e-mails and while the time for writing and sending e-mails via PCs or mobile phones has shortened, the time for using social media has increased.

In a survey we asked the following detailed questions: give us the names of your friends (up to 10 names) with whom you regularly share recent information about your life; when are you in touch with them? What relationship do you have with them? How old are they? Are they males or females? These are annoying questions, but as you know, Japanese people are sincere. An average of five persons responded. According to this survey, the percentage of people using e-mails was high, but the average number of people using the social media LINE was rather high. We also asked about the relationship and the particular social media engine used to keep in touch with those persons. The analysis revealed that with old friends communication was made via Facebook. Old friends meant friends of the past with whom, one was still in touch. It meant a friendship in the present perfect tense whereas the friendship referred to via Twitter is in the present progressive tense.

Again, let us now turn to another topic. We analyzed the relationship between “the degree of happiness about one’s life” and the use of social media. In short, “does a person attain happiness by using social media?” The results have indicated that among teenagers, people who used social media were unhappier. This does not mean, of course, that the use of social media will automatically lead to happiness or unhappiness. However, even when giving a multivariable explanation by putting into play elements such as household annual income and other demographic factors, the results have re-

vealed that people who make use of social media entertain a lower degree of happiness about their lives.

It's quite difficult for me to explain such a state of affairs, but the survey we carried out in 2010 revealed that if one was disorganized, a strong obsessive feeling of being topped by others assailed young people, leading them to entertain a high public self-consciousness of being too much concerned over what other people were thinking about them. Such a state of mind can be related to the use of social media.

The results of a survey conjointly conducted with a major SNS company indicated 52 percent of the people who are strongly addicted to SNS experience a strain in their social interactions via the internet. They use social media not because they are having fun, but because they come to a point where they are under the pressure of using them.

A group interview with housewives indicated that the truth is that they do not really want to utilize social media. Witnesses such as, "people will be on your back, if you give up", "because a picky person insists that you continue, it is hard to give up", "people tell you that you do not react enough to posts" were numerous.

Since Japanese people easily side with other people's opinions, in a group of high school students or housewives, if a queen-like person switches from mixi to Facebook, the group follows suit and swiftly switches SNS platforms. In an environment where people feel obliged to adopt the same states, if you don't regularly check to fit in, you are going to be the target of criticisms by others. Therefore, it is not because people have fun utilizing social media that they use them, but it is because they are somewhat urged or under the pressure of doing so. Above all, platforms such as Facebook remind people of their past. A while ago I said "the present perfect tense", but it goes as far back to one's acquaintances from elementary school years. You end up reconnecting with old friends while the motivation for starting the use of social media might have been the quest for change, the drive to show a different oneself through rebuilding new relationship with new friends. It becomes difficult to change oneself in such an environment. One's carrier ends up hindered by SNS. I personally think that SNS turns out to be a burdening media because it creates a state of mutual surveillance where its actors end up monitoring each other.

Hiromatsu: Thank you very much, Prof. Hashimoto. Your presentation about Japanese information behavior was very interesting. Prof. Hashimoto published a new book. Other than his research, "Survey on Time Use and Leisure Activities" is carried out by Statistics Bureau, Ministry of Internal Affairs and Communications. Although this survey does not emphasize information behavior, the comparison of the two survey researches may be interesting. Furthermore, a survey of how the nation's people use their time is carried out by NHK. By comparing these surveys, as Prof. Hashimoto's lecture seems to involve a very important problem institution, I also think highly of his lecture.

Then, although I'm sorry to preserve only short time, the second lecture is entitled as "the open data application examples obtained from the lessons of the Great East Japan Earthquake" by Mr. Murakami of Mitsubishi Research Institute. Mr. Murakami, please start your lecture.

Murakami: As I have variety of data, I will explain the important data only.

Firstly, I will introduce the open data application examples obtained from the lessons of the Great East Japan Earthquake. This is an example of visualization of automobile traffic performance. By marking on a map the traffic performance information which companies such as Pioneer, Honda, and Toyota held and the information of suspension of car traffic which administrative organs held, we could know which roads were open. This is information we got under the peculiar circumstances of the Great East Earthquake, which is normally kept secret owing to the matter of privacy. With this information, we were able to judge the routes to deliver relief supplies, and to know the places where relief supplies had not been delivered yet.

There is one more thing. Power companies including Tokyo Electric Power Company released information concerning electricity demand and supply. This was to prevent great blackout. At first, Tokyo Electric Power Co. gave the demand and supply data in PDF format and graph image format, which were very difficult to use. Then volunteers and companies like Yahoo computerized the data and introduced them in their own websites, or made application software for smartphones and distributed it for free, which led to produce various services. Although power companies finally presented data in CSV format, we observed the phenomenon that various services came to exist very rapidly which data holding companies or administrative organs could not offer, by making data open in a secondary available form.

On the other hand, many problems became apparent. For example, the state and local governments have shelter information, but shelter information concerning what relief supply to which shelter was open only in PDF format, some shelters' addresses were missing, or some shelter institutions had abbreviated names only. Therefore, we had to put all the information in order from the start. As for radiation information, it took time to gather it because there were many departments of many administrative organs such as the Ministry of Education, Culture, Sports, Science and Technology, the Ministry of the Environment, and the local governments, which released it in many situations. We had also to correct the application software we had made to visualize radiation information, each time the data had been moved about.

We heard that a company which operated portal sites asked the government to offer data as the company was providing information in their sites, but the government turned down their request, saying that the administrative office could not offer data to a specific company, and that the data should be applied for through an industry group. The data were given as a result but it was clear that there had not been enough discussion about which information should be offered in what ways in case of emergency.

Now I will talk about the efforts of open data overseas. As for open data, the efforts of the open government since the Obama administration have been widely introduced in Japan. In the EU, the order concerning the reuse of data owned by public institutions was given to the whole EU in 2003. Since then, each country has been constantly making efforts. The open

data movement now is progressing with Britain and France leading the EU.

They think that they will be able to have economic growth by effectively making use of the information which the administrative organs bury. It has been calculated that the economic effect would be one hundred and forty billions Euros at the maximum, a few trillions in Japanese yen.

As for the United States of America, just after the Obama administration was born in 2009, "The President's Memorandum on Transparency and Open Government" was published. In this memorandum, there were three principles: "transparency of government"; "participation of the people"; and "cooperation". In May 2012, "The President's Memorandum - Building a 21st Century Digital Government" was published. This memorandum is different from that in 2009 on the point that open data is more emphasized. Before this, it was OK if people could read it. However, the memorandum asserts that data must be open in the form that computers can automatically collect and aggregate.

In Japan, "The e-Government Open Data Strategy" was determined on the basis of "The Basic Action Plan for the Promotion of e-Government" in 2011 by the IT Strategy Headquarter of the Government of Japan in July 2012, based on "The Basic Policy on e-Government Promotion" in 2011. Based on this, the Ministry of Internal Affairs and Communications is progressing the basic enterprise for information circulation, and the Ministry of Economy, Trade and Industry is progressing IT integrating forums. "The Open Data Circulation Promotion Consortium" was newly established by the collaboration of industry, government, and academia.

The characteristic of "the e-Government Open Data Strategy" is that its significance and aim are economic active growth. In short, it significantly stresses the economic growth, on the contrary to the open government before that which stressed democracy. Based on this point, the third policy says that the strategy can be applied to by both profit making and nonprofit organizations. In other words, this strategy can be used freely to start a new business, whether it is a profit making or nonprofit. This is the key point of this strategy.

Has a business using open data been already born, then? This is the most important point. I am afraid that we have only few examples of this kind.

"Climate Cooperation" is a venture business which was started by a person who used to work for Google. It deals with agricultural insurance purchased only on the internet. In the United States, information of soil and weather are released by quite small unit. By using this, "Climate Cooperation" developed unique knowhow to calculate the risks of disaster occurrence, with which it made an insurance service for large-scale farmers. If you put your data such as the place and size of your farming field, your harvest last year, your main crops, your schedule for this year on the website, you will have the answer about your premium. If you pay the premium by credit card, your insurance will have become effective. If your crops are damaged by disasters like tornados, you will be indemnified. The recent volume of business transaction of the company is three thousand billions. In one year, it has rapidly be-

come ten times more.

Other than that, there is an example of a Canadian company "Gold Coop", which mines gold. At one time, it was exposed to bankruptcy, so it made its company information such as borings and geological surveys open to the public. It offered prizes for people who can see where to mine by examining data it has given. Then, it had many suggestions for which it gave prizes. Consequently, it mined 250 tons of gold, with which it gained a few tens of trillions yen. The business which would have been bankrupt if its information was kept secret has had business grows by making its information open and gathering wisdoms of the world.

Finally, I will mention the environmental changes and problems which promote open data.

According to the materials of Cisco Systems, the amount of data on the web is drastically increasing, and it is presumed to keep increasing in the future. Up to now, it has been OK that people look at the web and make use of it. However, we will have to use machines to collect, calculate, and analyze the information which is rapidly increasing. This is what is happening now.

I have four more points. The first point is the spread of the internet. The cost of information circulation has become explosively cheap. The second point is the spread of social media. As Professor Hashimoto mentioned in his lecture, social media provide individuals with opportunities to give their personal information. Existing mass media give us one way information circulation, but social media have produced multi-directional information circulation. The third point is the spread of smartphones. With smartphones, it has become possible not only to input information, but also to circulate pictures we took, to collect and share various data by using smartphones as sensors. The last point is the spread of the cloud service. The cost of keeping and dealing data has become drastically cheap, which has made it possible to challenge various businesses by trial and error method.

On the other hand, it is necessary to solve problems. The first problem is that necessary information is not open to the public. In Japan, we have a problem of not having definite rules about making information open to the public. Once we have the rules, we will have a style according to them. It might take time, but we need to make the rules with a consensus of the people.

The second problem is about licenses. We have to think about copyright and licenses to promote open data, and we have to spread them widely as standards. The third problem is about format of data and methods to offer them. We have to make methods to offer data which are easy to get and can be read by machines.

The last problem is about how to combine and use data. If we have data A of "Heisei 24" and data B of "2012", we will have to put them in order by ourselves. We have to establish systems that machines can collect, calculate data and give us conclusions by standardizing, for example, disorganized unites and disorganized borders of the 47 prefectures of Japan.

"The Open Data Circulation Promotion Consortium", which I have introduced earlier, is aiming at making movements of open data among the people, while urging the government

toward them. If you have an interest in the movements, you will be welcome to participate.

I end my lecture now. Thank you for your attention.

Hiromatsu: Thank you very much, Mr. Murakami. Mr. Murakami talked about the current status of open data and the requirements of its development in Japan. Recently, not only the phrase open data but also a phrase big data, although I don't know the actual relation between them, is used frequently, and it is thought that the essence of open data is similar to that of big data. Thank you very much for your interesting lecture.

Now, I introduce Prof. Iwai of Gunma University as the third speaker. Please start your lecture.

Iwai: It is my greatest pleasure to be here today with you all. My name is Iwai, and I am from Gunma University. I conduct researches on the decision support system, otherwise known as "DSS."

Since the great earthquake in 2011, decision-making among the Japanese people has received much attention and wide criticism. Specifically, their tendency not to make quick decisions or to make improper ones has been criticized as detrimental in the cases that decision-making is entirely necessary. Some have linked this tendency to the Japanese culture, which discourages people against criticizing anything, even in the cases that critical discussion is obviously required.

However, I would like to take a different approach to this issue, and point out that Japan, with this unique problem, may serve as an excellent setting within which a basic coping method could be developed to solve this problem. Today, I would like to focus on this positive aspect and present some of my research findings. In particular, I will focus on the anonymity guaranteeing technique, which is an area I have researched quite heavily. This area of research is potentially useful to the rest of the world, and I think that it would be appropriate to discuss several topics within this field as themes for this symposium "Social Information Study and the World." Before I begin, however, I must clarify that I use the term "anonymity" not to express closed, one-on-one communication, but to express an open style, such as an anonymous BBS (Bulletin Board System).

Many DSS design models that can guarantee anonymity have been developed. I do not mean to propose the replacement of existing conventional committees in charge of decision-making through the online Group Decision Support System (or GDSS). Rather, I hope to set up the GDSS beneath the present committee with the right to submit agendas to the committee, with the aim to achieve overall fortification of the decision-making system. The GDSS in the virtual space is set up to allow all who are concerned with these issues to participate. In addition, if any particular result is found to be concerned with a certain proportion of all voters in the system, it would be submitted to the conventional decision-making committee. My research has focused on this type of system.

This approach itself could produce several problems associated with the DSS designs. Here, I will address the problem of the convergence process within decision-making, and discuss how guaranteeing anonymity relates to

this. Anonymity is widely acknowledged to lead to chaos, so coming to the conclusion in this setting can be harmful. However, this may not always be true. I would like to explain by using data I obtained in the joint researches a few years ago.

The most successful, supporting frameworks for anonymous communication in GDSS have been designed for the divergence phase in the decision-making process. A good example of this is electronic brain storming. In the convergence phase that follows, however, very few framework designs for supporting anonymous communication have been presented. While the assumption seems to be that anonymity may remove some tools of persuasion, thereby may increase the difficulty of discussion of coordination, perhaps a system can be designed for the convergence process as well, if a careful design is employed. With this intent, my colleague and I conducted an experiment using our new GDSS. We chose the following book selection example which involved hundreds of university students in a typical problem requiring resolution.

A lecturer at a university is obliged to recommend new reference books to the university library for students in his or her department. He or she asks students to use a GDSS to make a recommendation list as a reference before the lecturer gives the final list to the library. The number of recommended books as well as acceptable categories for the books is limited. Each participant in the system uses a unique and unchangeable handle-name to communicate with others, which guarantees anonymity.

The main issue here is how interactions among users generate a convergent effect. We introduced a framework in which the movement towards convergence is enhanced by the motives of users who wish to have their plans accepted. In other words, simply proposing a particular plan by one user tends not to result in many votes, but if the plan is merged with other plans, the expectation is that the combined plans can obtain more votes. We hoped that this framework would help the users find ways to converge their plans.

We did find that this framework allowed for some convergence, though the data were somewhat outdated now. This system was implemented and conducted with regard to book selection at a library. While I don't have time to share the details with you, I want you to share some results of this process. At first, no interaction occurred among users, but as some plans were improved by some users, relationships between the plans began to emerge. Finally, Plan C was selected, with a total of 123 votes. This final plan included some private book wish lists that could not be openly appealed by writing a request form at the library desk. Thus, I concluded that the anonymity in this system allowed certain unspoken needs to be identified among participants. I'm interested to examine another version of this GDSS, in which multiple computer agent programs, rather than human beings, interact.

Next, in the research field of anonymity, the definition of anonymity itself is one topic of interest, and represents the second topic in my presentation. With the remaining time I have, I would like to explain my approach to measuring the degree of anonymity briefly.

In general, anonymous voting tends to be identified as private voting. Thus, it may seem

strange to think about measuring the degree of anonymity. However, I'd like to take a look at a few examples I presented roughly 10 years ago, back in 2003. In one example, individuals A, B, and C conducted a secret ballot for S versus N, and everyone voted for S. If the results had been revealed and analyzed, it would be obvious to all voters and outside observers that everyone voted for S, which completely eliminated any anonymity. However, please consider the case that C voted for N. If the results were revealed and analyzed to show that two voted for S and one voted for N, then it would be obvious to C that A and B both voted for S.

With these examples, we may argue that the concept of anonymity in voting behavior should be formalized as a concept involving a continuous object which is scalable by level, rather than an all-or-nothing concept. We may also argue that the anonymity level for outside observers and that for inside members who participated in the voting should be defined differently.

How can the degree of anonymity be measured? To answer this question, I proposed a measurement technique to evaluate anonymity level in voting by adding informational values for all voters' expected declarations regarding the content of their votes. In this technique, the informational value of each vote is evaluated as −log (generation probability), which follows the concept of self-information based on Shannon's information theory. One important aspect of this technique is that it inherits addition, which is a characteristic of Shannon's theory. To explain this, let's examine anonymity from the viewpoint of an outside observer in a small voting scenario. Two of the five total voters voted positively. Specifically, Voter A voted negatively, B positively, C negatively, D positively, and E negatively. By using truth drug, each one would be forced to reveal their votes one at a time. What would be the information value obtained by their confessions? When A revealed a negative vote, the information value of the confession would be −log 3/5, because the proportion of negative votes among the total was 3/5. When B revealed a positive vote, the information value now would be −log 2/4, because the proportion of positive votes among the remaining 4 votes was 2/4. When these obtained values were added, we would get a sum of log 10. Notably, the result value would not reflect the order in which the votes were revealed, and thus the order did not really matter. In fact, the revealing process was actually unnecessary, as the calculation only required the number of positive and negative votes.

I have omitted some of the details, but my calculation method can measure the degree of anonymity which cannot be calculated by simple entropy-based calculations. A very similar research study on anonymity was recently published abroad and attracted much attention. This research concerned privacy in computer networks and focused on issues such as who sends an email to whom. However, the basic theory is nearly identical to what I just presented. I am confident in the validity of my calculation method with regard to the computer network researches, and feel that my method shows some potential to open up a new field of socio-informatics. It could be used effectively in researches in this field and towards the development of application systems.

In conclusion, topics concerning group decision-making and anonymity show us their great possibilities. I am excited about the opportunity for Japan to utilize this timely situation to design world-level systems for this end. Thank you for your time.

Hiromatsu: Thank you very much. As I have heard his lecture before, I'm happy to hear his study's progress.

Well, the last speaker, Prof. Ohta of the University of Electro-Communications, please start your lecture.

Ohta: I am going to talk about the strategic upward spiral of social informatics. Because this is the first symposium of the Society of Socio-Informatics, my talk concentrates on a general methodological framework in social informatics, in contrast with the previous talk on rigorous formulation. I hope this talk will acts as a bridge between the symposium of positive study today and that of theoretical study tomorrow.

My affiliation is the Graduate Department of Social Intelligence and Informatics in the Graduate School of Information Systems. The graduate school was established 1992 and aims to integrate arts and sciences in education and researches of information systems. Against this academic background, I actively look into the effective use of information technologies in society. My talk is based on the performances of integrated arts and sciences.

I will describe an approach to the theory of social information systems, a few current trends in international conferences in social media, a model of a risk information disclosure game, a field model of our research findings in enterprise social networking sites (SNSs), and a proposal of a strategic upward spiral in social informatics.

In my approach to social informatics, social information is characterized as information that appears in the process of human activities in society. Society consists of connections or disconnections among people. Human relations are observed in the complicated connections, which we have to understand fully.

Social informatics is an integrated discipline of arts and sciences that closely integrates the humanities, social sciences, computer science, and science and engineering. Currently, social media is the field's main focus.

Social information systems are systems that promote the distribution of social information to improve quality of life. They support the distribution of information in society and individual life, in politics and public administration, and in economics and management. Recently, these systems have also supported knowledge

Table 1 Characterization of Social Informatics

Problems	Contents	Characteristics
Phenomena	Digital Society	Reality / Virtuality
How to Approach	Complex System / Organizing	Emergence / Boundary
How to Understand	Simulation / Gaming	Rules / Mechanism of Interaction
Benefits	Institutional Design / Systems Design	Cyber Commons

(Ohta, 1999)

distribution in these areas. Prominent topics include how social media can help to reinvent regional communities and what a knowledge distribution network system should be like.

Table 1 characterizes social informatics with respect to the problems to be handled, the methodological contents, and their characteristics in the approach (Ohta, 1999, 2006). The problems in social informatics include what kind of phenomena are to be studied, how they are to be understood, what kind of methods are to be employed to explore them, and that what kind of benefits they provide for society.

As for the methodology, simulation and gaming are the major alternatives. The simulation model describes the mechanisms of interactions on the basis of the connections among the agents or people as components in the model. The mechanisms or logics, which bring about certain phenomena, can be operationally understood by the observation of simulation.

By understanding the mechanisms or logics, the design of institutions and systems can be supported, including the designs of social systems and information systems. An information commons such as Wikipedia is a beneficial example of an implemented entity. Meanwhile, social media electronically accumulate the exchanges of information and knowledge among participants, which results in so-called big data.

Social media exhibited their usefulness after the Great East Japan Earthquake in the form of the person finder system and accessible road map, which were developed using the information contributed by and to the social media. In May 2011, Nikkei Computer, a semimonthly magazine, looked at the social power of social media and introduced a case that called for businesses to invest in the rehabilitation of communities by the Web. In its 2010 White Paper on Information and Communications in Japan, the Ministry of Internal Affairs and Communications discussed the revitalization of bonds in regional communities by using ICT. In June 2011, IEEE Spectrum, a communication journal of IEEE, featured “The Era of the Web Starts Now,” which contrasted Facebook, a social network, with Google, a search engine.

As for international academic meetings, at the 45th Hawaii International Conference on System Science (HICSS45) on January 4-7, 2012, in Maui, we coordinated lectures such as Minitrack: Social Media in Social Informatics and held a forum. At the 4th World Congress on Social Simulation (WCSS2012) on September 4-7, 2012, in Taipei, we held a workshop on social media and simulation. We presented advanced research results and discussed the current topics.

A major problem in social informatics is the risk information disclosure. I will therefore introduce our game theoretic model of risk information disclosure.

Since the risk information disclosure is an interactive process among individuals, groups, and institutions, the interactions among them must be modeled. We use game theory to model the risk information disclosure as interactions between a government agency and the public. The public, however, is not always interested in the risk information disclosure. That is, the risk information disclosure model must include the concept of satisficing in decision making in accordance with the aspiration level of the public. The other premises in the model are omitted in this talk.

We formulate a pay-off matrix for a risk information disclosure game between a government agency and the public. For the public, the pay-off matrix consists of the costs of risk information searches, the probability of damages, and the surprise cost. As for the government agency, the pay-off matrix consists of the amount of damages, the administrative cost in case the of the risk information searches by the public, the amount of damages assumed by the government agency, and the probability of damages based on the cumulative prospect theory.

Figure 1 illustrates solutions of the risk information disclosure game. The solutions consist of the four kinds of games: the voluntary disclosure game, the assurance game, the information searching game, and the compulsory disclosure game.

Our risk information disclosure game can be summarized as above. Note that we can observe a dilemma of choices between the government agency and the public in the region of the information searching game in Figure 1. In this region, Nash solution is the information search by the public and the non-disclosure of risk information by the government agency. However, the Pareto solution is the non-information search by the public and the disclosure of risk information by the government agency. Therefore, the government agency and the public have to develop a certain policy to overcome the dilemma.

The next topic I will talk about is a field model of our research results and the modeling concerning the structure and process that bring about the performances of enterprise SNSs as examples of using social media. The structure and process of performance in enterprise SNS are illustrated in Figure 2.

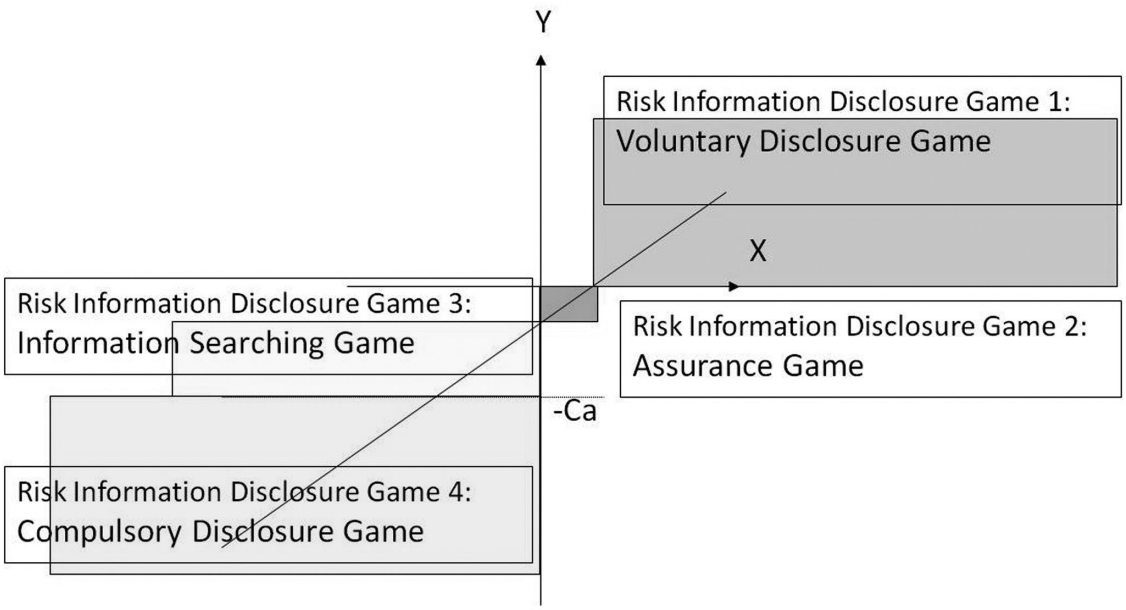


Figure 1 Spaces of Risk Information Disclosure Game (Umehara & Ohta, 2009, 2011)

The prompt decision making in an enterprise SNS is observed at two of the six stages (the insight stage and the selection stage) in the decision-makings process due to the information brought by the SNS to the decision makers. At the insight stage, the SNS offers the alternatives for the participants and the decision makers. The information provided by the SNS is effective information that has not been found by the decision makers themselves, although it may not necessarily be true.

At the selection stage, the SNS offers the candidates of solutions for the participants and the decision makers. The decision makers then connect the solutions with the problems. The problems are not necessarily new ones for the decision makers, but the connection between the solutions and the problems results in the problem being promptly solved by the information provided by the SNS.

In this kind of problem solving, the various participants can offer this kind of information, who are members of other departments or members who are not business associates of the decision maker before the communication by the SNS. They communicate by submitting information easily in the SNS and share the field of choice opportunities brought by the SNS. The model illustrated in Figure 2 consists of the problem-solving process model based on the

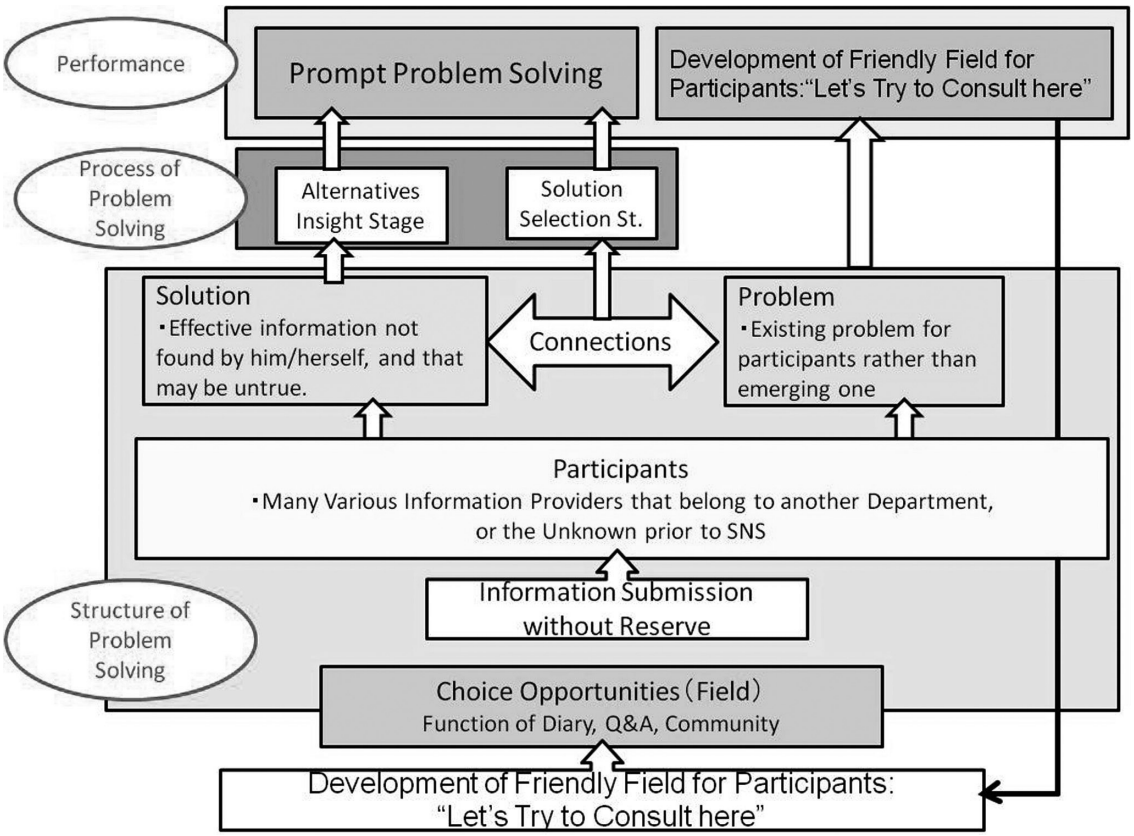


Figure 2 Field Model of Enterprise SNS Effectiveness (Kato, Ogawa, Suwa, and Ohta, 2009)

decision-making process model by Simon and Matsuda and of the problem-solving structural model based on the garbage can model by March and Olsen.

The enterprise SNS creates a friendly field that makes the participants consider helping each other: "Let's try to consult here." The field model can be developed as an upward spiral to arrange the recurrent feedbacks into a friendlier field.

The final topic of my talk is an upward spiral strategy in social informatics. An upward spiral process between the real world and the model world is a key process with respect to the upward spiral process in the risk information disclosure and enterprise SNSs. Figure 3 shows a scheme of interactive relations between the real world and the model world.

Though you may consider the upward spiral process to appear to be a mere verbal play, it is a proper process to develop a modeling and a policy in social informatics. To understand the real world, case studies and research surveys are employed on the one hand, such as those presented by Prof. Hashimoto, and the formulation of the game theoretic model and the search for the solutions in the model are employed on the other hand, as is the development of a field model of effectiveness in enterprise SNSs, which is a less operational model. These models are illustrated in Figures 1 and 2.

In the upward spiral process, a certain interruption between the real world and the model world exists. The interruption has to be overcome before the upward spiral is progressed. A modeling or theorizing process takes place from the real world to the model world, and a validation process of a model or theory or the recommendation process of a policy takes place from the model world to the real world. In the

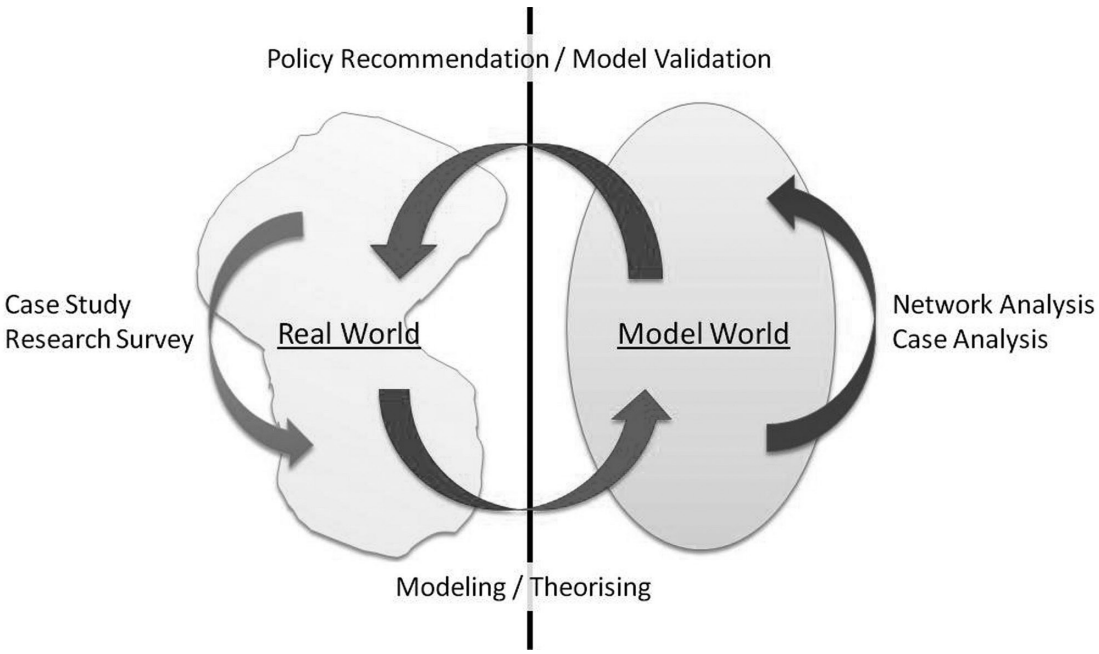
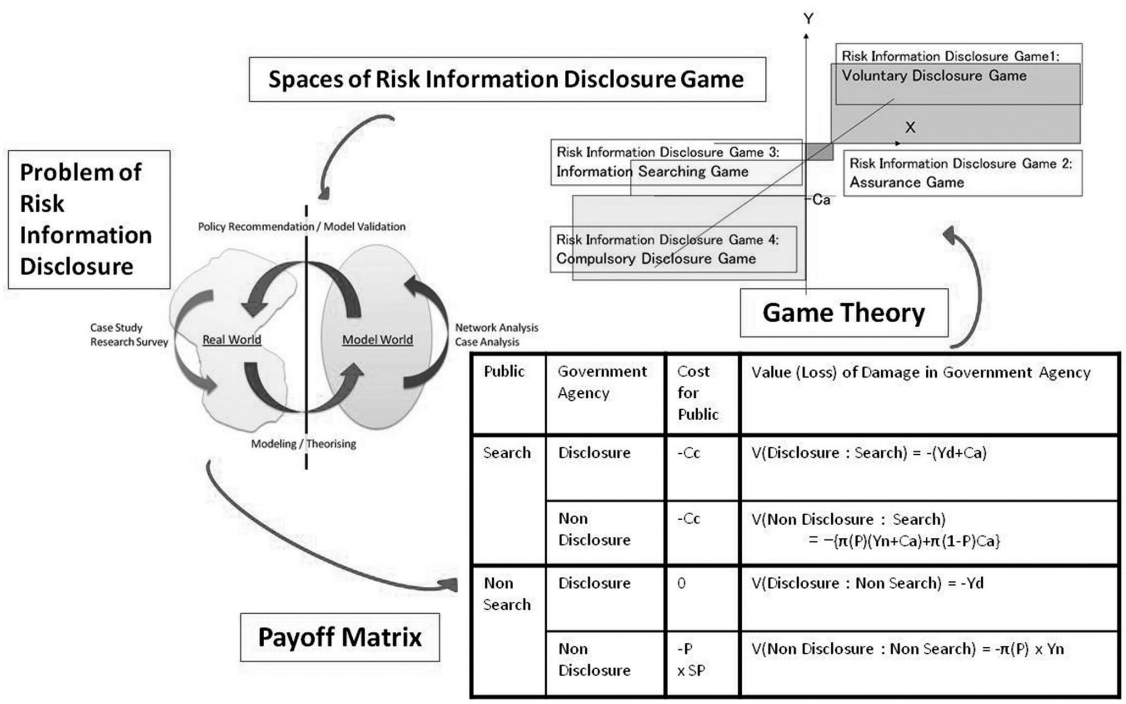


Figure 3 Real World and Model World (Suwa & Ohta, 2010)

model world, the network analysis and the case analysis are fashionable in the validation process in social informatics. Successful works in the upward spiral process can lead to the development of an academic discipline. I will give a few examples of upward spiral processes based on our researches.

The first example is the process of the risk information disclosure game. In the example shown in Figure 4, the problem is the risk information disclosure. Even though the problem had been studied before the Great East Japan Earthquake, the unwillingness of risk information disclosure by the government agency was frequently reported. The choices by the government agency and by the public in the real world are formulated in a form of a payoff matrix, and this is developed into a model in the model world. The model includes variables, parameters, and a weighting function of probability based on the cumulative prospect theory. As a result, as illustrated in Figure 1, four types of game space are derived. Among them, the information search game is found, which brings about a kind of social dilemma between the choices of the government agency and the public, and which results in a proposal of an introduction of the guardian agent for the solution of a social dilemma.

To validate the model, a reported traffic accident was used in which a car maker had not disclosed the relevant risk information. In the case analysis, the B/S and the P/L of the car maker and the related information were gathered and analyzed, the space of dilemma in the game was confirmed, and the results were pub-



Public	Government Agency	Cost for Public	Value (Loss) of Damage in Government Agency
Search	Disclosure	-Cc	V(Disclosure : Search) = -(Yd+Ca)
	Non Disclosure	-Cc	V(Non Disclosure : Search) = −{π(P)(Yn+Ca)+π(1-P)Ca}
Non Search	Disclosure	0	V(Disclosure : Non Search) = -Yd
	Non Disclosure	-P x SP	V(Non Disclosure : Non Search) = -π(P) x Yn

Figure 4 Diagram of Upward Spiral Process in Risk Information Disclosure Game

lished in our IEEE paper, Umehara and Ohta (2010). The model is extended to the model of a problem in information security, and the extension shows the applicability of the upward spiral process.

The second example is the process of the field model of enterprise SNSs. In the example shown in Figure 5, the prior theories and models are referred to: the theory and model of the decision-making process in problem solving, which was proposed by Simon & Matsuda, and the theory and model of organizational structure in problem solving, which was proposed by March & Olsen. These theories and models and a literature survey are employed to develop the hypotheses of the research survey. The examples of hypotheses are that the information by a member of another department is effective for the decision makers in the problem solving, and that prompt decision making is possible using the information provided by the SNS. These hypotheses are turned into the research surveys, and structural interviews are used to obtain responses from the members in the enterprise SNS. In the structural interview, complementary questions are asked to the respondents with respect to the responses in the questionnaire, which are difficult for researchers to understand.

The survey results are analyzed with respect to the performance of SNS in the process of problem solving and in the structure of problem solving in the enterprise and are used to develop the effectiveness model of enterprise SNSs. The field model of enterprise SNS effectiveness has to be verified further in such a manner in

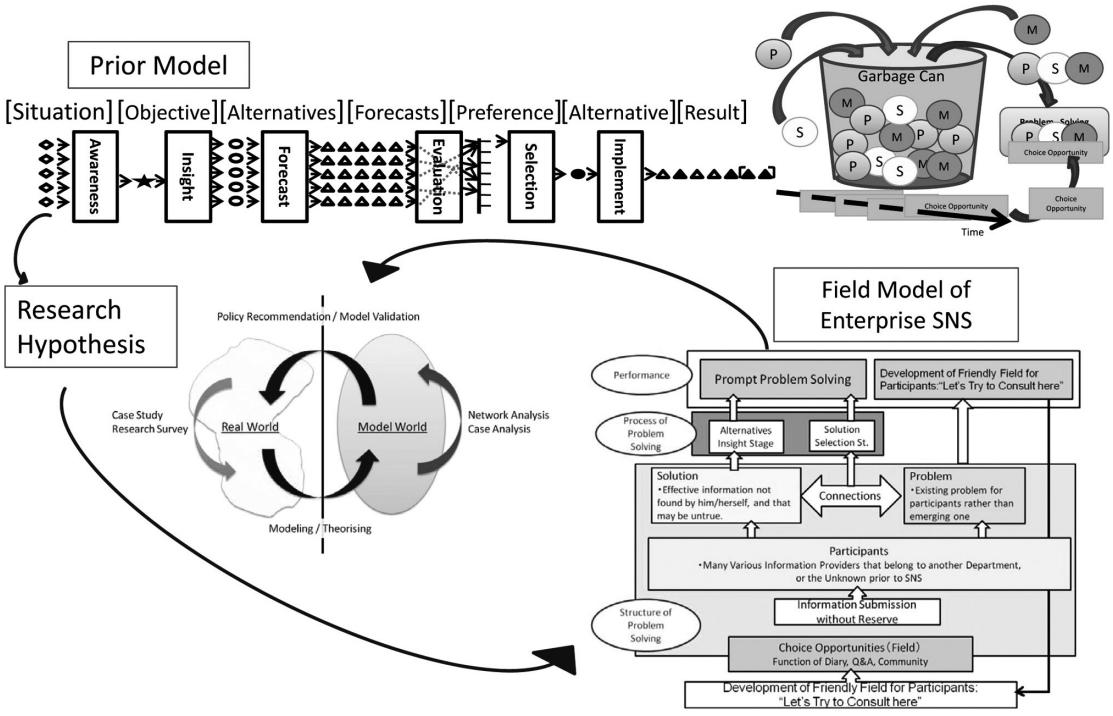


Figure 5 Diagram of Upward Spiral Process in Field Model of Enterprise SNS

the upward spiral, and the policy recommendations also have to be sought.

I am afraid my talk may just remain at the framework level, but I will suggest three points. First, social informatics can mediate between many disciplines, i.e. it is an inter-disciplinary discipline, and confront complex phenomena in society. Second, social informatics should employ research hypotheses and modeling to share knowledge of issues and research results. Finally, to develop social informatics, I propose the upward spiral strategy based on the cyclic process between the real world and the model world.

Thank you for your kind attention.

Hiromatsu: Prof. Ohta, thank you very much. Although this session is the empirical session, it is very important how knowledge obtained from the proof can be generalized and abstracted. Today, Prof. Ohta proposed a spiral up strategy as a concrete solution.

Well, although the planned time was exceeded, let's take a ten-minute break.
(after a ten-minute break, comments by a commentator)

Hiromatsu: Now, Prof. Tomiyama of Gunma University, please give us your comments.

Tomiyama: Each of the four reports presented now was rich enough in content. It was very interesting for me to listen to and study. My comment on these reports consists of two parts. One is about a common framework that may be able to understand all the reports in a unified way from the same point of view. The other is a couple of questions to each speaker.

The framework is a change or a design of the social information process in the modern age. First, changes of human behavior are diverse in the changing information process. One group of them is changes of information behavior, and furthermore one group of them is changes in media usage behavior. Second, how do we allow companies or citizens to use the large amount of public data which the government has? To give an answer to this question is the design itself of social information process of "G to C". Third, a design of the social information process of social decision-making leads to rebuilding of the social system. Fourth, it is necessary to design a smooth social information circulation to improve quality of life. It is included in thinking about the use of the information technology from a general viewpoint. As mentioned just now, we might be able to understand all the reports in a unified way from the same point of view.

I would like to ask each speaker a couple of questions in turn.

To begin with, I have some questions to Professor Murakami. The Great East Japan Earthquake triggered the project, which was to design how to allow companies or citizens to use large amount of public data, in the non-business situation. However, it is expected that the business use of public data spreads gradually because it produces new chances of business. What is the difference between the non-business use and the business use? How do you reflect the difference into a system of use rules? I think that society and companies should take full advantage of the public data. So, I would like to ask you about these points.

Next, I have a question to Professor Hashimo-

to. I understood that there had been a change in the PC access to the Internet. Its impact is worrisome for me. Specifically, there was a talk that access time to the internet through PC increased considerably. Because our time is limited, if more time is assigned to a certain activity, less time is assigned to other activity. In this case, what was the activity in which the assigned time decreased? It may be or not be some kind of activity (for example, TV viewing) in the category called information behavior. Or it may be some activity that straddles several categories. This is my concern, so I would like to ask you about this.

Furthermore, I have a question to Professor Iwai. I think that it is an important theme how to support the process of group discussion on the internet by people with different opinions and how to converge them into only one opinion. The reason is as follows. In a town or an organization in the real society, there are many different people. They must discuss how heterogeneous people make society and how they build a consensus. How can a large number of people participate in a discussion process carried out on the internet? The current social media can only support the community formation that gathers similar people in property. I think that your research project may lead to a new development of current social media like this. So, I would like to ask you about this point.

Finally, I have some questions to Professor Ohta. The "upward spiral strategy" is the model that is very familiar with me. The reason is because Ohta's upward spiral strategy resembles my research strategy. It is the strategy with which we enter the world of the model by carrying reality on the back and in turn enter the real world by carrying the model, and we are going to get closer to the truth by repeating this spiral to the upper direction. Then, the empirical researches are questioned about their relations with the theories. We carry out empirical researches continuously and accumulate their results because they are required for the development of Social Informatics. Is just this strategy enough in order to promote this project? Are no other devices necessary? I think that I want to get a hint from you who have the accumulation of many interesting studies for many years. Please let me ask you about these points.

Hiromatsu: Thank you very much. He gave us general comments and questions to each speaker. If any speaker has an objection or an answer in a short time, please respond.

Murakami: Thank you for your question.

The question is whether there are differences in the usage rules, and whether there should be differences in them between business use and other uses of public data. We are still examining these points. For example, about licenses of Creative Commons, data holders can decide whether they have commercial use or not.

In addition, there is a problem what to do and how to respond to damages caused by wrong data, and to the reliability guarantee. In the case of business, or in the case of volunteer services, the usage rules are different. They all depend on the situations of each case. Consumer Contract Act also has been involved. I think that it is necessary to consider each concrete example, which leads to accumulation.

Hiromatsu: Thank you very much. Then, Prof. Hashimoto, please respond.

Hashimoto: Well, your question is related to the influence of the changes that are taking place in information behavior. To answer your question I will rely on survey results concerning mutual changes in the management of time in daily life. In my case, it depends on the place where I can be, but since the past few years the time I spend home has not changed. However, the time spent home by young people is more and more decreasing. It is a fact that the time young people watch TV and the percentage of TV watchers among young people have drastically lessened. When it comes to the internet, the total amount of time has not necessarily increased. It is not really the usage per se that has not risen. It is rather the fact that due to the amelioration of machine's performance, the response time of machines has speeded up, which means that more than before, machines today can efficiently process and absorb a larger quantity of information within a short period of time. It used to take a long time to send e-mails, but nowadays processing e-mails does not take time.

Now to the question concerning how the unutilized time at home caused by not watching TV is spent, as has been shown on a previous slide, people allot that time to the use of various other media. The time for watching videos which recorded TV programs has increased, for instance. Besides, the time for playing offline mobile phone games, the use of radio-controlled gadgets, and the time for watching DVDs and blue rays are all increasing little by little. The time devoted to each of the above-mentioned new media usage has not really or significantly increased. Thus, their usage alone does not exhaustively explain the decrease in the time devoted to watching TV. I think that, with the appearance of various types of media, the time in the information behavior of people has been fragmented, scattered, and divided between those media.

It can also be said that, the cost or the expenses for access to information have become less and less. Fixed charge systems are widely available and it is possible to have access to entertainment with less money. Consequently, our surveys have indicated, for instance, that the volume of money used for internet shopping has not really swollen, and comparatively to the general consumer trends, internet shopping businesses are not particularly boosting. Conversely, it can be asserted that structural changes taking place in the information behavior of people at home are encouraging consumers to restrain from engaging in expenditures. There are no conclusive results concerning the correlation with sectors beyond the confines of information behavior in surveys referred to in our presentation.

Hiromatsu: Thank you very much. Then Prof. Iwai, please respond.

Iwai: As Prof. Tomiyama has noted, the development of the internet and social media seems to encourage people to meet others who are similar to themselves, and I agree with this to a certain degree. In real life, we sometimes encounter people we'd rather avoid, but must do so in order to solve problems and come to agreements. Encouragement and support of

this unpleasant aspect of meeting may require another type of technological development. This is greatly intriguing to me, and I am working to develop a decision support system in which people can avoid various negative effects caused by interpersonal relationships and simply concentrate on finding a better outcome. The DSS model I presented today is one product of this research, and I expect that the next question is how this system can be applied to attract attention among many people.

In my model, one representative can support another representative, thereby generating a tree structure of support among the representatives. Theoretically, this is similar to the style of large-scale decision-making in the real world, and I hope that the target digital system works in practice as well. I'm not sure how much interest will exist for systems in which many people participate in the electronic decision-making process, which is another potentially inevitable issue. More time and thought are required to deal with this point.

Hiromatsu: Then, Prof. Ohta, please.

Ohta: Although I cannot strikingly answer the questions from Prof. Tomiyama, I can give an additional explanation concerning my idea with respect to the upward spiral strategy in social informatics.

Recently, a popular topic is how academics can manage social problems. I have no intention to discuss this in detail, but I want to explain systems theory briefly. The systems theory discusses the importance of a meta-system for a system to understand the system. For example, there may be two probable answers to the question, "What is university like?" One is that it consists of faculties, which consist of departments. The other is that it produces people useful to society, or that it promotes researches in society. The viewpoint in the second answer is significant to my idea.

When academics solve social problems, they need something like the plug-in type interface to be developed. That is, the plug-in both in the academic or model world and in the real world must be developed. To illustrate my idea, I have proposed a framework level description of the upward spiral process.

The factor analysis and the principal component analysis in the multivariate statistical analysis are good examples to explain the basic necessity of my idea by contrasting them with each other. The factor analysis postulates the structural equation model (SEM) before the data analysis. The results of analysis verify the model. On the other hand, the principal component analysis seeks the formula of data in an efficient method by minimizing the variances of data. I usually prefer the principal component analysis to the factor analysis as an academic method due to its objectivity. However, I have come to a conviction that we have to discuss the method including the background of data and the purpose of analysis in the application. The application of SEM or the covariance structure analysis, as described in my previous work, is a trend in data analysis, and it is a reminder of the significance of model world.

I look forward to the suggestions for the upward spiral strategy in social informatics from Prof. Tomiyama and all of you.

Hiromatsu: Thank you very much. Prof. Tomi-

yama, do you have any further questions with respect to answer of reporters? You don't. Now, although the planned time was exceeded, everyone in the floor, are there any questions? If your question is one for the specific reporter or the commentator, please indicate the subject in advance. Before starting your remark, please inform us of your name and affiliation. Any question?

Tanaka: Excuse me. I am Hideyuki Tanaka of the University of Tokyo. Thank you very much for today's valuable lectures. I have a question to Dr. Murakami. As Prof. Tomiyama suggested, I'm very interested in making rules. In your lecture, as the government and the consortium were referred to, what do you think is the core of the making rules? Especially, as the national government must consider the whole country, making rules may be difficult. For example, environment administration and pollution administration started by local governments in some cases. However, as I'm not sure whether the making rules should be started by a local government, I want to ask your opinion.

Murakami: Thank you for your question. For the government, "the e-Government Open Data Strategy" was formulated in July 2012, on which the "electronic government open data officials meeting" is to be launched. This will be the core of the making rules of promoting open data. In the meeting, experts and representatives of various ministries will gather and discuss on the rules to seeking for an agreement.

By examining the rules in "Open Data Promotion Consortium", as well as inputting part of the results into the practitioners meeting, I think there is the need for making rules in general use for utility companies and governments. You need to proceed to check and challenge introducing a model of the making rules of open data to Japan, using Creative Commons and licenses in EU as its base to certain degree.

Hiromatsu: Thank you very much. Are there any other questions from the floor? No more questions?

Then, I have a question. The question involves my general impression and it is for the four reporters and the commentator.

Today, we have very valuable lectures from the four reporters. As I wrote the first prospectus, the purpose of this session is not an exhaustive argument about Socio-Informatics or the whole research field of Socio-Informatics but individual arguments through concrete examples after presenting the expertise, and there were very interesting lectures, questions and answers.

The session was successful. However, I want to ask everybody about an opinion with respect to the generality or the exhaustiveness. At is may be related to making rules of open data, in my impression, regrettably, the reliability of the researchers or scholars seemed to be decreased by the main reason of the Great East Japan Earthquake. Although the phenomenon is oriented to mainly experts in some specific fields, for example, atomic energy or seismology, it seems that all of the researchers must face the heavy problems.

In this meaning, as the target of this academic society is socio-information or simply information, fortunately, there are no big issues includ-

ing private information. However, when we tackle the field of Socio-Informatics, I think it consequently becomes a fundamental issue to improve the reliability of researchers for obtaining a variety of valuable information or useful information.

I want to ask you your opinion about this point. Please answer this question.

Ohta: The problem is a critical and difficult problem for us. For my talk, a topic of risk communication in society is the relevant problem. The interaction process between an expert and a nonprofessional can be a key process to challenge the problem. Increasing the opportunities of interactions among sincere people leads to the improved situation.

Hashimoto: You referred to the credibility of scholarship. To put it in a bit more specific way, I think that research survey has become very difficult. With the enforcement of the Personal Information Protection Law, it has become hard to consult the Residential Basic Book (Basic Resident Register). The random sampling of data has also become difficult and the public has increasingly become so privacy-conscious that people are concerned about "why me?", "what are you going to do with this information?" All year around, I am recently busy doing survey researches. Even if I personally don't visit households to drop and pick questionnaires, I hear from persons in charge of the fieldwork that they are asked questions such as, "What are you going to do with the results?", "What purpose will it serve?" More and more people are concerned if the questionnaires are going to be utilized for scholarly purposes and frown on surveys. In the past, when you stated clearly that "it is for research purposes", "we are from the University of Tokyo", people were readily willing to respond "because you are from the University of Tokyo", but today people do not easily respond. Indirectly Japanese people are, in fact, saying "What are you up to, you scholars?" "How are you handling the information you gather?" "Are you really going to deliver?" "Will the society change thanks to you researches?" I think these questions translate the vague suspicion that ordinary Japanese people address to scholars today.

Murakami: I will comment from the point of view of open data. After the Great East Japan Earthquake, power companies and the government announced data on radiation. On the other hand, experts and doctors wrote the opinion and analysis on blog or Twitter. We can say that the underlying data have become exposed in this situation, which I think is much better than the government announcing only the results unilaterally. And I think that researchers and many experts must analyze those data thoroughly from various points of view.

In the "International University GLOCOM", I have made efforts and data journalism. When journalists write articles on the basis of data, researchers will need to give their opinions accurately on the basis of data. The public sometimes find it difficult to read data accurately, in which case researchers can be helpful to them.

Some of the foreign media have started to make their data open to readers. Various readers make analysis of open data, which are added to the digital news as comments. I think in the future, this style will spread rapidly.

Iwai: While I have not often found it difficult to find ways to earn people's trust in my experience, I do feel that this process is often painfully tedious, and that we spend a significant amount of time trying to explain and prove ourselves trustworthy. Many official documents must be submitted and the descriptions therein must include materials that indicate reasonable grounds for our claims. While we all recognize the importance of this, we often feel tired of this process, as it occurs time and time again. I feel that we often waste time pursuing that process, when we could be spending it on truly creative group meetings and creative personal work.

Hiromatsu: Thank you very much. Very precious remarks are obtained.

Now, we have established a new society, the Society of Socio-Informatics, SSI. At the start point, the society should try to improve the reliability of researchers or scholars, and each researcher should consider the issues about ethics or other related things and should publish the result of the consideration socially. I think this will help the development of our society.

While we are the front runners or pioneers in the field of Socio-Informatics in the sense to develop Socio-Informatics, there is another point, which is a problem of handling information illiterates, which are people with inadequate access to information. I feel that this point may be a big issue also.

Previously, there was a topic of survey in a lecture of Prof. Hashimoto, and I also participate in surveys by the national government. Recently, because of the difficulty of gathering enumerators or the cost problem, online statistical surveys are strongly recommended. However, if they are used overly, they may exclude people with inadequate access to information. Once again, from the viewpoint of your expertise, please give us a short opinion about how to handle information illiterates in the near future.

Ohta: Information literacy has been discussed since we established our Graduate School of Information Systems. Currently, the android mobile is so popular and its infrastructure arranged in such a way that the reasons for popularity can be explored with respect to information literacy.

Information security is an important current challenge in social informatics. In this meeting, some presentations will discuss this problem and suggest that the development of a twitter communication system among peers in the topic helps a peer improve his/her information security.

As in the case of the risk information disclosure problem, in order to improve security, an intermediary person or system, like the guardian agent, has to be brought in to solve the problem.

Hashimoto: As I mentioned a while ago, the surveys we conduct are basic random sampling researches. It means that our target population is the ordinary people and the healthy people. The fact that we don't deal with foreigners, the disabled, people who are unable to use the internet, i.e. the information have-nots, constitutes a problem since including these very people in the survey targeted population is meaningful.

Many examples can be taken, but it is impor-

tant to think about the aforementioned information have-nots, the minority in a broader sense, in case of disasters, for instance. How should we transmit the social information to such people? What can be done to provide this category of people with social information? I think that examining such issues constitutes the raison d'être of socio-informatics or survey research. It is, however, hard to incorporate these questions in our survey researches when we take into account the cost they would necessitate. And this is one of my deep concerns for now.

Murakami: The most difficult question came out at the end.

I am also conducting researches on the barrier-free and universal design, but if you look at the situation after the Great East Japan Earthquake, information gaps have arisen clearly. In order to solve this problem, we also require attention and imagination of the side that gives the information, but people who can connect between the information gaps are needed more and more. For example, if you can translate information in Japanese into Italian and tweet it, or put it up at the shelters, you will have made a great contribution, which technology could not possibly cover.

On the other hand, many disabilities are very pleased with the advent of cell phones and smartphones in case of possible physical danger, a smart phone acts as the last life line. I think there are a lot of parts that can be resolved by advances in technology, but that it might be fairly difficult to balance the support through technical assistance and the people who use it.

Iwai: As mentioned now, some technological developments have the potential to cope with the problem. I agree on the view. Today, I have discussed various topics of anonymity. Now I would like to emphasize that, in some points of view, a technology to support anonymity may also be a way to help weak people, or that people with inadequate access to information can be helped by a specially designed supporting system in some day. Actually, technological development approaches deserve to be considered, I guess. Of course, they are not the only approaches and we should also examine other ways at the same time, though.

Hiromatsu: Prof. Tomiyama, please give us your opinion.

Tomiyama: It is very difficult for us to send urgent information to the information have-nots directly. To solve this problem, it is necessary for us to make a network including both the information haves and the information have-nots. In the network, the people with urgent information tell it to the information have-nots exactly. In order that this information sharing among them works well, many persons included in the network need to be familiar and friendly with each other in non-emergency situations.

Hiromatsu: Thank you very much.

Now, by summarizing the previous discussion, our first role may be to pioneer the new field such that researchers including us obviously find new facts, new models and new theories. On the other hand, as is in a common saying, it may be an important issue to educate good science writers especially in the field of

technology or good explainers to make people understand advanced technologies. Although it may be not study but education, I want to ask members of universities or other higher education institutes to consider this issue.

Well, the planned time has reached. Finally, please give reporters and the commentator handclaps. Thank you very much.

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Development of Public Relations Concepts, Theories and the Media Technology

Keywords:
Public relations, media, Internet, theory, history

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Abstract

Increasing number of public and private organizations around the world is utilizing online services to communicate with people in order to construct and maintain positive relationships. While the use of media and communication technologies to manage relationships has a century-old history, its connection to or influence on today's practice has not been discussed adequately. The purpose of this paper is to examine the historical relationship of public relations, mass media and communication technologies to place today's organization-public communication in historical context.

1. Introduction

1-1. Socio-informatics and PR

The development and diffusion of online communication services such as social network services (SNS) has drastically changed the way private and public organizations communicate with people. Growing number of organizations are utilizing Facebook, Twitter and many other online services to communicate directly and construct positive relationships with the public.

Studies in socio-informatics have looked into the use of communication technology by organizations and individuals but there are few historical discussions. Modern PR has been practiced since the early 20th century and has gone through major changes since, from early emphasis on propagandistic persuasion to a more recent emphasis on ethical communication (Cutlip & Center, 2006). Today, increasing number of PR studies focus on how different organizations communicate with the public via the Internet, how organizations plan their communication with the "public" in order to be more efficient.

While the two fields of study have come closer, the historical context of PR development has not received much attention. The purpose of this paper is to examine the historical relationship among PR, mass media and communication technologies in order to place today's organization-public communication in historical context.

1-2. Background

One of the most recent definitions of PR is "a strategic communication process that builds mutually beneficial relationships between organizations and their publics" (PRSA, 2012). Such "mutually beneficial relationships" can be pursued with the in-depth understanding of not only the relevant publics but also today's complex media environment. Since PR is closely linked to persuasive communication including propaganda, it is often defined in normative terms in order to distinguish between other ethically questionable practices.

In fact, throughout history, organizations have attempted to persuade the public or control public's image toward the organization for different purposes. Strategic messages from organizations to public can be found in the records of early civilizations in the form of images, texts, monuments, etc.

The spread of newspapers, radio, TV and eventually the Internet all influenced how organizations communicate with the public. Obviously political, social, economic and cultural factors played major roles in influencing the way PR has been practiced but the diversification of media and spread of the Internet has greatly empowered people around the world in terms of how they gather information, communicate and get organized, decreasing the relative influence of public and private organizations in controlling the flow of information.

This paper will examine the history of PR in relation to mass media and communication technologies, including the conceptual and theoretical changes that are taking place. In order to look at PR history from a long-term perspective, in this paper, PR is not defined in normative terms but instead as management of strategic communication or relationship, which does not always aim to build mutually benefi-

cial relationship (Hutton, 1999).

2. PR History, Media and Communication Technology

2-1. Origin of modern PR and mass media

One of the oldest examples of PR is a gazette called Acta Diurna issued by the Roman Republic more than 2,000 years ago. The Roman Emperor intended to gain popular support by providing messages and information to the citizens directly. Similar examples existed in one form or another in many places throughout history but the profession of PR only emerged in the 20th century, in the age of mass society and mass communication.

Earliest form of PR business is said to have emerged during the 19th century as press agents in the U.S., when newspapers were growing to become the first mass media. The political or economic impact of the press gradually became clear, giving rise to "press agents," who specialized in exposing clients to the media for free publicity. One of the most famous press agents was Phineas T. Barnum (1810-1891), known for his ability to attract newspapers and people's attention for circus events, often by exaggerating the facts. Barnum was successful despite occasional criticism from the media on his exaggerations.

The growth of newspaper business enabled organizations to seek political and economic opportunities in larger scales. However, one of the ways newspapers gained popular support was by criticizing the powerful organizations. Muckrackers, or early investigative reporters actively pursued companies for their problems. Most companies at the time preferred to provide only favorable information to promote and protect their businesses. Such lack of accountability and disclosure led to criticisms especially in case of disasters caused by inadequate security measures.

The idea of actively providing information to the press is often attributed to Ivy L. Lee (1877-1934), known for issuing the first press release to the journalists. Lee claimed that providing "prompt and accurate information" to the press, even in case of crisis, results in constructing positive relationships. Press releases and information disclosure gradually became popular among companies, creating a new relationship between them and the newspapers (Hiebert, 1966).

The first person to use "public relations counsel" as a word to describe the emerging profession was Edward L. Bernays (1891-1995). After serving in the Committee on Public Information (CPI) during the World War I, Bernays applied his wartime experience for business, placing focus on crowd psychology and psychoanalysis for effective persuasion. He emphasized the importance of understanding the public through science and communication, claiming that even propaganda could be used to promote social causes (Bernays, 1923).

Both Lee and Bernays led the development of early PR industry, placing importance in affecting the management decisions of the clients by providing public's point of view. Other than gathering information from the newspapers and conducting series of interviews, public opinion poll system became popular in the 20s and 30s to enable organizations to gain feedbacks. Opinion polls provided information on what people want and will accept, therefore provid-

ing clues for effective persuasion. Contrary to the common belief that newspapers and emerging radio were highly influential, Bernays believed that the public would only listen to what it wants. Such research-based approach was slow to spread as cost of data collection and analysis remained high until later in the century.

During the World War II, many countries were involved in propaganda, most famously the Nazi Germany's Ministry of Public Enlightenment. Countries struggled to not only provide messages to confuse the enemy but also to convince their own people to actively support the all-out war. Normative definitions of PR often attempt to differentiate between propaganda and PR but the wartime efforts undoubtedly contributed to various postwar communication industries, including the PR.

After the war, as the U.S. emerged as a superpower, it began introducing the idea and practice of PR to other countries as a part of democratization process. For countries like Germany and Japan, it was considered necessary for government agencies and businesses to set itself apart from propaganda and not only provide true and important information to the public but also to listen and reflect upon the feedback from the public. This U.S. influence is often said to have marked the beginning of PR practice, as one that is different from propaganda, in the two countries. Although the idea of two-way democratic communication was introduced to both countries, it was not easily understood and the actual practice took time to spread.

Due to the "success" of propaganda during the World War I and II, many PR practitioners considered their job as "an activity to influence the all-powerful media—through both day-to-day media relations activities and planned public information campaigns" (Grunig et al., 2006: 22). Growing influence of newspapers and radio (and soon the television) made media relations ever more critical in cases of promotion, crisis, etc. Media relations, or the practice of managing positive relationship with the media and providing information to be delivered to broader public, still remain as the critical aspect of PR practice.

By the 1950s, diversification of mass media and the increased understanding of their effects gave rise to the idea that PR, as a process, had to be managed and that interactive communication is also necessary for efficiency (Cutlip et al, 2006). Messages had to be delivered through specific media to reach targeted audience and feedbacks were necessary to monitor effectiveness of communication. Also, as research and practice made it clearer that mass communication effects are more cognitive than attitudinal or behavioral, strategic management of exposure and monitoring gained importance (McQuail, 2010).

Civil rights movements in the 1960s also prompted two-way communication, along with growing interest in marketing. In the U.S. as in many other places around the world, organizations began to actively or reactively listen to the voices of the public. Consumer and environmental movements created the need for PR department to perform crisis management functions as part of corporate social responsibility. Also, competitive business environment forced companies to differentiate their products or discover new consumer demand by listening to

their voices.

What Lee and Bernays proposed in the early 20th century slowly became realized with not only the changes in political and social environment but also the spread of new, less expensive technologies and research techniques used for greater understanding of the relevant public. The 60s was the time when today's normative definition of PR began to be practiced in different parts of the society but such a two-way communication remained relatively limited compared to other functions such as media relations.

2-2. PR research

The academic study of PR slowly began to appear in the 1970s, when such change in the mindset was taking place. In fact, the first academic journal of the field, *Public Relations Review*, was published in 1975 and "developed identifiable theory in only about last 25 years …… developing into a theoretically based area of applied communication" (Botan & Taylor, 2004: 645). One of the focuses of PR research was to clarify what types of communication strategies or campaigns were effective over another, where the efficiency of two-way communication was examined critically.

In their book *Managing Public Relations* published in 1984, James E. Grunig and Todd T. Hunt introduced four models to describe different types of tasks performed by PR practitioners. Two of the models dealt with two-way communication, one being "asymmetrical" and another being "symmetrical." Two-way asymmetrical model represented practice involving research-based communication where the primary goal is to influence specific target. Two-way symmetrical model, on the other hand, involves closer dialogue between both parties and their willingness to change in order to discover and reach a mutually beneficial goal.

The authors estimated that the latter model, which seems more ethical and preferable, consisted roughly 15% of practice in the U.S. around the time of publication. Taking in the public's point of view into management decisions has been mentioned by not only Lee and Bernays but also by other historical figures. However, according to the authors "practitioners only now are beginning to practice the model" (42).

The other two models are one-directional. Press agentry model (provides primarily beneficial, convenient information) and public information model (provides true information whether convenient or not) are more popular in actual practice. It is often simpler and more efficient to provide information in the form of advertisement or press release. Also, conducting opinion poll or market research in order to construct effective, persuasive communication strategy could be costly but less demanding than having management or strategic decision adjusted frequently (Cancel et al., 1997).

However, today, the idea of two-way asymmetrical and symmetrical models have become quite common, thanks to the Internet and various online social network services that connects users and organizations with much less cost, allowing organizations to gain feedbacks easily from growing number of users to reflect upon products, communication plans, goals, etc. Previously, the development of other communication networks such as postal and telephone networks have greatly enhanced

such trends, gradually strengthening the information communication environment that supports two-directional PR models.

Still, not all relevant publics use the Internet and "organizations might be using social networking sites for marketing purposes, or to offer web presence, but not to actually engage people 'socially' " (Kent, 2010: 649). Availability of advanced communication infrastructure itself does not guarantee that organizations will be involved in active, two-way communication.

While the new communication environment is changing the PR conditions for organizations, major changes are occurring in the public's side too.

3. Changing Concepts

3-1. Public

Until now, this paper has used the word "public" without defining it. In fact, the word has been widely used in many different ways. In public relations, the concept of "public" has been generally used in concrete and abstract ways. Concrete use of the word refers to specific stakeholders, where practitioners plan communication strategy in accordance to the nature of individual stakeholders in the form of investor relations, employee relations, community relations, media relations, etc. Messages are crafted and sent to specific targets for specific purposes.

Abstract use of the word often refers to society in general and to the socially responsible aspect of the practice. The word "public" is sometimes preferred to "stakeholders" to stress the very "public" nature of the profession (PRSA, 2012).

In contrast to the organization-centric view of the public in *The Public and Its Problems*, John Dewey defined public as a group of people that are affected by certain action or idea, with each issue or problem creating its own public (1927). Unlike Walter Lippmann and other thought leaders of the time, Dewey conceptualized public as having will of their own, who can act accordingly to deal with common issues.

When mass media were thought to have strong, direct effects on people, organization-centric view of the public had substantial authority. Today, with the Internet at the tip of peoples' hands delivering news and exchanging text, sound or video messages, Dewey's "public" appear, develop and dissolve dynamically like never before. Being flooded with information, a group of people with common interest for certain product or an organization can be formed instantaneously and remain long or dissolve soon, depending on how the issue is solved or dealt with.

On the other hand, PR scholars Botan and Soto (1998) defined public as "ongoing process of agreement upon an interpretation, and that during this process a public may well develop an interpretation that is more sophisticated, insightful, and socially linked than the understanding with which the practitioner/client started" (21). The concept seems more pertinent today than when it was proposed in the late 1990s, now that countless Web 2.0 services are available for people to share and develop their views and interpretations on just about any issue imaginable. Theories of active audience and cultural studies have indicated people's active interpretation of issues and events but its influence has become greater

with the advent of Internet to the extent that organizations' communication strategies are now expected to take such dynamism of "publics" into consideration. Although instances of public becoming active on certain issues may still be limited, the instances of people forming common interest and acting on it, in one way or another are increasing.

3-2. Relationships

One of the definitions for "relationships" in public relations is "the state which exists between an organization and its key publics, in which the actions of either can impact the economic, social, cultural or political well being of the other" (Ledingham & Bruning, 1998: 62). Practitioners have traditionally focused on the key publics in order to promote organizational interest or protect it from crisis.

However, Valentini, Kruckeberg and Starck (2012) claims that such organization-centric view of the relationship and the public is no longer viable in the age where "relationship cannot be managed by organizations, but can only be cultivated in such a way that publics perceive relationship with organizations to be relevant for their own purposes" (876), that increasing emphasis must be placed on the dynamism of publics and relationships in order for organizations in 21st century to succeed. It may be far fetching to claim that organizations have lost total control over the flow of information about themselves, yet it accurately describes how people began talking about organizations publicly and anonymously in different parts of the Internet, making it difficult for organizations to control the flow of information.

4. Theoretical development

4-1. Major shift in approach

According to Botan and Taylor (2004), "the most striking trend in public relations over the past 20 years……is its transition from a functional perspective to a cocreational one" (651). Functional perspective considers publics and communication as tools or means to achieve organizational goals, focusing on techniques and production of strategic messages. Here, advertising, marketing and media relations hold primary importance.

Cocreational approach, on the other hand, "sees publics as cocreators of meaning and communication as what makes it possible to agree to shared meanings, interpretations and goals" (652). Shift to cocreational approach indicates a shift from the emphasis on one-way persuasion to a more dialogical communication. Grunig's two-way symmetrical model, later developed into a normative "excellence theory," became a major cocreational theory that led to many subsequent researches. Excellence theory (1992) was developed as a result of international study involving a survey of 327 organizations. "The study showed that the value of public relations comes from the relationship that organizations develop and maintain with publics……communicators have greater value when they bring information into the organization than when they disseminate information out of the organization…… communicators can develop relationships more effectively when they communicate with publics symmetrically rather than asymmetrically" (Grunig et al., 2006: 55).

4-2. Overcoming the excellence theory

Despite its apparent virtues, excellence theory has been challenged from different perspectives including postmodernism, cultural theory and international studies (Gower, 2006). One such criticism points out that "it fails to capture the complexity and multiplicity of the public relations environment" (Cancel et al., 1997: 33). The theory assumes that through certain dialogue, organizations and publics can reach certain agreement, which in reality is not always true. The two sides will most likely have different understanding on the subject or even conflicting interest and mutually beneficial goal between two groups may be harmful to a third party.

One of the theories succeeding the excellence theory is contingency theory of accommodation, which attempts to specify the multitude of factors (as many as 87) that can affect the stance of organization in a given relationship at a given time, thereby more accurately analyzing the conditions necessary for strategic planning of communication. Unlike what the excellence theory implies, "strategic communication may not always be a 'win-win' situation; neither must it be a situation where one party wins and the other loses. It is a dynamic process of dialogue and negotiation" (Pang et al., 2010: 28).

4-3. Modernism, postmodernism and beyond

One way to describe the relationship between the excellence theory and the contingency theory is modernism and postmodernism. Although both were derived from extensive research, the former is a normative theory with strong democratic implications. However, as Brown (2006) critically interprets it, "symmetry theory's equation of excellence and ethics reflects the evolutionism and progressivism that were popular in the latter part of the nineteenth century" (207).

Contingency theory, on the other hand, relativize the importance of symmetrical communication that provided norm to the profession that has been attempting to differentiate itself with propaganda, or unethical mode of communication since the 1920s. The theory indicates that listening and accommodating to the public does not always bring efficient or ethical result, that there are many factors that can drastically alter the course of relationship. In that sense, contingency theory is a postmodern theory of public relations practice.

An English philosopher Alan Kirby proposed "digimodernism" (2009) as a theory succeeding postmodernism since the mid 1990s. It is characterized by the active, online participation of individuals in social interactions and social construction of reality. Typically, in a digimodern society, cultural products can only exist with the involvement of individuals. Information and images of products or organizations involve some level of public involvement as they provide comments online or utilize contents provided by the organization to create another.

Valentini, Kruckeberg and Starck (2012) states that digimodern environment requires public relations to shift the focus even more to the "community," or a situation and occasion where organizations can communicate with even resenting publics through the development of trust. If controlling one's image today is becoming complex than ever, one conclusion is to get involved in the cocreational process even more, by communicating with dynamic

publics to keep track of changing conditions. This is a major challenge for today's organizations around the world.

5. Discussion

This paper briefly examined the historical relationship of PR, mass media and communication technology, describing how the theoretical ideals of two-way communication in PR has become realistic while actual practice has faced increasingly complex media communication environment. Despite the importance and value of two-way communication and active dialogue between different publics in the age of Internet, tendency of organization to focus on one-way communication still remains strong.

Considering the fact that earliest practitioners have claimed the importance of two-way communication a century ago implies that technological limitations weren't the only reasons behind the focus on one-directional organization-public communication. Further research into country or industry-specific history is necessary to provide greater insight into today's communication practice.

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