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Abstract

In the turbulent economy an organization must often reconstruct itself with self-reference to its own practices. Many business and IS professionals need some approaches to understand their practices or social realities for self-reference. Researchers developed academic approaches or methodologies such as structuration theory and actor-network theory that enable people to make sense of their social realities. However, it is considered that the absence of some vocabularies has kept the practitioners away from the use of these approaches. On another front there are the increasing interest and use of collective identity in the related social sciences recently. We argue that a vocabulary "collective identity" can become a bridge between academic researches and the practitioners. Allowing the practitioners to look at multiple or alternative social realities among social forces rather than the single functional image of an organization, the vocabulary is expected to lead way to the possible use of existing approaches by the practitioners. To show its effectiveness we will incorporate collective identity into activity theory and apply it to a real case of IS implementation in an organization

Keywords: collective identity, IS development, IS research, practice, self-reference

1. Introduction
There is still a high rate of disappointment and failure of information systems implementation, albeit the rate has decreased slightly due to the project size having become smaller than before (Standish Group). Many have argued that system designers' failure to understand situated work practices lies at the heart of these poor implementation success rates (Schultze et al. 2000).

For example, such a failure was seen also at a widely known case of an expert system, CONFIG. The primary reason for its failure was that its design concept reflected an inaccurate understanding of work practices in the sales function. "The designers conceived of CONFIG as a stand-alone support tool to be used by sales representatives to reduce their errors in the product configuration process. But designers completely misunderstood the incentives that motivated sales representatives. Sales representatives were not rewarded for configuring systems correctly or punished for configuration errors. They were rewarded for closing sales" (Lyytine et al. 1999).

An understanding of work practices has become increasingly important in an organization. In the age of turbulence it is not enough for an organization to copy a successful company.

An organization rather uses its own identity as the primary point of reference when it reconstructs itself. In continuously reproducing itself the organization must do so with constant reference to itself, its past work practices, values, decisions, contracts, and commitments (Truex et al. 1999). It is autopoiesis by which an organization emerges. Self-reference is a key aspect of autopoiesis (Maturana et al. 1991).

There are few practical methodologies and/or frameworks for self-reference, in spite of growing needs for them among business professionals. For example, ethnography can be considered a candidate methodology to shed light on work practices of potential and/or real users of IS. However the careful use of ethnography makes it difficult for those not skilled in ethnographic work to accomplish this activity (Westrup 1995). Ethnography is too abstract and its vocabulary is too difficult for most practitioners to use it.

To go deeper most practitioners need more concrete ideas and need them in the form of lenses such as the work system framework that Alter (2004) is developing. It is our aim to introduce a key vocabulary "collective identity" to IS research for developing the frameworks or lenses which practitioners can use to understand work practices in an organization.

2. Research interests

A dominant practice emerges from several practices co-existing in an organization. Critical theory rejects the neutrality of technology and argues instead that technological rationality has become political rationality as mentioned by Feenberg (1991) :

"Critical theory argues that technology is not a thing in the ordinary sense of the term, but an "ambivalent" process of development suspended between different possibilities. This "ambivalence" of technology is distinguished from neutrality by the role it attributes to social values in the design, and not merely the use, of technical systems. On this view, technology is not a destiny but a scene of struggle. It is a social battlefield, or perhaps a better metaphor would be a parliament of things on which civilizational alternatives are debated and decided."

This situation is also mentioned by several IS researchers. For example, Truex et al. (1999) say "The dialectics of the process center politics, conflict and struggle between social forces in the organization." Further, researchers of actor-network theory such as Latour (1995) discuss, in terms of inscription, how dominant interests are reflected in the form and functioning of the technology. These researchers suggest there are multiple social forces each having a different practice within an organization.

Although there are multiple versions of practices in an organization, few IS developers have captured them because of their rational or hard system thinking. IS development (ISD) has been rational. For researchers "mainstream research is premised on the belief that ISD in organizations is a planned, deliberate activity - bounded in time and carried in a systematic and orderly way. ISD is commonly viewed as a rational design process, organized in formal projects with a clear purpose and a well-defined beginning and end." (Bansler et al. 2004).

From the viewpoint of this project orientation, systems development often refers to developing software tools rather than developing or modifying systems in an organization (Alter, 2004). For IS developers "a rationalized engineering-based approach has dominated software development almost since its inception. Such an approach, grounded in the principles of hard systems thinking, assumes that problems are fully specifiable, and that an optimal and predictable solution exists for every problem." (Nerur et al. 2005)

That is, developers actively construct representations of organizations that are rational, coherent and amenable to computerization (Westrup 1995). For both IS developers and traditional researchers there has been no impetus to focus on practices in organizations. When adherence to rationalism is taken for granted, practices that do not fit with its frame become marginalized and practically invisible.

Enacting self-reference needs to have the multiple practices be brought to light. There is a need to have a shift of thinking from the rational one with a single or universal solution to an understanding of multiple practices favored by social forces. This implies that not only functions which an organization has but also practices or social realities which social forces have must be brought into consideration in IS development.

However we do not have frames or lenses by which we can understand practices (Alter, 2004). We argue that the problem lies at the absence of a vocabulary "collective identity" in IS research not but frames or lenses in particular.

3. Review of previous research
There are several researches that focus on the practices and dynamics of an organization such as actor-network theory, soft systems methodology (SSM), work system models, and activity theory.

Actor-network theory (ANT), promoted and used by Latour(1999), Callon and Law (1989), and others is a good candidate methodology for revealing practices. ANT concentrates attention on a movement by describing a series of translations among social forces as actor networks. However Latour (1999) said that ANT was simply another way of being faithful to the insights of ethnomethodology. Walsham mentioned at a panel "Theoretical frameworks such as actor-network theory or structuration theory can be valuable sensitizing devices for the researcher, or practitioner, but they clearly do not provide simple prescriptive guides to action, and there remains a challenge for academics to make the conceptual ideas and insights in these theories more accessible to thoughtful practitioners" (Myers 1998).

SSM proposed by Checkland (1993) promoted the need to examine practices prior to software development and made a great progress toward understanding the practices of stakeholders in social realities. It still remains, however, in the world of art as shown by the fact that there is no specific method for drawing the rich picture that is critical in the methodology. For example, Alter (2004) mentions that experience to date shows that typical American business professionals need a systems analysis approach that is more

prescriptive than SSM.

Alter (2004) acknowledges the absence of methodologies or methods that practitioners can use to reveal practices in an organization, and tries to develop work systems models that will treat practices in the future. The work system models are in excellent efforts, however at present, do not contain some needed information about components and interfaces, and do not show the complexities of integrating business partners' processes (Petrie (2004, p.192), as cited by Alter (2004)). As Alter puts it, the work system models are on the way to their development. It is, therefore, considered that there is still short of vocabulary for capturing practices in them.

Activity theory (AT) was originally proposed by Vygotsky (1978) and further developed and promoted by Engeström (1987) to capture practices in education fields. AT framework has gained increasing popularity within the IT-design communities, but it has mostly been applied as a conceptual framework for researchers (Bertelsen 2004). For the problems of AT, Davydov (1999) points that the second mostly unsolved problem of AT concerns the relation between collective and individual activities or between collective and individual subjects. It is considered that there has not been an explicit treatment of separation between individual subjects and collective ones, despite practices being concerned typically with collectivities.

There are several methodologies or methods other than ones mentions above, for example, ActAD based on AT (Korplea et al. 2002) and practice lens based on structuration theory (Orlikowski 2000). However the explicit treatment of collectivities mentioned later is largely missing in them. This review of previous researches suggests that there are no appropriate methodologies and/or vocabularies that IS professionals and business professionals can use directly to have greater understandings of their organizations, practices in particular.

4. Introducing a key term "collective identity"
For a long time, social scientists refused to discuss the existence of the activity of collective subjects (Davydov 1999). Recently there is a growing interest in the use of collective subjects and collective identities in the areas of organization studies and political studies (Jordan 1998; Snow 2001; Ashmore et al. 2004; Hardy et al. 2005).

We argue that the concept of collective identity is a key vocabulary that makes us to understand the dynamics between social forces within an organization and between organizations. This is also supported by an idea mentioned by Alter (2004) like that identifying and organizing the main vocabulary for understanding systems is an essential step in identifying the body of knowledge for the IS field.

Weick (1995) tried to reveal the dynamics in an organization as a process not a product by proposing and using a term "organizing." He succeeded in revealing the emergent aspect of an organization with the term. His idea of organizing was derived from the subject levels proposed by Wiley (1988). The concept of subject levels help to reveal the dynamic and static aspects in an organization. Before discussing collective identities we

need to have an understanding of the subject levels of Wiley (1988, 1994) that provide a basis for collective identity.

4.1 Subject levels

By clarifying the relation between macro-micro problems in sociology and subject, Wiley (1988) discussed levels of subjects and articulated four kinds of subjects from them. Wiley (1994, p.154) differentiated the four symbolic levels on the basis of their distance from the subject, i.e. the person or self. Followings are the brief summary of his idea (Wiley 1988).

a) The self or individual level: intra-subjective

This is the human individual. It is at the level of Mead's I-me duality and Peirce's I-you, both conceived as versions of the internal conversation. These two philosophers had a core self or "I." Here the subjective as an individual is called intra-subjective. At the level of the self, meaning is within the self, and the self is, by definition, fully present (Wiley 1994, p.154).

b) Interaction: inter-subjective

Individuals produce the key conceptual categories of the collective consciousness, indirectly, by virtue of their interaction patterns. Inter-subjectivity is emergent upon the interchange and synthesis of two or more, communicating selves. The interactive synthesis of meaning is captured in Schutz's notion of the "we experience." The key point has to do with the way the self or subject gets transformed during interaction. Subjects combined into a dialectic, which might be called joint or emerged or inter-subjectivity. In interaction the meaning is not within but between and among selves (Wiley 1994, p.154).

c) Social structure: generically-subjective

At this level concrete human beings, subjects, are no longer present. Selves are left behind at the interactive level. Social structure implies a generic self, an interchangeable part – as filler of roles and follower of rules – but not concrete, individualized selves. The "relation to subject" at this level is categorical and abstract.

Wiley places organizations at this social structure level, and calls sensemaking at this level generically subjective. Cecez-Kecmanovic (2000) describes this level that social structure reveals itself through roles and norms, administrative and control systems, decision-making processes, policies, that are legitimized organizational knowledge. In social organizations the meaning is encoded in abstract, generic selves (Wiley 1994, pp.154-155).

Weick (1995, p.72) mentions the relation between interaction and social structure: "Organizing lies atop that movement between the inter-subjective and the generically-subjective. By that I mean that organizing is a mixture of vivid, unique inter-subjective understanding and understandings that can be picked up, perpetuated, and enlarged by people who did not participate in the original inter-subjective construction." Inter-subjectivity is the source of innovation, facilitating changes, while generic-subjectivity is that of control, enforcing stability.

d) culture: extra-subjective

The generic self drops out at the cultural level. The abstract subject of social structure, occupying positions and obeying rules, is no longer implied. The notion of culture as extra-subjective was used by Karl Popper in his "Epistemology without a Knowing Subject." The various decenterers of French structuralism and post-structuralism also operate with a culture that lacks a subject. Knowledge embedded in culture serves as a reservoir of background knowledge allowing and constraining the horizon of possible understanding and meaning at other levels.

The relation between levels are not static, it is like Giddens' structuration, an ongoing emergent process that combines levels. Weick (1995) defined the movement between the inter-subjective and the generic-subjective as organizing. We understand IS development as Weick's organizing. More for that, there is a need for us to focus on inter-subjectivity. Collective identity mentioned below is expected to give us a cue to reveal this inter-subjectivity in an organization.

The inter-subjective level provides a basis for collective identity by segregating the existence of collectivities from selves as the intra-subjective and organizations as the generic-subjective. In the following section we will briefly discuss collective identity as a sensitizing device at this inter-subjective level.

4.2 Collective identity

There is no consensual definition of collective identity. However, discussions of the concept invariably suggest that its essence resides in a shared sense of 'one-ness' or 'we-ness' anchored in real or imagined shared attributes and experiences among those who comprise the collectivity and in relation or contrast to one or more actual or imagined sets of "others" (Snow 2001).

Collective identity is a communicative process rather than a property of social actors (Jordan 1998; Snow 2001). Discursive processes produce collective identities, which lead to various forms of collective action, potentially including effective collaboration (Hardy et al. 2005). The discursive construction of a collective identity enables participants to construct themselves, the problem, and the solution as part of a collaborative framework in which the potential of joint actions is both significant and beneficial (Hardy et al. 2005).

A collective identity involves an identification with the fate of the other. "Identification is a continuum from negative to positive - from conceiving the other as anathema to the self to conceiving it as an extension of the self" (Wendt 1994). For collective identities there will be an empathetic rather than instrumental interdependence between self and other. Therefore, collective identity is defined in terms of a subjective claim or acceptance by the person whose identity is at stake (Ashmore et al. 2004).

Collective identity "names" the group - it gives it an identity that is meaningful to its members and to its stakeholders - and is shared, in the sense that members collectively

engage in the discursive practices that produce and reproduce it over time. (Hardy et al. 2005)

The above discussion suggests that collective identity is a helpful, sensitizing device to reveal multiple floating social realities in an organization. Assessment for explaining the character and content of collective identities reveals considerable support for the constructionist thesis (Snow, 2001), so that it is appropriate for IS interpretive or critical researchers to adopt collective identities to have more rich understanding of social realities.

Based on the above discussion, we assume that collective identity can become one of organized, business-oriented vocabularies which many business and IS professionals need for discussing systems.

5. Collective identity and activity theory
Self-reference needs the sense-making of their own social realities. Weick (1995, p.110) argues that the substance of sense-making starts with three elements: a frame, a cue and a connection. Collective identity is a vocabulary for a cue, articulating multiple social forces in an organization or among organizations.

As collective identity alone is not enough for sense-making, we will try to use Activity Theory (AT) as a resource of a frame in this paper because AT is aimed at the research of human social practices.

5.1 Basic idea of activity theory
AT has an origin in Vygotsky (1978) in the Soviet streams of social-historical research traditions, and in recent years was enhanced by Engeström (1987). It is a cross-disciplinary framework for the research of human social practices as a developmental process by inter-connecting individuals and a society.

Most of psychological theories treat a human action as a unit of analysis, and treat it independent from its situation. However, AT considers actions as situated, and has, as an effective minimum unit of analysis, an activity that includes actions.

An activity is a form of doing toward an object. The term object is used as the meaning of "object of practice," furthermore, is related to a motive oriented toward the activity (Hasan 1999). An activity is started by a human who is motivated toward an object, and is mediated by an artifact or a tool. Transforming an object into an outcome motivates a subject. Today's AT includes, as artifacts or tools, signs, languages, concepts, internalized mental models and physical tools. An artifact or a tool carries a specific culture and a history. The mediation by an artifact or a tool transcends dualism such as systems determinism and voluntarism.

The basic form of AT by Vygotsky (1978) and others showed simply a relation between a subject and an object. Engeström crystallized a framework of an activity into logical interaction that includes a social context comprised of a community, social and cultural

rules, and the division of labor.

The division of labor shows the explicit and tacit organizations related to the transformation of an object into an outcome. Rules are the explicit or tacit norms and customs, and social relations mainly on the distribution of outcome. The three mediations, artifacts, rules, and the division of labor are historically constituted, and are open to further development. Through these mediations AT is assumed to reveal dialectical relations and conflicts between a subject and the community to which the subject belongs.

This model is named as human activity structure (Fig.1) by Engeström (1999, p.79). He further expanded it into activity system (Fig. 2) to show relations between upstream and downstream activities. Activity system can be used to show the relations between functional stakeholders such as personnel providers, manufacturers, customers, tool suppliers and so on.

5.2 The problems of activity theory and our expansion

For two decades, the AT framework has gained increasing popularity within the IT-design communities, but it has mostly been applied as a conceptual framework for researchers (Bertelsen 2004). There are several reasons why AT has not been used by practitioners. One reason is that the concept of a subject is vague in the activity structure, as mentioned by Davydov (1999).

It is clear that a subject in Vygotsky's AT is the intra-subjective. However, a subject in the activity structure is either the intra-subjective, or the inter-subjective, or the generically-subjective. The selection is open for discussion.

Here we will use the subject in activity structure as a collective subject, i.e., who has a collective identity, this
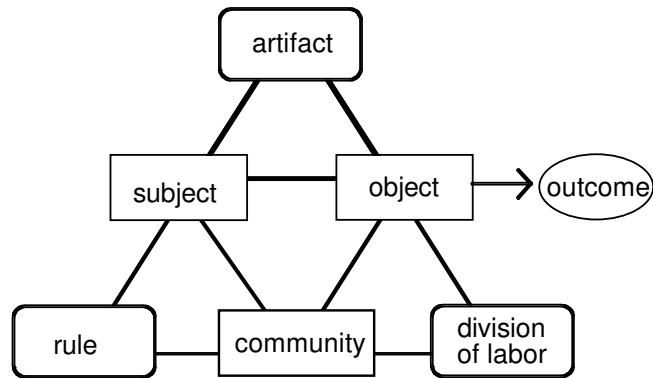

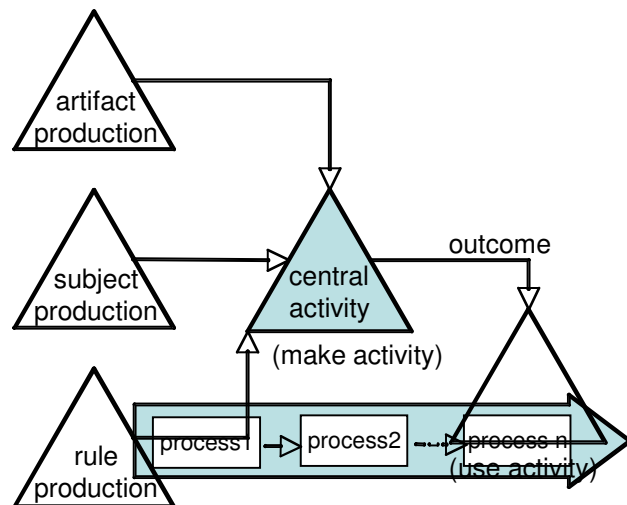Fig.1 Activity structure (Engeström)

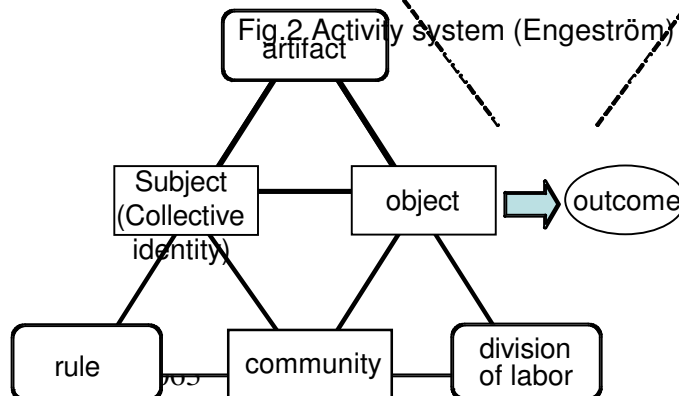Fig.2 Activity system (Engeström)

Fig.3 Enhanced activity structure

time. It is noted that the subject in activity structure is also fit with the generically-subjective (Kosaka 2005).

Another reason is the undefined process in AT. The absence of the explicit expression of a process makes AT less promising for practitioners to describe their own social realities with AT. To deal with this problem, we created an enhanced activity structure that added to the activity structure an explicit expression of a process similar to Porter's value chain (Fig. 3).

By combining collective identity with AT, we can show the activities of multiple social forces each showing a practice concerned with a specific collective identity in an organization (for example, see Fig. 4), and can make sense of social realities more than a case with a single activity showing the normative or generic practice of an organization.

6. An Example
We will show a small example that uses the enhanced activity structure as a frame made from AT and collective identity with an explicit expression of a process. The example is on the ISD situation of a subsidiary company of a big enterprise about twelve years ago. The company made sales of workstations, and was being planned to transform their business to ISD services because of the low profit structure of their existing business. Due to space limit, we will show the use of the frame at a stage.

At those days the company was of about hundred employees, and their sales and inventory management were conducted by using spreadsheet software individually. Each sales representative (SR) had his own style of sales respectively. Each SR used a personal computer for his own benefits. The process practiced by these SRs, by and large, had the sequence of product delivery, price negotiation, and contracting (fig. 4a). The basic idea behind the process was that providing an opportunity for product trial use to a potential customer (a sort of marketing on their own) should result in the sales of the product. It means that they were obliged to practice situationalism largely because of no marketing function provided by the organization. Their pays were based on the sales revenues not profits. Therefore, the outcome was the product sold to a customer and the sales revenue.

There was increasing competition in workstation sales, having resulted in a situation of low profit margn. One of the top management got an idea that the business should be transformed from sales of workstation to ISD services, and also planned to rationalize the office work of the SRs for the improvement of profit in the existing business. In the company a few SRs had rational thinking because they had the experiences of ISD before. The top management in charge of administration organized a group of IS developers and these SRs of rational thinking, and started, in a top-down manner, an ISD project with aid of an external consultant who proposed an ideal system design.

a) Collective identity 1: The conservatives   b) Collective identity 2: The rationalists
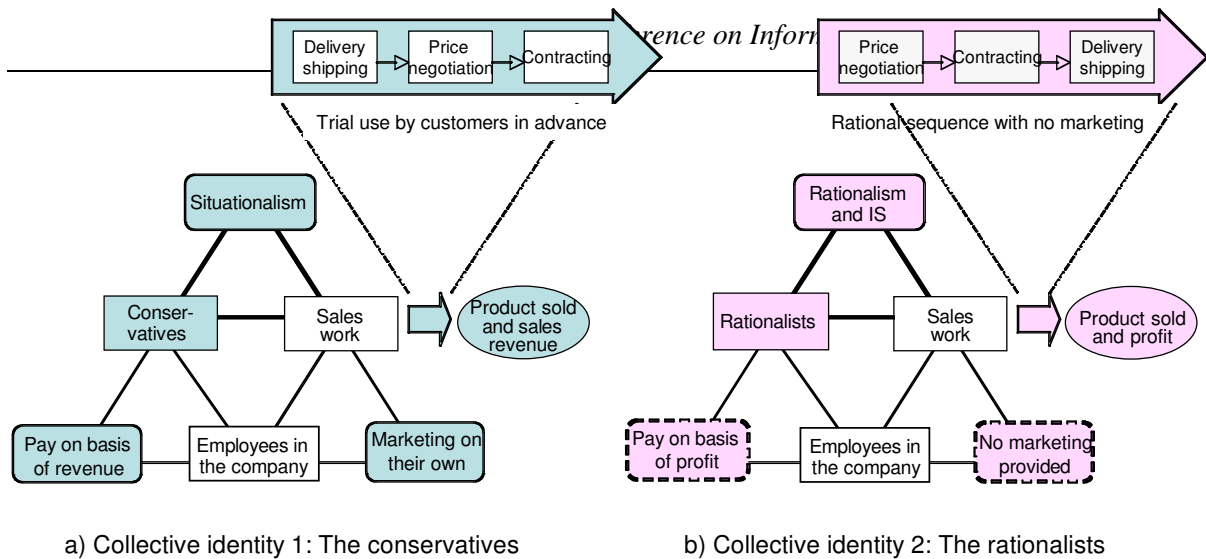
Fig.4 Activities practiced by two different collective identities

The process of sales designed by them was normalized, that is, a rational sequence of price negotiation, contracting, and delivery. Through a series of discussions among them, i.e. a discursive construction of social realities, the project members and the top management had strengthened the collective ownership of organizational innovations by saying "We can rationalize the sales process" and "With IS we can change the existing work style of SRs," and developed IS along with this thinking (fig. 4b). Here we see that the project team members named the other people "the conservatives," and, yet at the same time, named themselves "the rationalists."

At the ISD stage, the project members and the top management assumed that the conservatives should do their sales by using the new IS, and be given salary on the basis of profit earned. It is noted that functions of marketing or sales promotion were not taken into account in the new style of work enforced by the new IS. The developers acknowledged new rules and the division of labor along with this.

IS released to SRs was one of pure rationalization, having resulted in enforcing the normalization of sales process. It was impossible for most of SRs to proceed to a next window without price input. The old style of work was still living in the conservatives. The existing rules and the division of labor did not fit with the new IS. With no marketing services provided, most of SRs fell into breakdown, that is, they failed to continue working. Improper mediations of rules and the division of labor are shown by doted boxes in Fig. 4b.

In the company, the sales department had kept stronger power than the administrative department, so that many SRs soon begun to have collective ownership of a voice, that was an inter-subjective voice, that "We, SRs, can not continue to work with this IS" and the top management in charge of the sales department declared the cease of the IS use.

With the use of the enhanced activity structure as a frame, we have articulated two social forces each having a different collective identity. The intention of the rationalists collapsed because the existing rules were not able to be replaced with a new one partly

because the new division of labor did not provide marketing services to the SRs. Describing the multiple competing practices co-existing in the organization with the help of the enhanced activity structure (the activity structure enhanced with collective identity and process) has made us sense of the social realities more vividly than before.

7. Discussions

In the turbulent economy of global competition an organization needs self-reference and self-construction that are called autopoiesis (Maturana et al. 1991). An organization uses its own identity as the primary point of reference when it reconstructs itself (Truex et al. 1999). In reality, multiple social forces in an organization use their identities respectively along with the organizational identity. Conflicts arise because there are multiple versions of social realities floating around the organization. A new organization emerges through the conflicts and negotiations among the multiple social forces.

There are increasing needs for methods of self-reference in an organization. There have been few theoretical vocabularies for practitioners to be able to use to reveal their social realities. As far as methodologies are concerned we have several ones including structuration theory, actor-network theory (ANT), and activity theory. For example, ANT is aimed at separating and revealing groups of actors by social interest instead of classifying actors as normative functional agents. Therefore, ANT is considered very helpful to see the emergence of an organization.

Despite their high utilities for researchers, their uses by practitioners have been limited. Walsham mentioned at a panel "theoretical frameworks such as actor-network theory or structuration theory can be valuable sensitizing devices for the researcher, or practitioner, but they clearly do not provide simple prescriptive guides to action, and there remains a challenge for academics to make the conceptual ideas and insights in these theories more accessible to thoughtful practitioners" (Myers et al. 1998).

It is important for researchers to provide vocabularies as well as prescriptive guides or methods to practitioners because practitioners need an organized, business-oriented vocabulary for discussing systems. Alter (2004) says that identifying and organizing the main vocabulary for understanding systems is an essential step in identifying the body of knowledge for the IS field.

Collective identity is expected to help practitioners make sense of their social realities. For sense-making we need a frame, a cue and a connection (Weick 1995, pp.109-111). Frames enable people to locate, perceive, identify, and label occurrences in their lives and world. A cue in a frame is what makes sense, not the cue alone or the fame alone. Collective identity is a vocabulary for cue. The absence or ambiguity of the concept of collective identity in frames or frameworks such as structuration theory and activity theory has made it difficult for practitioners to make sense of their social realities with them.

The use of collective identity begun very recently in the academic fields (Jordan 1998; Snow 2001; Ashmore et al. 2004; Hardy et al. 2005). As it meets recently new research

trends such as social constructionism and discourse analysis, collective identity has come into research fields of sociology, politics, psychology and so on. The concept of collective identity also fits with the analysis of the IS field in an organization with multiple social forces.

It should be noted that there are some differences between collective identity and social force as a term. Collective identity is a theoretical term that puts emphasis on the discursive construction of social realities, while social force is a general one which does not necessarily deals with it, simply emphasizing conflicts among groups. Social theoreticians have built social theories such as structuration theory by focusing an agency-structure relation in a group or relations among groups which are rather fixed such as labor and capitalist, thereby have not paid much attention to articulating social groups which are dynamically constructed or disappear. In other words, they have not provided an appropriate idea for articulating dynamic groups in an organizations or a society. In consequence, practitioners do not have cues for applying social theories to their fields although they actually feel the existence of multiple different, dynamic groups around them. Articulating multiple different groups, collective identity is expected to become a bridge between the existing social theories and IS practitioners.

In this paper we introduced it into Engeström's activity structure as a frame to show its usefulness, applied the enhanced activity structure to a real case and succeeded in illuminating the existing and planned practices and the conflicts between them. The use of collective identity with activity theory has helped us to articulate two different social groups, the conservative and the rationalist, within a company and further to illuminate the dynamics between them, based on the analysis of conversation and narratives favored by the people in the company.

Furthermore, the use of collective identity has liberated us from thinking often constrained by functional boundary, and has named the two similar social groups across functions differently. Both of the two groups were comprised of developers and users in fact, but each group having a different discourse toward IS. Therefore, collective identity is expected to liberate practitioners from a single normative functional image of an organization inspired by their common rational thinking and to facilitate a balanced understanding of alternative, co-existing communities of practice in an organization.

Our research result does not reach the operationalization of methodologies but shows that collective identity is a possible bridge between academic researches and practitioners. Our research presented in this paper is one of initial steps in making the conceptual ideas and insights in academic theories more accessible to thoughtful practitioners. There still remain tasks that we must develop some methods that are at least somewhat procedural, and must provide some more specific, teachable vocabulary and analysis concepts.

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