

Social Semiotic Techniques of Sense Making using Activity Theory

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Abstract

Interpretive research of information systems has identified several relevant theories and produced many case studies, but there is no evidence that the progress has contributed to IS practitioners. It is partly because it has not provided them with techniques that they can use to make sense of their own social realities. We developed a technique on the basis of social semiotics by using the ideas of activity theory as a resource of development. It is a diagrammatic technique, part or all of which IS practitioners can use in the process of information systems development.

Keywords: information systems, sense making, techniques, social semiotics, activity theory

1. Introduction

More than ten years have passed since interpretive research appeared in information systems (IS) research. There is a widespread acceptance of interpretivism as an important research approach among IS researchers, while there is no evidence that IS practitioners use its achievements.

IS practitioners have some sort of recognition of social reality, but they do not have concrete techniques that facilitate such thinking. This is one of the reasons why there is no shift of recognition and associated behaviors in the practitioners from natural reality to social one. The absence of such techniques is the source of our research interest.

We developed a technique with which they can make sense of their social realities. We chose the third approach that is neither a case study nor a theory. The previous approaches so far facilitate readers to learn from other people, while our third approach is aimed at one for IS practitioners to learn from their own cases.

Here we consider that such a technique is basically of diagrams. Diagrams are appropriate devices where meanings emerge from multiple elements and their associations because diagrams reduce human cognitive load and facilitate holistic thinking (Larkin and Simon, 1987). Therefore, what we develop is a diagrammatic technique that IS practitioners can use to think of their social reality through the process of drawing.

There are several methodologies that researchers can use: actor network theory, structuration theory, ethnography, activity theory, etc. However, all of them are not as much operationalized as IS practitioners can readily use. For example, Walsham (1996) says structuration theory offers little in the way of methodological guidelines.

In this paper we will present a technique of sense making for IS practitioners that we developed on the basis of social semiotics by using the ideas and diagrams of activity theory as a resource. It is not our aim of research to fully operationalize activity theory. It is known

that operationalizing social theory to develop organizational analysis runs risk in abstracting and limiting the theory (Westrup, 1996).

2. Research Approach

Semiotics is an important theoretical foundation for IS research. We adopted social semiotic as a research approach among various semiotic approaches to study IS and the contexts.

According to Lemke (1990, p.190), an action that makes a socially recognizable meaning in a community is semiotic practice. We need to look at these meaning-making practices in two ways. First, they are actions that make sense in the community. Second, they include the actions by which we “make sense” of other actions (and, by analogy, make sense also of events and things). The first type of actions comprises the social reality. The second type of actions is the double hermeneutic one usually required to sociologists who have as a field of study phenomena that are already constituted as meaningful (Giddens, 1984. p.284).

General Semiotics tends to abstract signs from the contexts of use. Social Semiotics takes the meaning-making practices, “semiosis,” (Thibault, 1991, p.16) to be more fundamental than the system of meaning-relations among signs. Social semiotics includes formal semiotics and goes on to ask how people use signs to construct the life of a community.

Social semiotics analyzes the kinds of contexts in which we place things, and the kinds of relationships we construct between them and these contexts. Social semiotics identifies and names three different sorts of contexts: syntagmatic, paradigmatic and indexical. The wholes in which any action (or thing, event, word) is placed as a part are its syntagmatic contexts.

We can learn from social semiotics several ideas for building a technique. The fundamental assumption in social semiotics is that the meaning of a sign is not contained within it but arises in its interpretation (Chandler, 2001, p.35).

Meaning making can begin from the interpretation of a few elements, a mini genre. “Large, complex genres can be analyzed as being composed of smaller, simpler ones. One can think of mini-genres that are used to fill the functional elements of major genres. Typically they only have two or three functional elements of their own. The functional elements of a particular genre are specific to that one genre.” (Lemke, 1990, pp.198-201) Therefore, meaning arises in the interpretation of a set of two or three elements and then goes on a larger set of elements. Here we understand we need to provide mini genres each of which has a few elements and also need to provide genres each of which contains some mini genres as a functional element.

Semiosis is an endless process of meaning making. As social semiotics shows, a genre can be interrupted and resumed later; it does not need to be enacted continuously from start to finish. This shows the need that people can start or stop his or her interpretation process at any point.

Social semiotics shows that every action or event is made meaningful by placing it in some larger context. This is the process of interpretation from the viewpoint of syntagmatic contexts. It implies that every interpretation is always open to another larger interpretation. This shows the need that people can practice the gradual process of interpretation from a small to large set.

The concept of paradigmatic contexts shows that people make sense of something differently

by replacing the contents in an element of a genre. This means that we do not necessarily need many genres but we do replace contents in the same genre for meaning making.

Social semiotics takes into account social contexts, i.e., indexical contexts. The meaning of an action does depend on who performs the action, who speaks the words or makes the gesture. This shows that we have to introduce a particular subject, or stakeholder, or player in considering interpretation.

3. Activity Theory as a Resource

The aim of our research is to develop a technique with which IS practitioners can make sense of their social reality. There are a few social theories for this purpose including ethnography, activity theory, actor network theory, and structuration theory. Researchers are expected to use them directly as a sensitizing device to make sense of the social reality (Giddens, 1984, p.326). However it is difficult for IS practitioners to use them directly (Westrup, 1996).

To our knowledge it is the first one of its kind that a technique is developed on the basis of social semiotics for making sense. Therefore, every social theory is possible to be employed for the development. Among them activity theory has diagrammatic expressions and others do not on their own. However, activity theory is not operationalized (Kaptelini, 1996). Therefore we will employ activity theory as a resource of development.

A basic form of activity theory by Vygotsky (1978) explains the relation between a subject and an object mediated by an artifact. Engeström (1999a, 1999b) and others cristalized the framework of activity as a logical interaction that includes social contexts of a community, social and cultural rules and the division of labor because the basic form created by Vygotsky is too simplistic to fulfill the needs for consideration of the systemic relations between an individual and his environment in an activity. They expanded its original activity theory to the current one in which a subject and the community are mediated by rules and in which an object and the community are mediated by the division of labor.

It is possible that activity theory helps us understand the social reality of IS implementation in the following points:

- a. To have interactionist view
- b. To integrate collective knowing and individual action
- c. To see the development of human
- d. To capture the specificity of a place from the socio-historical viewpoint
- e. To capture the dynamism in terms of practical consciousness and discursive consciousness.

For example, the idea of interactionist view (a) is that an artifact mediates a human and an object. It is at the level of an individual action. This idea shows the dialectical relation that not only a human creates an artifact but also his action or thinking is controlled by it, thereby this idea transcends the dualism of subject and object. It means that we can be free from technological determinism and volunteerism.

By clearly articulating a relation between an activity and an action Leont'ev enhanced activity theory that integrates collective knowing and individual action (b).

Here there is a possibility for activity theory that we can apply it to IS practices as our research field. It is considered that the full consideration of context we want to capture is made possible because activity theory makes us treat IS and IS development rules as an

artifact and helps us take into account the community where IS development and use are made.

With the use of Engeström's human activity structure as a resource of diagrammatic expressions, it is thought that we can grasp IS practices as a context as well as IS as an artifact. Engeström (1999b) says there are needs for creating and testing models that explicate an activity diagrammatically in order to make full use of the concepts of activity theory. This needs lead to our research interest that we need to develop diagrammatic a technique for sense making.

4. Applying Social Semiotics to Activity Theory

It is ready to apply social semiotics to activity theory to develop a technique of sense making. We developed a technique of sense making in two types of composition, each unit of thematic structure and a principle of movement.

According to what we learnt from social semiotics we can make a principle of movement as follows:

- The concept of activity theory is decomposed into a hierarchy of diagrams (genres) each of which has two or three thematic elements.
- People practice the process of interpretation (semiosis) gradually along the hierarchy of diagrams in a syntagmatic sense.
- People can move from a diagram to another by step by step even if they are interrupted.
- Each thematic element has one or more specific contents in a paradigmatic or indexical sense.

The synoptic (synchronic) perspective is discussed here. The dynamic (process or diachronic) perspective is provided by other approaches such as a framework of dialectical structuration (Kosaka, 2003). The followings are concerned with building the units of thematic structure. The first few units are discussed in a little detail and the rest in brief.

4.1 Contextualization: artifact-object

In people's thinking there is usually only an artifact such as an IS in the first place. It is often seen that systems analysts take into account only information flows within computerized IS. With this thinking they cannot make sense of the IS. Firstly we have to relate an artifact to an object that it is used for. Checkland (1993, pp.208-210) points out that it is possible to conceptualize the serving systems only if we first conceptualize the systems served.

Thus, the first syntagmatic addition in sense making is object (fig.1). There is a relation between an artifact and an object. Here the question in sense making is: what the artifact is used for. For example, inventory control IS used for automobiles is paradigmatically different from that used for fresh foods. Although the functions involved in those systems are similar, the meanings in practice are very different. Considering an artifact with its object allows for understanding the purpose of the artifact as well as its functions.

4.2 Contextualization: a small triangle

The second syntagmatic addition is subject as a user (fig.1). Here the question is: who uses the artifact to work on the object and why he or she uses it in an indexical sense. Even with the same artifact each user may have a different understanding, because IS is a sort of inscription imposed by a particular party of a specific interest. This addition facilitates de-functional thinking in IS practitioners. That is the understanding of a "purposeful" action

that is specific to a particular player in contrast to the understanding of a “purposive” system whose meaning is neutral (Checkland, 1993, p.119).

Looking at each subject will also bring a new picture that different players use the same artifact to work on different objects. For example, each subordinate may use SFA software to record his negotiation with customers for his own benefit, while managers may use the SFA to monitor their subordinates in the viewpoint of panopticon. This is the paradigmatic context analysis. Thus, considering a subject with an artifact and an object allows for a sort of early stakeholders analysis. The figure of the three elements is called small triangle.

4.3 Contextualization: outcome

The third addition is outcome. The question is: for what he is working on the object. Without taking a final outcome into account, we do not make sense of the current action. For example, we cannot understand the action of a beater solely by observing his action. We can start making sense of his action only in relation to the final outcome, in this case, that is, battue.

4.4 Contextualization: in a community

The next addition is community in which the subject works. The question is: for what purpose he or she is working on the object in what community. Looking at the community where the subject is working discloses further what purpose he is working for. It is important to identify the community because it is rare to work solely in this age.

Artifact is a carrier of historically accumulated knowledge in a community. Use of a specific artifact depends on the history of a particular community. Looking at the community also reveal how the artifact has been used. Thus, considering a subject with the community allows for the investigation of why and how he works with the artifact. Furthermore, it is general that there are more than one community in a society or a company. Each has a different history and purpose in a paradigmatic sense.

4.5 Contextualization: division of labor

The next addition is division of labor. The question is: what specific role he or she plays in the community, e.g., the role of a beater in a collaborative hunting, and what roles other people play. Looking at division of labor leads to considering how he or she participates in the community with the artifact.

4.6 Contextualization: rules working in the community

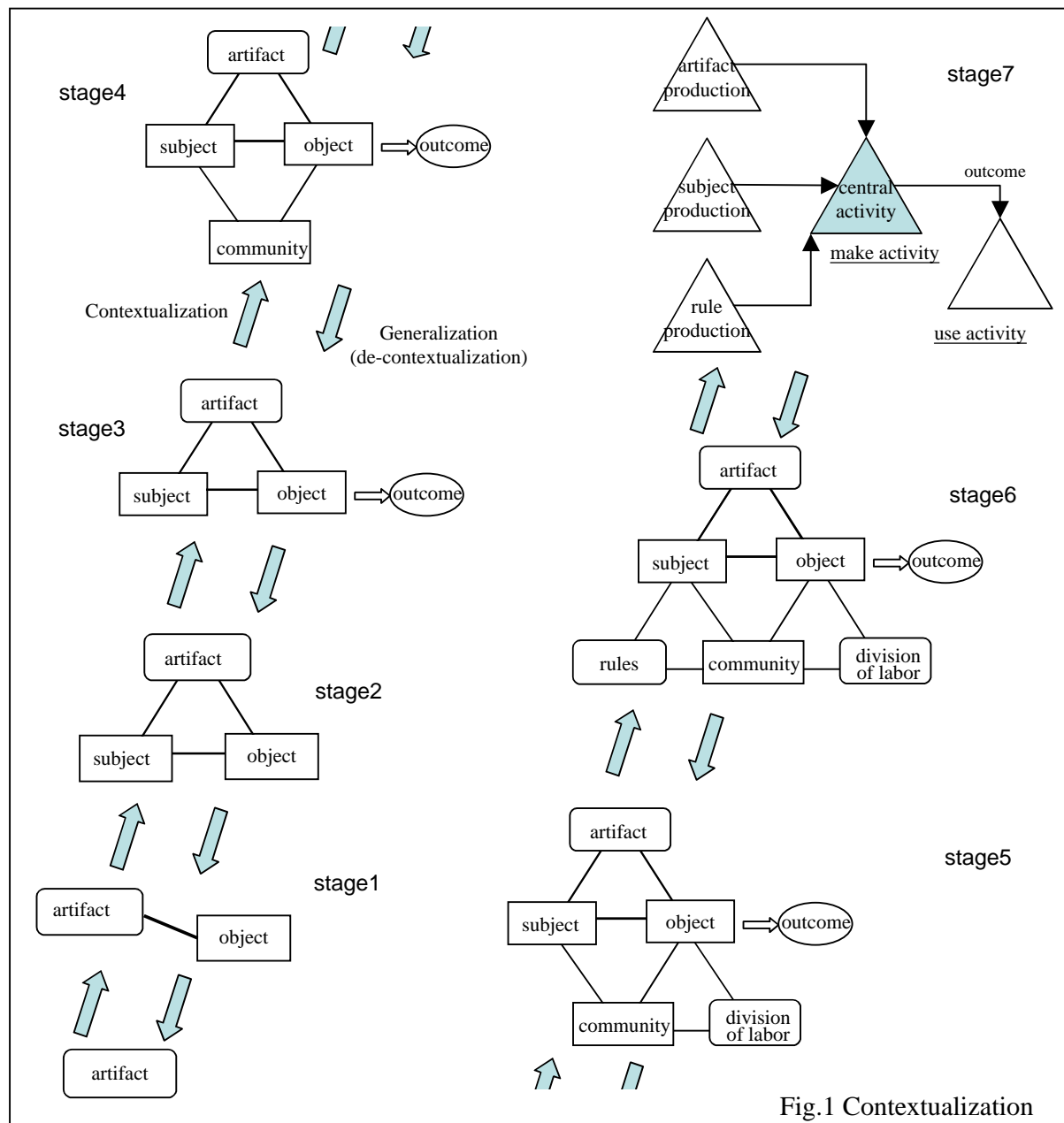
The next addition is rules such as distribution rules of outcome. The question is: why he or she works on the object with the artifact in a short- or long-term sense. Looking at three mediations of rules, division of labor and artifact (this configuration is called large triangle or activity) leads to the full understanding of the motive for the specific subject to use the artifact.

4.7 Contextualization: the downstream and upstream activities

The next syntagmatic addition is an activity that uses the outcome as an artifact. The question is: for what purpose the outcome is used by another community. In this diagrammatic expression we can see a relation between a builder community and a user one. Looking at the downstream activity allows for customer-oriented thinking.

The follow-on syntagmatic additions to the central activity are the activities of production of subject, artifact, rules, and division of labor. For example, for the subject, a question is:

where he was born, what and how he was educated and what value he has. Looking at the socio-historical backgrounds of the subject allows for refined stakeholders analysis and why he thinks and behaves in a particular way. Looking at these production activities also allows for future outlook of possible changes in each element and allows for the analysis of their influences on other elements.



5. Conclusion

The aim of our research was to develop a diagrammatic technique that IS practitioners can use to make sense of their social realities involved in IS implementation. Based on social semiotics we developed a technique by using activity theory as a resource.

There are two perspectives people need to use in analyzing any social reality: the process perspective and the synoptic perspective. The technique we developed is of a synoptic perspective. It provides IS practitioners with clues to relevant elements and relations to make

sense of the social reality, thereby it helps IS practitioners consider not only the content of IS but also the context around IS implementation.

With a technique an IS practitioner can enter and exit at any point in sense making in line with his or her level of interest. It is possible to interrupt sense making whenever necessary. It is also possible for him or her to de-contextualize the process of sense making by removing elements one by one for generalization.

It is thought that we have paved a small but new way to developing techniques of sense making for IS practitioners. We do not argue that the technique is the best. As Walsham (1997) puts it, there is not, and never will be, a best theory. Therefore, our quest should be for an improved or better technique that is relevant to the issues of our time.

The technique developed has effects from the constraints of activity theory. There are some deficiencies in the technique. For example, aspects such as values and norms are indirectly treated, so that it is possible for the users of the technique to pay insufficient attention to them.

As the social reality has infinite complexity, we need to develop other techniques to better capture the social reality or to capture its other aspects. It is thought that our research has made it clear that the ideas in social semiotics are helpful in developing such techniques.

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