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Abstract	In this paper, the research activities of the "Network Technology as Context of Society and as Methodology of Social Science" research group, which consists of three teams, the "Construction and Management of Information Platforms" Team, "Language Policy as a 'Basis of Human Security'" Team, and "Web Social Research Methodology Development: Socio-Semantics" Team, are illustrated. The key concept that the three teams have in common is "language space." "Language space" is a place where messages are exchanged, and also a place where networks are created by language. With regard to the transmission of information, we mean not only face-to-face communication, but also communication that is not face-to-face, where the sender and the receiver are located far apart from each other. The latter has been made possible by the development of IT technology. Based on the idea that "networks involving people, language, and information technology contribute to the building of human security," our group addresses the policy management studies theme of how context should be formed to cultivate practical knowledge.
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# Network Technology as Context of Society and as Methodology of Social Science

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## Network Technology as Context of Society and as Methodology of Social Science

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### **Abstract**

In this paper, the research activities of the “Network Technology as Context of Society and as Methodology of Social Science” research group, which consists of three teams, the “Construction and Management of Information Platforms” Team, “Language Policy as a ‘Basis of Human Security’” Team, and “Web Social Research Methodology Development: Socio-Semantics” Team, are illustrated. The key concept that the three teams have in common is “language space.” “Language space” is a place where messages are exchanged, and also a place where networks are created by language. With regard to the transmission of information, we mean not only face-to-face communication, but also communication that is not face-to-face, where the sender and the receiver are located far apart from each other. The latter has been made possible by the development of IT technology. Based on the idea that “networks involving people, language, and information technology contribute to the building of human security,” our group addresses the policy management studies theme of how context should be formed to cultivate practical knowledge.

Key words: Network technology, context, language space, information platforms, language policy, human security, socio-semantics

## 1. Introduction

The “Network Technology as Context of Society and as Methodology of Social Science” research group consists of three teams: the “Construction and Management of Information Platforms” Team, “Language Policy as a ‘Basis of Human Security’” Team, and “Web Social Research Methodology Development: Socio-semantics” Team. Based on the idea that “networks involving people, language, and information technology contribute to the building of human security,” our group addresses the policy management studies theme of how a context should be formed to cultivate practical knowledge.

The “Construction and Management of Information Platforms” Team works to create communication platforms needed to solve the various issues that emerge in our modern society. However powerful today’s information technologies may be, they cannot solve today’s complex issues such as food safety by themselves. To solve problems, it is essential to have the initiative of people involved in the field and mutual cooperation among participants. To attain these, research must focus on the creation of community of language and the ways in which trusting relationships are built among the people concerned. Designing incentives to participate in such circles of cooperation is also a major theme the team undertakes.

Over the last 20 or so years, the number of foreigners living in Japanese society has ballooned, and coexistence with these people from other countries has become a major issue. Through practice at school education and social education sites, the “Language Policy as a ‘Basis of Human Security’” Team conducts research on how mutual “learning” that overcomes the cultural and ethnic divisions between foreign and Japanese residents should be carried out. The aim of the team is to effectuate an “inner internationalization,” and at the same time, it is working also to clarify the mechanisms to make this realization possible.

The “Web-based Social Research Methodology Development: Socio-semantics” Team defines the aim of “socio-semantics” as “studying the semantic worlds of people in social contexts,” and to that end, it develops methods and technology for revealing the semantic worlds of people through the use of a vast amount of sense-expressing text data collected from the Internet and other digital networks. Currently, the team is at the practical validation phase, where a text analysis system is connected, to a network research system and conducting analysis of comments from marketing surveys and public comments regarding policy issues.

As described above, the focus and techniques being dealt with differ, but there is a common keyword in these three teams. It is “language space,” which is also the fundamental concept underlying our groups. In the following discussion, Chapter 2 discusses what this

“language space” is. Then, Chapter 3 will deal with how our team is able to contribute to the development of policy management studies and to resolve problems of human security. Chapters 4, 5 and 6 will introduce the aims and research activities of the three teams in our group.

## 2. Language Space

Language space is a place where a number of human beings exchange messages with each other through the medium of language. In view of the topics handled by our group, it might be fair also to say that it is a place where connections between human beings are made via language. Three elements may be cited in the formation of language space: (1) human beings as sender and receiver (actors); (2) the message (information and content) that is exchanged between the human beings (actors); and (3) the language that completes the message (information and content) and is, at the same time, also the media for conveying it.

(1)The actors of the action creating the message, then conveying and receiving it by means of language are, obviously, people. When dealing with issues involving language, it is not possible to consider such issues as detached from the people who are involved in forming, transmitting and receiving the meaning as well as sharing it. As the users of language, people in many cases manifest themselves as senders and receivers (To be sure, there are also monologues, but the principal focus of our group’s research is on “networks,” so monologues have been excluded from the examination of this paper.) The message created by the sender is conveyed to the receiver through sound or writing, and the receiver takes that meaning and understands it. However, communication of information via language is not something which is merely achievable if conveyed by the sender to the receiver via sound waves. When producing a message concerning the same content or proposition (for instance, approval or disapproval of a certain proposal), the message will vary by the person and different messages may be produced depending also upon the circumstances and location, even if it is, for example, created in the same language. Also, even if the message has been positively communicated and understood, it will vary in interpretations depending on the person and situation. That is the enjoyment and difficulty of human communication, as well as a travail when relationships are being created and trust gained. In that sense, it is first of all the person who creates “networks” as the context and methodology.

(2)The message (information and content) forms an embodiment of the sender’s utterance and intention, which the receiver understands and interprets. There are a variety of viewpoints as to how language is involved in the formation, understanding and interpretation of the message. As with motions, gestures and clothing, messages are also

formed and received using symbols other than language, and given that the semiotic for a message being represented in symbols through a process of encoding, and conveyed to the receiver through decoding should first be universally recognized as language, then messages and language can be considered as inseparable. In that sense, language when producing a message (information and content) plays an important role.

Simultaneously with (3), language has another important role which is to transmit the message. In other words, the language that plays an important role in the process for producing and conveying the message is a product as well as a process.

These three elements interrelate to complete a language space. For our group which has made “Network Technology as Context of Society and as Methodology of Social Science” the focus of our research, it is pointless if there is no “network” in the language space that has so resulted. In that sense, the social nature of language takes precedence. That is the reason why we have directed our attention to look at “context.”

From a long time ago, it has been said that language is a social affair. For example, Whitney (1827-94) stated:

Speech is not a personal possession but a social: it belongs, not to the individual, but to the member of society. No item of existing language is the work of an individual; for what we may severally choose to say is not language until it be accepted and employed by our fellows. The whole development of speech, though initiated by the acts of individuals, is wrought out by the community<sup>1</sup>.

Also, Herbert Clark plainly elucidated a viewpoint regards the first two of the six major propositions listed in his book “Using Language” as social matters.

*Proposition I. Language fundamentally is used for social purposes.*

*Proposition II. Language use is a species of joint action<sup>2</sup>.*

Clark defines the term “joint action” as used here in the following manner.

A joint action is one that is carried out by an ensemble of people acting in coordination with each other<sup>3</sup>.

If language is used, that is to say an approach and effect result, such cannot be

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1) Whitney (1867:404) as quoted in Shuy (2003).

2) Clark (1996: 23)

3) Clark (1996: 3)

considered detached from the actions of people as the users of language. Language use is a shared behavior, and multiple people (actors) involved in language use further the act as they coordinate with each other as co-actors. Exploring the methodology of “networks” created in that way is the common challenge of our group.

In the last part of this chapter, we would like to give consideration to the meaning of “space” as well. The “space” referred to in the expression “language space” is a place where messages are exchanged, and also a place where networks are created via language. With regard to the transmission of messages, particularly the transmission of information using spoken language, having a face-to-face meeting had been regarded as a fundamental element for a long time, but the development of IT technology has made it possible to have communication between a sender and receiver, who are located far apart in a situation which is not face-to-face. Circumstances that do not have a common time and space may also become a context, and the methodologies for creating such language spaces have also been around for some time. Moreover, such technology also is advancing at a rapid pace. Development of IT technology has changed the connotation of “space.” The fourth proposition by Clark (1996) given above is:

*Proposition IV. The basic setting for language use is face-to-face conversation<sup>4</sup>.*

Admittedly as Clark (1996) says, communication in face-to-face circumstances may be fundamental, but if we consider the development of IT technology today, IT-based communication also occupies such a large position that it can no longer be asserted definitely that the basic setting is a face-to-face situation.

### **3. Policy Management Studies and Human Security**

In the formation of a consensus or policy, it is important to grasp and share the opinions and ideas of the actors and participants involved in the process. This is evident given the necessity of, for instance, understanding precisely what the problem is that a participant in the field is facing, verbalizing it, and conveying it to the division or person in charge of making policy. The interpretation of the policy-maker who received the message may vary from the intention of the participant in the field, and any resulting obfuscation in meaning among the participant, intermediate supporters and policy-maker must be held to a minimum. Also, there may be cases where the participants are individuals for whom the existence or nonexistence of a trusting relationship has a significant effect, or they

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4) Clark (1996: 23)

may also be small groups of a few people as well as large groups of crowds of people in which individual voices cannot be heard. In that sense as for the policy management studies approach of “problem discovery & analysis → proposal of a scheme → implementation & evaluation → dissemination & transfer,” the research of our group contributes to the development and establishment of policy management studies in that it maintains and communicates the formed meaning temporally, then develops and researches networks as well as technologies to broadly disseminate the meaning and transfer it spatially.

Moreover, the sharing of such meaning and information is a fundamental assumption for considering human security. That proposition is clear if we consider conversely that a situation where information is not shared, is insufficient or is biased to one side becomes an impediment when viewed in terms of human security. In that sense, just the act itself of having the same language in common and precisely exchanging the meaning is conducive to the building of human security. Here, what is referred to as sharing the “same language” means not only sharing the same type of language such as Japanese or English, but even among users of the same language, there must be conformance of meaning contained in the message. Of course, rather than one, there should be various languages as channels. Such a situation has not only a utilitarian connotation in which meanings held by a number of people can be conveyed to a slightly broader extent by securing multiple channels, but also the implication of ensuring diversity of language in order to make diverse thought possible for many people. In that sense, our research has quite a number of facets that contribute to the building of human security as well.

Below are discussions summarizing research of the three teams belonging to the “Network Technology as Context of Society and as Methodology of Social Science” Group.

#### **4. Construction and Management of Information Platforms**

The “Construction and Management of Information Platforms” Team researches the creation of collaborative platforms among members participating in solving a problem. Such infrastructure for collaboration is necessary for the resolution of human security issues through the initiative of parties in the field. What lies in the background is a basic understanding that a lack of information-sharing and information disclosure becomes a threat to human security. For instance, a traceability system or information disclosure system to distribute food safely or coordinate a framework for integrating regional healthcare cannot be realized just by having high speed network. The sharing of common language among the people involved and methods for building trusting relationships must also be researched. Sharing information makes it possible to mobilize resources towards



such goals as the formation of an affluent industry in harmony with the environment, a safe society with a high level of transparency, a society where individual identity exists through participation, as well a society where the value of knowledge is alive. However, in order to realize these, it is essential that social initiatives be properly designed and that systems and business models as well as technology also be designed.

Here, platforms are defined as tools, systems or services that facilitate cooperative mutual interaction (cooperation) among third parties. For example, a bank money transfer service is a platform which by its existence makes transactions among third parties easier to conduct, and soccer rules might also be called a global platform which forms an impetus for interaction on a global level. Operating systems for computers which are commonly used throughout the world are also typical platforms. There are also platforms on a more micro-level, such that a list of the names of elementary school classmates might also be a platform that activates exchange among friends by its very existence.

In the application of the platform concept to the realization of human security, it is understood that a common social base is required as formed by (1) semantics, (2) syntax, (3) context, and (4) norms. This is nothing but an expression of the position that recognizes there must be a space for “language” in the broad sense to solve problems. Conversely, by forming and sharing semantics, syntax, context and norms, a platform is formed, and it is possible to define the often ambiguous notion of community as a group shares these elements of platform.

A specific example of research concerning platforms is the media research focusing on cooperation among medical institutions in a given region, which has been advanced primarily by Miki Akiyama. In Japan where the society is aging and the importance of chronic phase medical treatment for illness has increased, it has become increasingly important to have a mechanism in which many medical institutions (in many cases, a large hospital and community clinics) cooperate and provide care for one patient. What forms the core of such a mechanism is a common online platform for electronic patient case records. However, the current situation is one in which a variety of electronic patient case records exist that are not connected (there is no common language). Moreover, even if they were linked technologically, a relationship of trust may not exist among the medical institutions themselves. Clinics tend to think twice about referring patients, saying that a patient will not return once he or she has been referred to a large hospital. Also, on the other side, large hospitals are not able to trust patient case records and other documents forwarded by clinics just as they have been recorded, so the physicians at large hospitals go about repeating the same tests, which also imposes an economic and physical burden on the patient. According

to Akiyama's doctoral thesis<sup>5)</sup>, at sites where electronic patient case record cooperation is effectively utilized, there is as much emphasis on relationship building among doctors and co-medial personnel (healthcare workers other than physicians, such as nurses and pharmacists). This allows all involved to obtain more information and make for precise judgments. Now that we have these results, we would like to surmount the remaining issues and broaden its application.

## 5. Language Policy as a 'Basis of Human Security'

The number of people of foreign nationality residing in Japan has increased rapidly since the Immigration Control and Refugee-Recognition Law was revised in 1990, and numbered approximately 2.08 million at the end of 2006, more than 1.6% of the total population. Our research team tackles various issues involving language in Japanese society, which is said to have become multi-lingual and multi-cultural due to the existence of an increase in foreign national residents. From the standpoint that proposing policies is conducive to human security, we address issues concerning coexistence with foreign national residents in communities. Multilingual-multiculturalism and multicultural coexistence have, in recent years, often become the subject of much internal and external debate. In Japan as well, the Ministry of Internal Affairs and Communications launched the "Study Group for the Promotion of Multicultural Coexistence" in June 2005. The Study Group's report was compiled in March of the following year, and the "Multicultural Coexistence Promotion Program" was announced. However, a society does not diversify simply because the number of foreign national residents has increased. Unless the Japanese people on the receiving side change the perceptions they have held up to now and foster tolerance and flexibility, a true multilingual and multicultural society that accepts the multi-polarization of values cannot be created. That is also the reason why our team has focused particularly on the formation of people-based networks among the Japanese people, which are the receiving society, and proceeded with research and practical activities together with off-campus research institutions as well as elementary schools, international exchange associations and volunteer groups. Also, this stance seems to be suitable and in accord with the approach of policy management studies in the sense that, first, these groups were not the immediate leaders in the conventional policy-making process, but they will be expected to assume certain roles in deciding policy in the future; second, the specific issues of a community are the starting point, and at the same time, the place for problem resolution; and third, such problem areas have not been the target of public policy in the past. This is also the reason that our research

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5) Akiyama (2006).

group has expanded its activities to emphasize field work.

For the activities concerning multicultural coexistence in communities mainly at elementary schools in Fujisawa City, the approach to practical knowledge we have developed is being made known through experimental classes. It is a practical class project conducted during the class time for general studies over the course of six months in a regular classroom at a public elementary school where there are many children with connections to foreign countries. The objectives are to stimulate awareness of “differences” among Japanese children through contact with different cultures (Peru, South America) and languages (Spanish) which are close at hand to the children, raise the self-esteem of foreign children, and facilitate mutual understanding among the Japanese and foreign children. Through the class practices, we learned that many children gained confidence, acquired new perspectives about “differences,” and benefited from opportunities to reconsider their relationships with others. Not only were there advances in the learning between the different cultures of the Japanese children and foreign children, but progress was also seen in the children’s overall learning. This research has allowed for the realization of a new kind of education, not an adaptive one, which is an interactive learning combining the majority and minorities and a constructionalist learning. Currently, ten elementary school teachers are working on this project, and its practical knowledge is being disseminated.

This is quintessential research in policy management studies where diverse actors, such as school faculty, university students and community residents, are involved in the integration of a process where issues are discovered that had hardly been contemplated in school education, policies are devised through the actors own initiative and put into practice. These are then evaluated and popularized. There is close coordination between research and practice in the field of school education<sup>6)</sup>.

Also, community Japanese-language instruction through Japanese Study Resource Centers dispersed among seven locations in Nagano Prefecture are not just places to study Japanese, but are becoming locations for exchange surmounting the wall between Japanese and foreigners. Similar trends were seen also in the Fujisawa City Chogo Children’s Classes, and the Parent and Child Japanese Language Classes in the Yokohama, Fujisawa and Yamato districts. Also, the implementation of distance learning using multimedia technology connecting several universities in Asian countries has been able to produce results using IT networks, where not much progress had been seen in the past.

It is precisely because the formation of people, language and IT-based networks has the potential to contribute to the construction of a society where many cultures coexist that addressing “Language Policy as a ‘Basis of Human Security,’” which is the task of our team,

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6) See Ishiji (2005).

is a significant endeavor.

## **6. Web-based Social Research Methodology Development: Socio-semantics**

“Web-based Social Research Methodology Development: Socio-semantics” is a research project that has grown out of general framework of “socio-semantics.” Our slogan is: “Read and comprehend people’s thoughts through the Internet.” Socio-semantics is, in short, a new academic field undertaking empirical research concerning “the semantic worlds of people” in order to understand how social phenomena are related to the semantic world inside people’s minds.

The motivation behind Socio-semantics comes from our belief that social phenomena are a composition and collection of people’s actions. In social research, the perspective of meaning is thus indispensable. This motivates us to conduct research into people’s semantic world.

The evolution of information technology and the internet community has made it possible to undertake full scale research into people’s semantic worlds. A large amount of text data including text released on individual websites and blogs, open response documents used for internet research, etc. Can be acquired which are, in turn, to read and comprehend “people’s semantic worlds,” If necessary, the subject of the research can be expanded to include an unspecified larger number of people. Thus, we consider that the biggest obstacle hindering the full-scale development of research concerning people’s semantic worlds has disappeared together with the evolution of information technology.

However, this is just the necessary condition for our socio-semantics research. Breakthroughs were still needed with regard to two problems. One was the necessity of having a theoretical paradigm to handle what words mean to people. To solve this problem” was developed as a new paradigm of semantics.

Another problem was concerned with a methodology and technology for getting to the semantic content of a vast amount of text data and analyzing it. However, computers are not able to construct meaning out of a text. Interpretation is the job of the analyst, and computer analysis supports that work. “Cooperation of human interpretation and computer analysis” is the basic idea behind the “text semantic space analysis method,” and the design idea underlying TextImi, a text semantic interpretation support system to implement that method. Our text analysis is divided broadly into cultural semantic analysis (a method of script analysis) and content analysis that focuses on manifesting conditions (also known as content analysis). This new methodology of social research, which was created and developed at SFC, is believed to have a wide variety of actual applications including

practical application for analyzing public comments and public opinion tracking polls for public policy, practical application for marketing research for corporate market strategies, and practical application for employee attitude surveys as well as other uses. In fact, we are already testing these positive experimental analyses.

In 1996, the “Fukaya & Tanaka’s theory of sense-making” was created, the theoretical paradigm for the focal point of language communication<sup>7)</sup>. Then, beginning around 2000 in the socio-semantics studio (academic offices of Fukuya and Tanaka), the search began on research concerning the “text semantic space analysis method” invoking this paradigm. By 2003, research and development were proceeding at full stride, with the adoption of Web Social Research Methodology Development: Socio-semantics as an SFC and Policy COE Research Project. In 2004, it was expanded into system development that has the potential to serve as a practical application and about which inquiries have been received regarding its development for business at the SFC: Open Research Forum. It has produced a variety of results such as internal and external academic paper presentations, business uses and the beginning of the “SFC Dispatch: Web Social Investigative Reporting Laboratory,” as well as other results.

The aim of socio-semantics is experimental research ranging from the semi-micro to macro aspects of the “semantic worlds of people” as data from a large amount of text. The aforementioned “SFC Dispatch: Web Social Investigative Reporting Laboratory” has intended to perpetuate these results as unique methodologies of SFC and policy management studies. Expanding the creation of socio-semantics will still continue in the future.

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7) See Fukaya & Tanaka (1996) and Tanaka & Fukuya (1998).

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