THE QUARTERLY NEWSLETTER OF THE

LABORATORY
OF
COMPARATIVE
HUMAN COGNITION

TABLE OF CONTENTS

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GENERAL EDITORS

Introduction

Developmental Work Research: A Paradigm in Practice

This issue introduces a school of thinking called developmental work research. The school originated in Finland in the early 1980's, as an outgrowth and extension of the cultural-historical theory of activity initiated by Vygotsky, Leontiev and Luria.

The school exists as a multi-disciplinary network of numerous research groups in various academic and non-academic institutions. Each group focuses on specific types of work activity. Dozens of research reports and monographs have been produced, mostly in Finnish. Projects inspired by developmental work research have also appeared in Sweden and Denmark.

The three articles in this issue offer the readers a selection that is biased in two ways. For reasons of coherence and continuity, all three articles focus on professional or semi-professional work where talk is a pervasive instrumentality. Thus, the articles rely heavily on discourse data, setting aside many other kinds of data and methods used in developmental work research. Typical projects of developmental work research include historical and actual-empirical analyses of the contradictions in work activity, design and implementation of new solutions, and follow-up of resulting changes in work. To keep the articles concise, the authors deal with actual-empirical analyses only.

There are three theoretical and methodological ideas that characterize developmental work research. First, the unit of analysis is a collective, object-oriented activity system, mediated by artifacts, community forms, division of labor, and rules. Individual actions and situations, as well as failures, disturbances and innovations, are analyzed against the framework of the entire activity system. The activity system as a unit of analysis calls attention to the relations between the viewpoint of an individual subject and that of the entire system, as well as to the multi-voicedness of the collective.

The internal relations of an activity system are commonly represented with the help of the following diagram.
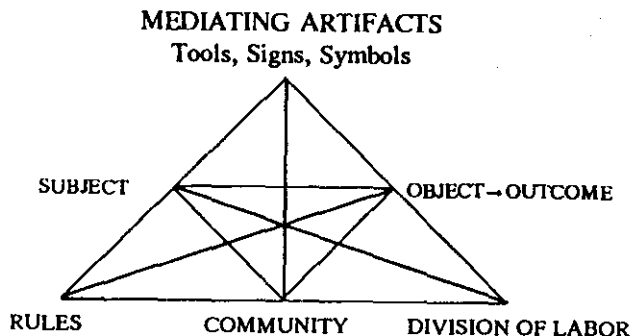
Figure 1: General model of an activity system

Secondly, causes of disturbances, innovations and change are seen in deep-seated contradictions within the activity system. Contradictions are identified through analyses of the dilemmas, conflicts and discoordinations that manifest them in everyday practice, both historically and in the present. Qualitative changes in the activity involve resolutions of the contradictions, leading to the formation of novel ones.

Thirdly, change and development are studied as long-term collective learning processes. They often lead to the local expansive construction of new artifacts and new models of shared practice, not just to new cognitive structures within the minds of individual subjects. The history of an activity system may be understood as successive cycles of such reorganization and learning. Cycles in the developmental history of an activity system display different dominant features which may be characterized with the help of ideal-typical historical forms of work (e.g., craft, rationalized work, humanized work, etc.), as long as the concrete particularity of each cycle is not replaced by such generalizations.

Historical and actual-empirical analyses lead to the threshold of the future, to the hypothetical construction of the zone of proximal development for the activity system. In a typical developmental work research project, the practitioners are engaged in analyses which motivate them to design and implement novel solutions to contradictions they encounter. By analyzing concrete data from their history (e.g., reminiscence products and oral history interviews, autobiographies, documents) an ongoing practice (e.g., videotapes, discourse and interview transcripts, simulated interaction situations), the practitioners acquire a "mirror" which they analyze with the help of the activity system framework (Figure 1 above). In this process, new "intermediate" conceptual tools are in-

vented and employed, which in turn leads to novel models and solutions for the practice. These dynamics of expansive re-mediation are schematically depicted in Figure 2.
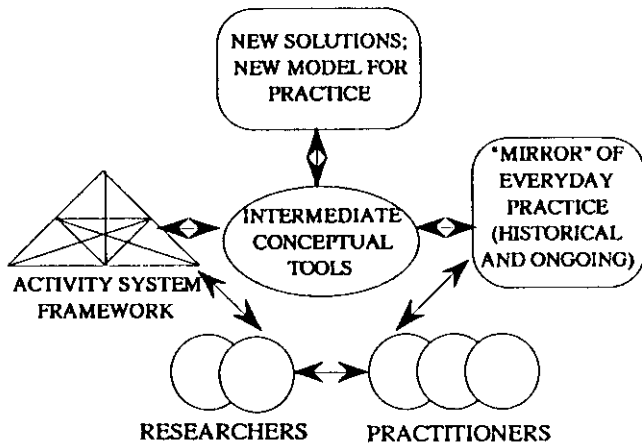
Figure 2: Dynamics of expansive re-mediation in developmental work research

The task of the researchers is twofold: to facilitate and to document each step in the expansive learning process. This dual task demands that the researchers pay special attention to the documentation and "distanced" analysis of their own roles in the process. This analysis is facilitated by dialogical forms of research reporting where parts of the report are written by the practitioners in their own voices.

> The authors wish to dedicate this issue to the memory of **Sylvia Scribner**. She was a trailblazer in the use of activity theory in studies of work, a tireless inspirer and critic who taught us much.

<div align="right">Yrjö Engeström</div>

Joint Construction of the Object of Educational Work in Kindergarten

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The Problem of the Object in Educational Work

The concept of object is problematic in attempts to describe any work process dealing with other persons (Engeström, 1990, Chapter 5), since at the same time, the object of educational work is also a potential subject. In educational practice, definition of fixed aims and objectives has been the standard way to deal with this contradiction. Aims and objectives have been used to identify the object of educational work in a seemingly noncontradictory manner. However, aims and objectives neglect the processual nature of goal setting in educational situations (see Newman, Griffin & Cole, 1989).

In real situations, the object of educational work is constructed and changes constantly. In kindergartens, the daily flow of events concretely shows the inadequacy of the idea of constant goals and objectives. Educators and children have to solve problems which are hard to anticipate (see Stenhouse, 1975). In this sense children participate in the construction of the object of educational work. Adult kindergarten workers may define the object of their work at the concrete level of daily problem solving by drawing upon different theoretical ideas. The professional orientations of educators play an important role in their perceptions of the object of work (see Leontiev, 1975; El'Konin, 1989). In the Finnish day-care system, two dominant professional traditions exist in parallel: family day-care and kindergartens. Family day-care centers are based in the home, with day-care mothers providing care for a group of four to five children. Educational work is organized so that children participate in all the activities of their "day-care family," with the mother-child relation as the ideal relation between adult and children. Kindergartens on the other hand work with more children and labor is divided among adults who work there. Kindergarten is divided into educational basic groups, each including at least 12 children supervised by three to four adults. Here, the educator's professional skills are usually evaluated on the basis of the ability to organize group activities.

The day-care mother and the educator orientations exist simultaneously in both family day-care and kindergartens: Day-care mothers take compulsory training in rational planning and programming and the emotionally toned model of family relations exists as an ideal in kindergartens, too. The basic tension of constructing the object of education in Finnish day-care can be described by using these two orientations as one dimension. The other dimension consists of the subject-object polarity between adults and children (Figure 1).

Figure 1: Basic contradictions in the construction of the object of educational work in Finnish kindergartens (See Hakkarainen, 1990, p. 237)
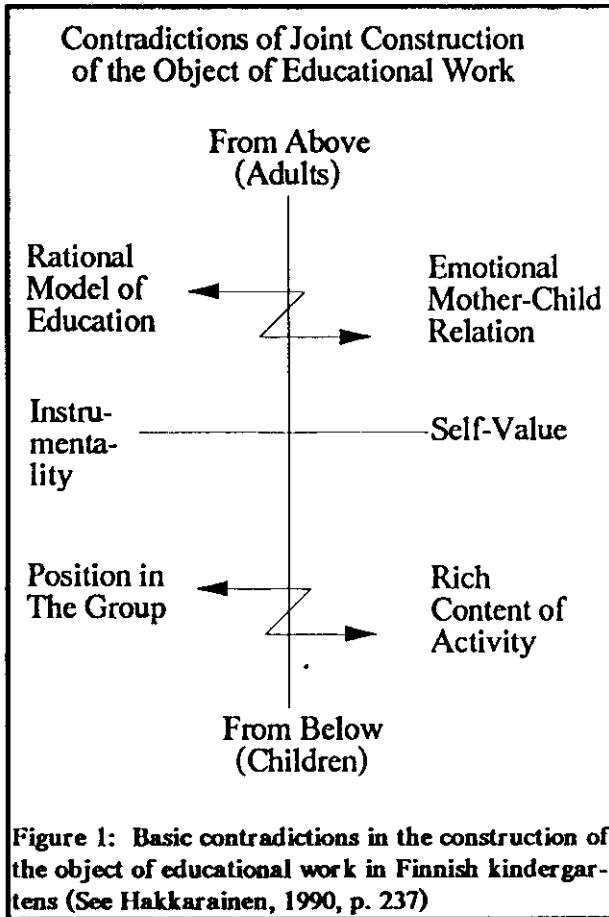
In Figure 1 the construction of the object of educational work is described as a contradictory process in both directions. Adults have to solve the contradictions between rational and emotional models, while children must solve the contradictions between social position and interesting content of activities. There is a basic tension between adults' and children's points of view. Each one often represents a different logic of acting in everyday situations (e.g., adults try to keep things in order and

children elaborate their play using these things in a "nonorderly" fashion).

In this paper, the construction of the object of educational work in kindergarten is analyzed from four perspectives:

1. Spatial-temporal and artifactual construction of the object.

2. Constructing the object through coordination and instruction.

3. The multi-voiced construction of the object as an individual child.

4. Constructing the object as a group of children. Each perspective gives a specific testimony of the basic contradiction in educational work.

Spatial-Temporal and Artifactual Construction of the Object of Educational Work

The joint construction of the object of educational work is studied in an experimental group of 11 children between the ages of one and four years and four adults educating them. This experimental unit is working in an old private home which has been renovated for educational use. The experiment is an attempt to reorganize educational work by bringing kindergarten workers and day-care mothers together into one new environment. The basic contradiction described above is manifested as a tension between people who come from different professional traditions.

One of the two day-care mothers revealed this tension:

> We have two persons who have more education and we are with Sirpa day-care mothers. I personally do not care, but Sirpa as an older and more experienced worker does not accept instructions from a younger person. She does not accept a position which is lower in a way. This younger person has training, but not so much experience in children's care. I personally do not understand where it all started, but the whole atmosphere is electrified. Sirpa does not at all accept that we all have the same tasks but different salaries. I personally think that our relations are terribly good and our boss is just great and we can talk about everything and have a good humor.

Persons working in this experimental unit have a common goal to create a home-like atmosphere in their unit. The
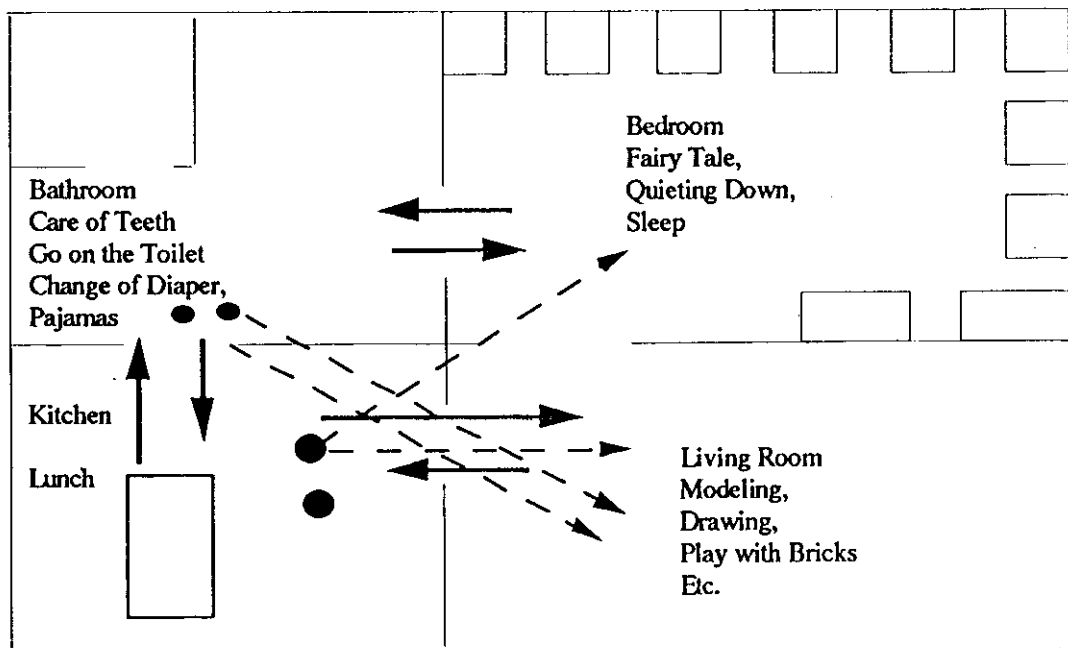
Figure 2: The flow scheme of midday routines in the experimental unit. (Black dots show the position of adults; dashed arrows show their movements after the task is finished; black arrows show children's movement from one routine to another.)

director of the unit (teacher L) described the principles of work:

> We try to create a family-like environment and take into consideration the needs of every individual child and family. We try not to rush our work and to organize it from the childrens' perspective. We have to consider every child's developmental level. A small unit should be more flexible. ...We try to make a child's care soft and cozy. This means that every child can keep his or her own daily rhythm. Many of us have children of our own. I personally would like to offer these children a place which I would like my own children to have. ...Work in kindergarten in general has been like assembly line production. Children are taken as raw material and educational operations are carried out at certain ages as recommended in our training.

Other persons working in this kindergarten repeat the same ideas. All of them think that they are creating a new approach which takes into consideration children's individual needs and necessary conditions for a home-like environment. In spite of this goal, conditions are still created using the same methods and procedures found in ordinary kindergartens. This may be demonstrated with the help of a scheme showing the flow of children from one routine to another during a day (Figure 2). The scheme is based on videotapes of an ordinary day in this experimental unit.

In spite of proclaimed values and the desire to avoid an assembly line production model, the scheme is like any other picture of routines in kindergarten. Children can move on at their own individual pace after having finished their lunch, but all children receive the same treatment. One adult looks after children's eating, two take care of bathroom routines, another takes care of bedroom routines. After bathroom routines adults move on to the living room with one child who does not sleep in the middle of the day. All adults go to the living room after having finished their tasks. Children's sleep time is used for staff discussion and planning activities. Children get up at their individual pace and move on to the living room where individual activities are organized before the whole group is together. This process takes about three hours.

Space in a renovated house dictates both the spatial and the temporal organization of the object of educational work. The whole group cannot move smoothly from one room to another at once. Therefore a counting rhyme is used as an artifact in the transition from living room to kitchen in order to make the transition smooth. Teacher L was asked why she used the rhyme.

> The reason was that the whole group should not move by command like in the army. Those who go first have time to sit down and they come one by one to the new situation. We

should get rid of the idea that the whole group must move as one. It should be more flexible. Moving to the kitchen would be quieter if one of the adults would wait for children at the table rather than come after them. The same with the transition to the bathroom and with sleeping. As children get ready, they go to the bed and one adult controls the situation so that they are calm. Children should be sent from one point to another. In small places like this it is crowded anyway.

Bathroom activities are the problem in the chain of routines. Only some of the children can help themselves and the others are handled one-by-one. Children go to the bathroom on their way to the bedroom and after they wake up.

On the basis of this material we can conclude that the space dictates certain solutions in the construction of the object. Transition from one point to another is carried out using the one-by-one principle. Actually, an assembly line production model is used in midday routines, although educators think that they are not using this production model because routines aren't visibly rushed. However, there are certain time limits for each individual child in different rooms, and children wait in line for their turns.

Constructing the Object Through Coordination and Instruction

For the individual worker, the construction of the object of work occurs as a chain of decisions. The following excerpt from videotape and the educator's comments on it describe the problems of choosing between different demands. The transcript shows how children's demands are pushed aside and attention is paid to the mother of a baby just starting in this unit.

Suvi's mother comes in.
415 **Mother:** Suvi! Suvi! Hi! (Suvi looks at her mother, starts to cry)
416 **L: (teacher):** Who?
417 **L:** It was a fine day.
418 **Mother:** Are you angry with me? (asks her daughter)
419 **L:** Leave your shoes on. Come in.
420 **S (day-care mother):** You came for Suvi? Hi!
421 **L:** How was your first day at work? (asks Suvi's mother)
422 **Mother:** It was okay (takes Suvi on her lap)
423 **S:** We've just changed her.
424 **L:** First day at work is always this and that (laughter)
425 **Mother:** Is your dress the wrong way? It is natural for the first day. (laughter) Gosh. How did she sleep?
426 **L:** Just fine, more than two-and-a-half hours.

427 **Mother:** This afternoon?
428 **L:** Yeah.
429 **Mother:** Okay. Fine.
430 **Anki (a girl):** Read this. Read. (to L)
431 **L:** She slept in the morning for a while. The other children played close by and she woke up.
432 **Anki:** L, read this!
433 **L:** Wait a minute, because I...
434 **L:** She ate okay... Just bring a bottle.
435 **Mother:** What?
436 **L:** Bring a bottle next time.
437 **Mother:** Of course, yes. When did you eat?
438 **L:** She had a snack around two o'clock.
439 **Mother:** Okay, and she has been up since?
440 **L:** Yes.
441 **Mother:** I don't know if she will take her afternoon nap after this one. Has she been very tired? This morning she was tired.
442 **L:** Yes, but otherwise she has been relaxed. She has not whimpered.
443 **Mother:** She was, of course, disappointed when her mother came to get her. (laughs)
444 **L:** Yeah, it's one of those moments. For the whole day.
445 **Anki:** L, read this to me!
446 **L:** Sometimes everything goes smoothly for a time and the child suddenly realizes that she/he is left behind and starts making noise later after a week or two.
447 **Mother:** Yes.
448 **L:** The others are really fond of her. They wanted to take a look in the pram when she was asleep.
449 **N: (nurse):** Boys! Don't bite! No! No!
450 **L:** Let's go to the bathroom, Anki, Okay?
451 **Anki:** Read it!
452 **L:** I'll read a bit and then we'll go to the bathroom. Come to this side and you'll see better.
453 **L:** Did J and M go to the bathroom?
454 **J:** Yes.
455 **L:** Then you could start gathering the toys, okay?
456 **L:** Let's see where we'll start reading.
457 **Anki:** No, Anki will choose the place.
458 **L:** Yes. Take it from the beginning. It's more fun in the beginning.
459 **Anki:** Here is onefive
460 **L:** Onefive? Okay.

L explained her choices in the following way:

Suvi's mother tried to draw conclusions on how her daughter's first day succeeded in the new place. I tried to be attentive toward her by trying to create an atmosphere which could help to win her confidence. A successful first

day is very important for the further stay in kindergarten. This is why I tried to continue a supportive discussion with the mother in spite of Anki's demand that I read a book for her. When she asked me to read to her the second time, I stroked her back trying to send a message that I hadn't forgotten her. Anki asked for the third time, but I did not attend to her. Instead I told the mother how fond all the children are of her daughter. At last my attention is directed to Anki when I ask her to go to the bathroom. She asks me for the fourth time. I compromised and promised to read a short passage. Suvi's mother is still in the hallway, but I decided to reward Anki's patient waiting.

Three parallel tasks had to be solved at this stage of day: 1) reading a story, 2) moving into the yard, and 3) gathering toys. The reason why L tried to take Anki into the bathroom instead of reading was to prepare her to go out. These three tasks can be seen in the following excerpt:

461 J (boy): Let's read the text. (Somebody cries. L looks in that direction, but another adult takes care of the crying child.)
462 L: Yeah. I can read it for you. It is about time for others to go out. (to other adults)
463 L: Let's start from the beginning because J came along, too.
464 Anki: No!
465 L: We can continue from that page later on, okay? We can't start from the middle of a story because we don't know what happened earlier. Mother Pig will be angry. Do you know why she is angry?
466 J: They have made a mess all day.
467 L: Is it like here? (points to the floor)
468 J: Yes.
469 L: Yes. (smiles) What if I would be like Mother Pig in the book, because here is a big mess, too? (J does not answer)
470 L: Oh gosh. (smiles) This is a good story for us. Once upon the time there was a pig family. There was Papa, Mama and ten small piggies. So many piggies (shows with fingers).
(As a result children started to gather toys)

L comments on her behavior:

Anki wanted to show a place where we could start, but I had in my mind a story about gathering toys. At the same time I followed the voices of other children (my reactions are visible on the video) and said to the other adults that it's time to go out with children. This was at the same time a message for them that I'll take care of at least two children by reading the story. Anki and J wanted to start the story at different places. I asked suddenly about the theme of the story in order to solve the dispute. My purpose with the choice of the story was to soften the rule that toys must be gathered before

going out. The children understood my message through the story and started gathering toys. I succeeded in holding four children around me while others prepared to go out.

In kindergartens, the division of labor is usually based on formal education. L is a kindergarten teacher and is responsible for the whole group of children. Usually teachers define their professional competence according to the ability to control the whole group. This can be seen in the transcript in the form of commands for others and in the general orientation. L organizes the singsong and other common activities for all children. The perspective of other adults working together in the same group was narrower.

L organized a systematic apprenticeship program which aimed at expanding the work orientation of the others. She initiated the program and followed the main ideas in her teacher education. The main instrument in the program was a checklist for the evaluation of a child's development in different domains. This checklist was used in instruction during L's studies. Each adult was responsible for following the development of three children with the help of the list. Observations were discussed and comparisons were made during children's sleep time. Day-care mothers also had responsibility for organizing activities for the whole group.

The checklist covered the age period from one to three years and was divided into three substages:

1) 12-18 months
2) 18-24 months
3) 24-36 months

At each substage the following developmental domains were evaluated:

1) Development of movements
2) Language development and orientation in the surrounding world
3) Development of play
4) Development of social interaction
5) Initiative

Each domain includes several items.

Adults work together to construct the object. Their efforts are coordinated by the teacher, who is officially responsible for the whole group. Children are divided constantly into subgroups of variable sizes and they also constantly organize subgroups on their own initiative. The apprenticeship program organized by L is an attempt to

bring developmental criteria into the construction of the object. The checklist aims at the coordination of educational procedures with each individual child.

The Multi-Voiced Construction of the Object as an Individual Child

We interviewed each one of the educators individually, asking them to define the developmental needs of each child (see Table 1, next page).

In some cases there is consensus between adults of the developmental needs of a certain child. On the other hand, there are also differences in the evaluation of developmental needs. For example, Aki's developmental needs are evaluated in the following ways:

Teacher L:

Aki is two years old and is my follow-up child. He is very lively and very sporty. There are sportsmen in the family on the father's side, so it is no wonder. I heard in May this year that he did a handstand. He sat on his heels and suddenly did a handstand. He is wonderful. He is lively and his speech has developed a lot during the summer.   A very well developed small child.

Q: What are his developmental needs?

His mother will have maternity leave in October and her attention will be divided between two children in the family. Perhaps we should prepare him for the new baby—the same preparation as we have for three other children at the moment. This will be the next task with him.

Nurse N:

Aki has started to follow Iiro. They are good pals. They are a pair of runners. Aki is very energetic and sporty, so it is necessary to direct his motor activity and let him move more. He likes gymnastic exercises very much and is fond of singsong and rhymes. He likes to sing. He did not talk very much this spring, but when I returned after the summer he suddenly said, "How are you'?" It was quite amazing. Aki has a good sense of humor and makes all kinds of jokes.

Day-care mother L:

Aki has difficulties staying here in the morning. So you have to turn his attention to playing with trains or bricks. He stops crying right after his father or mother leaves. He only cries to demonstrate to his parents that he has been left. Anyhow, we have fun and there are no problems. He still uses diapers and cannot tell us when he has to go to the bathroom. Aki has started to demand that I sing for him in the bedroom. Iiro is next to him and they are very much

alike, so it's a task to calm them. They are tired and need to sleep but they fight it. He is small still and talks just a little...so he needs speech training. He is eager in types of play that involve singing.

Day-care mother S:

Aki belongs to the same age group (as Lisa) and will stay here two months. We have started to tell him that a small baby will be in their family. He is certainly used to being with small ones here. He is only two years but wants to do and act by himself. Initiative and willingness to try are very prominent characteristics. It is visible in everything...he wants to try himself...he wants to do himself. We give only hints and advice.

The picture of Aki's developmental needs is variable in the evaluations. His teacher and nurse evaluate him as a lively, energetic and sporty child. Teacher L thinks that he needs only training for the coming events in the family. Nurse N concludes that excessive energy must be neutralized by organizing gymnastic exercises. Day-care mothers, however, define developmental needs in terms of basic care such as toilet training, coming to the kindergarten in the morning, and midday sleep. Day-care mother S underlines Aki's initiative.

Each one of these complementary evaluations speaks of Aki as an individual whose needs and development are a central focus of the work. This keen interest in and enthusiastic observation of the individual child's features and potential is a dominant pattern in the interviews of all the staff members, regardless of their professional and individual differences.

Constructing the Object as a Group of Children

Evaluation of individual needs was something the educators found easy and interesting. But ascertaining the needs of the children as a group challenged everybody working in this unit. Orientation to the individual seemed to make it impossible for the adults to see the developmental potential of the whole group. For the educators, the group of children is a *framing factor* but the *unit of development* is one child. On the other hand, the professional identity of teachers is based on the mastery of the whole group. Table 2 (page 87) shows how developmental needs of the group were evaluated by adults and what was seen as the core factor in group level development.

When asked to analyze developmental needs of the whole group, educators described the group only as an environment for individual development. Teacher L underscores the importance of social position in the group.

Table 1

Developmental Needs of Each Child as Evaluated by the Educators

Child	Teacher L	Nurse N	D/C Mother L	D/C Mother S
Anki/Girl (3 years)	Play with peers of the same age	Play with peers (girls) of the same age	Should take notice of others	Stimuli and action in play and construction
Joni/Boy (4 years)	Play with peers of the same age	Play with peers	Instruction in writing	Stay in peers of the same age
Mara/Boy (2 years)	Keep dry, speech training	Speech training	Play with others, vocabulary	Self-initiative, speech
Iiro/Boy (2 years)	Doesn't obey norms	Channelling of excessive energy	Delayed speech, play with others	Problems at home
Mona/Girl (2 years)	Negativism, no special needs	Shy, play and other, social activities	Speech training, drawing	Speech, love
Laura/Girl (3 years)	Self-initiative	Play	Sucks her thumb	"Why?"-stage play
Matti/Boy (3 years)	Tense, social relations	Play	Doesn't know toilet training	Basic care, play
Liisa/Girl (2 years)	Motor clumsiness	Motor activity, unclear speech	Verbal development	Basic care walking
Aki/Boy (2 years)	New baby in the family	Motor activity	Problems in the morning, toilet training, speech instruction	Needs of a two-year-old
Suvi/Girl (1 year)	Speech and walking	Speech and balance	Baby-darling, doesn't know speech	Motor activity

Table 2

Educators' Evaluations of Developmental Needs at the Group Level

	Group Developmental Needs	Means of Group Development
Teacher L	"Us" as a group, to seek and find a social position in the group	Instruction, selective encouragement, joy of succeeding
Nurse N	Group as a means of fulfilling individual needs: older children as models for younger ones	Enlargement of environment, repetition, model learning, stages
Day-care mother L	Growth of a unified group, group = every child	Independent problem solving, skills
Day-care mother S	Adaptation, sensitivty to others	Stages and domains of development

Nurse N thinks that older children are models for younger ones. The day-care mothers stress the importance of unity and sensitivity to others in group. The means and instruments of development at the level of the group are quite limited in the day-care mothers' evaluation. They name only problem solving and stages of development as means of group development. On the other hand, Teacher L and Nurse N describe factors enhancing individual learning as essential means in the development of the group.

Analyzing group processes was a new task for the day-care mothers and the nurse. In the interview, day-care Mother L sounded almost frightened:

Q: If you think of your children as a group, what kind of needs does the group have beside individual needs?

L: (day-care mother): Oh dear! I wish I knew...attention ...and everybody hopes of course that attention is paid to him...time for everybody, not only basic care. I can't say.... I can't say (whispering).

Q: Is it possible that a group has needs?

L: Of course it may have.

Q: What kind of needs?

L: It will be guided and given a lot of advice and care.

Q: Is it possible that a group develops as a group?

L: Yes...yes, I suppose. It grows somehow together as they learn to know each other and...I can't explain. (laughter)

Nurse N was unsure in the beginning but then made a radical suggestion without answering the first question in detail.

N: (thinks for a long time) Needs of the whole group? Is it possible to define that? Is it not a combination of children's individual needs, a compromise? I really cannot say anything. What could be a developmental need of the whole group when they all have different needs? They need to have a possibility to play. All our children like to play, they love to play outside. They like singsong hours, they like rhymes, they like modeling. They are not fed up with those Easter birdies and other tasks.

Q: Are there any developmental needs at group level?

N: Yes, certainly. We have to change our activity. I mean the activity of the whole group has to be changed compared to this year. Next autumn we have to act as if we

would start a new group in an ordinary kindergarten. And we have to plan, but we have a solid basis on which we can build.

Q: So, you think that the activity has to be changed. But on what basis?

N: The children have grown up, they are bigger now.

Q: Are group or individual needs the basis?

N: Oh, gosh. (laughter) Well...I do not know. I can't say.

Q: You have not thought about it?

N: No.

Teacher L demonstrates on videotape excellent abilities in carrying out a singsong hour with the whole group. The other adults admire her abilities and try to imitate her methods in group activities. Nonetheless, the evaluation of developmental needs at group level is difficult for her, as well.

Q: If you think of your children as a group, what kind of needs does the group have beside individual needs?

L (teacher): I don't know. The first thing which comes to my mind is that we feel like a family. Children know each other and each feels that she/he belongs to the group and feels safe. They have a strong tendency to seek their own place among others in one way or another. Everyone is tested in the group and when it is over, they can better live up to their individual ideas.

On the basis of our material we can conclude that constructing the object as a group of children is an unsolved and novel educational task for all educators. Control of the group is a practical task which does not help in analyzing developmental needs of the whole group. For the educators, the group is more an administrative than an educational unit.

We may now formulate a new version of the basic contradiction in the construction of the object of educational work described at the beginning of this paper:

| Controlled | VS. | Developing |
| Group | | Individuals |

Obviously, the contradictions in the construction of the object cannot be eliminated by simply choosing one or the other pole of the dichotomy. Contradictions are posed by moving between the poles. They are eventually resolved through the emergence of a "third," more advanced approach that transcends the existing oppositions.

In the current and coming phases of the research, the emergence of such novel "third" forms of practice and thought is observed and stimulated by means of intervention.

References

El'Konin, D. B. (1989). *Izbrannye psikhologiceskie trudi*. Moskva: Pedagogika.

Engeström, Y. (1990). *Learning, working and imagining. Twelve studies in activity theory.* Helsinki: Orienta-Konsultit.

Hakkarainen, P. (1990). *Motivaatio, leikki ja toiminnan kohteellisuus. (Motivation, play and object-orientation of activity)* Helsinki: Orienta-Konsultit (in Finnish).

Leontiev, A. N. (1975). *Deyatel'nost', Soznanie, Licnost'.* Moskva: Pedagogika.

Newman, D., Griffin, P., & Cole, M. (1989). *The construction zone: Working for cognitive change in school.* Cambridge: Cambridge University Press.

Stenhouse, L. (1975). *An introduction to curriculum research and development.* London: Heineman.

Coordination, Cooperation and Communication in the Courts: Expansive Transitions in Legal Work

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Introduction

Work in courts of law is among the most formal and rule-based processes in industrialized societies. However,

the intricate division of labor in court organizations and the increasing complexity of the contents of cases give rise to various kinds of disturbances and unexpected contingencies in interactions inside and outside the courtroom.

In the United States as in many other countries, courts face rapidly growing caseloads without commensurate growth in the number of judges and other personnel. As Heydebrand and Seron (1990) show, the way to cope with this dilemma has been increasing rationalization. The means of rationalization include novel techniques of scheduling as well as increasing reliance on magistrates, probation officers, and law clerks instead of only judges. Most importantly, they include new mechanisms for resolving and settling cases before they enter the stage of a full-scale jury trial.

Rationalization is often regarded as synonymous either to bureaucratization in the Weberian sense, or to assembly-line Fordism. On the basis of a careful historical and statistical analysis, Heydebrand and Seron demonstrate that rationalization in courts is a much more open-ended endeavor.

> The growth and complexity of the organizational structure of courts is an undeniable development. But there are few signs that such growth is bureaucratic in the sense of Weber's model. Judicial case management has clearly played an important role in the rise of no-action and pretrial dispositions. Yet, the mandatory settlement conference or other pretrial mechanisms of dispute resolution are not necessarily 'bureaucratic' since they involve a host of informal procedures that deviate from the formal adversary-adjudicatory model alike. What is perhaps more crucial (...) is how these conferences are conducted, what mix of formal rational and informal-social elements they use, and what innovative alternatives they admit into their arsenal of conflict resolution techniques. (Heydebrand & Seron, 1990, p. 157)

Heydebrand and Seron (1990, pp. 156, 157) observe that the developments in court organizations particularly in metropolitan areas "point to the emergence of a highly elaborated network of organized activities" while many judges' orientations and policies may be changing "from that of formal adjudicators of cases to that of informal processors of disputes." In this light, we may hypothesize that the currently emerging zone of proximal development (Engeström, 1987) for work activity in American courts looks something like the gray field in Figure 1.

Figure 1 implies that the zone of proximal development is a terrain of constant ambivalence and struggle

between at least three alternative directions (fields 2, 3 and 4). The struggle is manifested in ruptures, disturbances and expansive innovations in the routine flow of work. We will look at one complex case of civil litigation that took place in the spring of 1991 in the superior court of a large city in southern California. The case involved a dispute over construction defects found in a 240-unit condominium complex. The homeowners association demanded approximately six million dollars from the developer for repair of the defects. After a year and a half of pretrial procedures and settlement attempts, the case went to a jury trial. The trial lasted two weeks, one week less than estimated by the judge and the attorneys. Forty-three witnesses testified and more than 200 exhibits were introduced (the two parties had originally prepared more than 700 exhibits).

This case exemplifies the increased complexity of many cases of civil litigation. It also represents a test case for the "independent calendar" and the "delay reduction program," a case management strategy for addressing the volume of litigation in which the judge handling this case is an active practitioner.
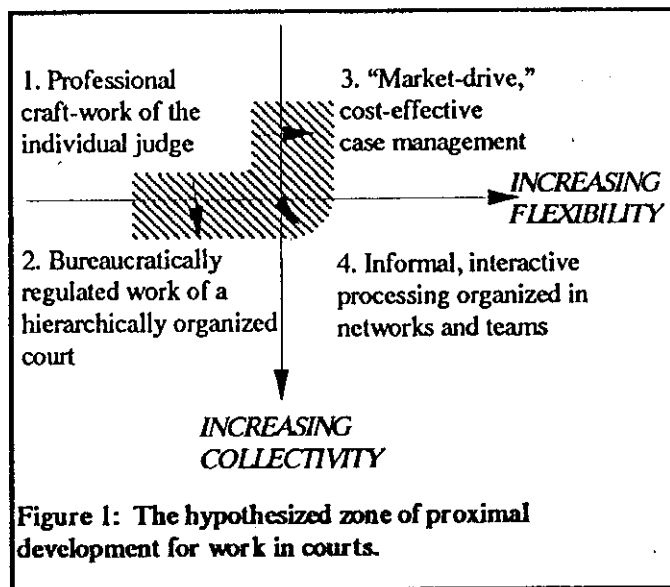
Figure 1: The hypothesized zone of proximal development for work in courts.

The county courts initiated the Delay Reduction Program, also referred to as the "fast track system," in the mid 1980's to improve the handling of the increasing number of time-consuming complex cases. The judge characterized the reform as a change from the traditional role of the court as a "passive receptacle" to the active management of a case assigned to an individual judge "for all purposes." Previously, the phases of a case—pretrial motions, settlement efforts, jury trial—were assigned to

different specialized departments of the courts, each with a different presiding judge. The shift to the independent calendar means that, once a case has been declared complex, it is given to a superior court judge who will preside should the case go to trail. The judge acts as "master" of the case through all its phases.

Theorizing Expansive Transitions

In analyses of work, a crucial question is how to combine the subject-object and the subject-subject, or the instrumental and the communicative, aspects of the activity. Arne Raeithel (1983) and Bernd Fichtner (1984) suggest a three-level notion of the developmental forms of epistemological subject-object-subject relations. The three levels are called *coordination, cooperation,* and *communication.* We shall briefly sketch our interpretation of these levels and of the possible mechanisms of transition between them.

We call the normal scripted flow of interaction *coordination.* The various actors are following their scripted roles, each concentrating on the successful performance of the assigned actions, or on 'the presentation of the self" (Goffman, 1959). The script is coded in written rules and places or tacitly assumed traditions. It coordinates the participants' actions as if from behind their backs, without being questioned or discussed (see Figure 2).
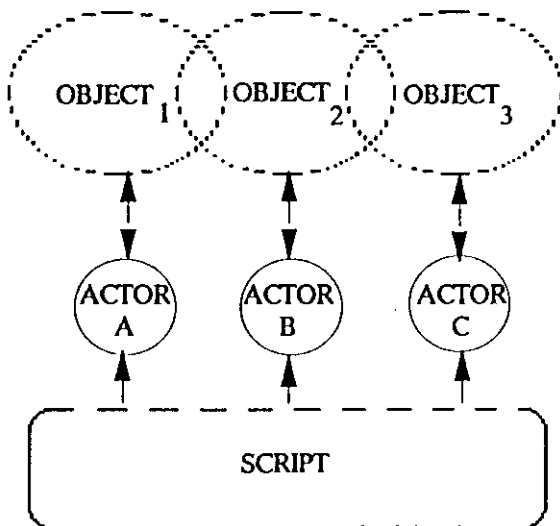

Figure 2: The general structure of coordination

In a lawsuit, the script is largely coded in laws and statutes. It is also coded in the guidelines and instructions adopted locally by the paticular court. Finally, there is an important component of unwritten tradition in the script.

Obviously, the details of the script differ between different types of cases.

In Figures 2, 3, and 4, the unbroken boundaries indicate that the entities are in the focus of the subjects' critical attention. The broken boundaries indicate that the corresponding entities are not in the focus of critical attention for the subjects.

By *cooperation* we mean modes of interaction in which the actors, instead of each focusing on performing their assigned roles or presenting themselves, focus on a shared problem, trying to find mutually acceptable ways to conceptualize and solve it. The participants go beyond the confines of the given script, yet they do this without explicitly questioning or reconceptualizing the script. Transitions to cooperation may occur in interactions between various practitioners or between professionals and lay clients. The general structure of cooperation in depicted in Figure 3.

Figure 3: The general structure of cooperation

By reflective *communication* we mean interactions in which the actors focus on reconceptualizing their own organization and interaction in relation to their shared objects. Both the object and the script are reconceptualized, as is the interaction between the participants. Transitions to communication are rare in the ongoing flow of daily work actions. The general structure of reflective communication is depicted in Figure 4 (opposite).

The mechanisms of transition between the levels include disturbances, ruptures, and expansions (see Engeström, in press). Disturbances are unintentional deviations from the script. They cause discoordinations in interaction, which in turn may lead to (a) disintegration (e.g.,
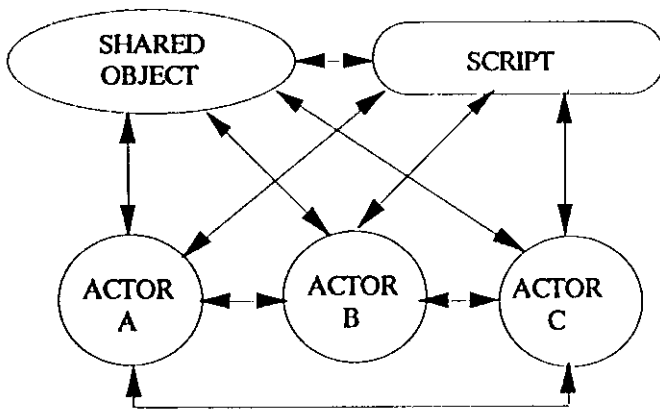
Figure 4: The general structure of communication

confusion and withdrawal), (b) contraction (e.g., by authoritative silencing of some actors, or by softer evasion), or (c) expansion (i.e., collaborative reframing of the object by moving to cooperation or communication). Expansions may also occur without being triggered by specific disturbances.

While disturbances are deviations in the observable flow of interaction in the ongoing activity, ruptures are blocks, breaks or gaps in the intersubjective understanding and flow of information between two or more participants of the activity. Ruptures don't ostensibly disturb the flow of the work process, although they may often lead to actual disturbances. Ruptures are thus found by interviewing and observing the participants outside or after the performance of work actions.

Disturbances, ruptures and expansive transitions are crucially interesting as manifestations of the zone of proximal development of the activity system. We are especially interested in what facilitates expansive transitions, in particular, what kinds of linguistic and other tools are used and invented to initiate and complete them. We are also interested in how these might be institutionalized.

Disturbances and Expansions in the Court: The Question of Data

Since court proceedings are excessively scripted and well rehearsed, it is not easy to observe deviations from the normal in court. This is particularly true of trials where the parties are represented by skillful lawyers, much less so of cases where lay persons are directly involved (for examples of the latter, see Conley & O'Barr, 1990; Engeström, Brown, Engeström, Gregory, Haavisto, Pihlaja, Taylor & Wu, 1990; Merry, 1990). In the case analyzed

here, the absence of visible deviations became a prominent problem. The litigating parties were very smooth, polite and flexible in their interactions. Toward the end of the two-week trial, we were increasingly worried because so few instances of disturbances were evident from our videotapes and observation of the courtroom proceedings.

During the trial, procedural disagreements between the parties are commonly handled by what are called "sidebar" conferences or "sidebars." When one party objects to a move by the other party, one of the attorneys or the judge will usually call for a sidebar conference. These conferences are short breaks in the procedure where the judge hears the procedural arguments of both parties and makes his or her ruling accordingly. Sidebars often take place in the courtroom, in front of the bench but out of earshot of the jurors. In our case, they were held in the judge's chambers adjacent to the courtroom. An observer has no chance of hearing or recording the contents of the sidebars as they occur.

In our case, the judge habitually asked the official court reporter to attend and record the sidebars. This gave us the idea of analyzing the official sidebar transcripts as data on disturbances. Sidebars are indeed disturbances by definition. They interrupt the normal flow of interaction in the courtroom, and the judge is often quite conscious of the fact that they annoy the jurors who cannot hear or understand what is going on in the sidebars. To our knowledge, sidebar transcripts have thus far not been systematically used as data in studies on court interaction.

During this trial, 19 sidebars were held in the presence of the official court reporter, lasting on average between two and four minutes. The transcripts of these sidebars are the data we analyzed for this paper. Courtroom transcripts prepared by ourselves from videotapes representing phases immediately before and after sidebars differed from the corresponding transcripts prepared by the court reporter only in very minor ways. This indicates a high verbatim accuracy on the part of the court reporter. In the excerpts presented below, we reproduce the official court reporter's transcripts, deleting only names and other identifiable terms and adding necessary contextual information in brackets [ ].

Returning to Coordination by Contraction

The most typical way of dealing with a sidebar is that of returning to business as usual by means of a quick unilateral decision by the judge. This is exemplified in excerpt #1.

Excerpt #1

[Direct examination of plaintiff's witness Mr. W by plaintiff's counsel Mr. G]

Mr. G: Mr. W., in — are you personally aware, given your special knowledge, skill and expertise, of how much it actually costs to move people from their homes and then to move them back into their homes?

Mr. W: I am aware of some of some of the costs, based on what we have done in the past.

Mr. G: All right. And based upon your special knowledge and expertise, what has it cost homeowners in the past in condominiums such as D [the name of the complex under litigation]?

Mr. V:[one of the two defense counsel]: Same objection, Your Honor.

Mr. G: It is facts.

Mr. V: The objection wasn't on foundation.

[The judge leads the parties into a sidebar. The following takes place in the judge's chambers without the presence of the jury.]

The judge: Maybe I am not tracking. Now, what is it that you say? There was actual discovery on this?

Mr. G: Oh, yes, Your Honor. It was in the deposition.

The judge: So, let's go back, then. What was the basis for the objection?

Mr. V: Beyond the scope of the expert designation in the case. There was a motion *in limine* granted to limit the experts to the scope of the expert witness declaration filed by counsel. Nowhere is Mr. W. designated as an expert on moving costs. He is an expert on costs to repair. He is a general contractor. And this testimony goes beyond the scope of his designation, even if it was disclosed in deposition.

The judge: All right. It is overruled. I will consider the cost of repair. You can proceed. [The parties return to the courtroom.]

The judge quickly eliminated this disturbance by means of one type of authoritative silencing. He heard the arguments of both parties, then decided in favor of the plaintiff without further discussion.

In spite of the rather straightforward nature of this interaction, certain hesitation and ambivalence may be observed. First the judge seems to regard the sidebar itself as unnecessary: "Maybe I am not tracking." He seems to be ready to make a unilateral decision right away: "So, let's go back, then." But he backs up and hears the defense argument. Only after that does he reconfirm his initial decision.

The pattern of contraction by authoritative silencing was followed in 12 of the19 sidebars. In every single one of those there were interesting minor ambivalences, as if implying an emerging fundamental instability in this pattern.

Transitions to Cooperation

There were six sidebars in which an expansive transition into cooperation took place (Figure 3). Instead of sticking to their respective assigned roles as adversaries and objective authority figure, the parties and the judge embarked upon joint construction of a novel problem and novel solution. The production of the new in these occasions resembles what Weick (1979) calls enactment and what Rittenberg (1985) characterizes as objectification of situated meaning. In excerpt #2, we give an example of such an expansive transition.

Excerpt #2

[Direct examination of plaintiff's witness Ms. P by the plaintiff's counsel Mr. G]

Mr. G: Other than the water stain beneath that window on the wall and the water stain in the living room ceiling, are there any other concerns or complaints about the condition of your condominium?

Ms. P: Yes, there are. I also have — Shall I go on?

Mr. G: Yes.

Ms. P: I didn't realize it was a problem, because the fire investigator —

Mr. V: Objection, Your Honor.

The judge: Sustained. What we are interested in are things that you know about rather than what somebody told you.

Ms. P: I know about it now, though, because —

The judge: I mean, that you observed, you know, yourself, other than something that somebody said. Go ahead, Mr. G. You take over the questioning. (Laughter)

Mr. G: Thank you, Your Honor.

Ms. P: I don't understand. I am sorry.

Mr. G: What are you talking about? What condition have you seen that you are now concerned about?

Mr. V: Could I have a sidebar for a minute, please?

[The following held in chambers between the judge and counsel.]

Mr. G: I am doing the best I can.

Mr. V: I understand. I think the danger that we are running

into now is the area where she is going to testify that a fire investigator — meaning Mr. H, in his volunteer fire department uniform — came into her house and took out her light fixture. That's the testimony that was the subject of a motion *in limine* —

The judge: All right.

Mr. V: — whether a fireman or a fire investigator determined that her light fixtures were a fire hazard. And that's the testimony that I wanted to avoid before we tried to unring the bell.

The judge: That makes sense. We've already talked about it. Can you — will she avoid that? Will you talk to her about that?

Mr. G: I will whisper in her ear and say, "Don't mention anything about what somebody else said, and don't mention what he was wearing."

Mr. V: If she is talking about Mr. W and the fire investigator in the chimney, I don't have a problem with that. But if we are talking about Mr. H in his fireman's uniform, that's where we have the problem.

The judge: Just spend a minute and lay out to her the fact that she should just avoid referencing Mr. H and what he was dressed in or what he represented himself to be. He already testified. The jury knows. And go from there.

Mr. V: I have no objection if Mr. G leads Ms. P through the testimony.

The judge: Okay. That's thoughtful. She is nervous, so that might help.

Here the counsel and the judge are facing an unexpected problem. Essentially, the witness does not understand a crucial part of the script, namely the "hearsay rule" which prohibits using what others have said as evidence rather than the witness' own direct knowledge and experience. The sidebar turns into shared problem solving. This is triggered by the initial disarming utterance of Mr. G: "I am doing the best I can." This unusually personal statement receives a sympathetic response from Mr. G's adversary, Mr. V: "I understand." Here the problem is redefined as no longer an issue of contest. It becomes an issue of finding a mutually acceptable way of coaching or guiding the witness.

The rather striking innovation produced in this episode is that the defense counsel actually suggests that it might be helpful if Mr. G "leads Mrs. P through the testimony." In the script regulating court procedures, "leading the witness" is prohibited as strictly as using "hearsay." However, the boundary between leading the witness to a conclusion premeditated by the attorney and guiding or coaching the witness through the testimony is

fuzzy and regularly contested. The traditional script expects that the parties watch that boundary restrictively and jealously. The use of the word "leads" by Mr. V. — who generally adheres to the formal script quite consistently — may not be accidental. It delivers a signal constructing and confirming the mutual understanding that here we shall bend the rule and collaborate above and beyond the jealous watchdog mentality implied in the adversarial courtroom script. In other words, to avoid breaking the hearsay rule, another rule must be bent and a different mentality — or a different notion of the object — must be achieved by joint decision.

A range of formal and informal linguistic devices are employed creatively by the attorneys and the judge. These are important to the problem solving processes which take place. They both signal and facilitate the collaboration between the attorneys and the judge. Mr. G and the judge use the linguistic tools of personalization and familiarization - recourse to everyday language - to achieve this expansive transition. The judge concludes the sidebar using the nonlegalistic words "thoughtful," "nervous," and "help." On the other hand, Mr. V uses the metalinguistic tool of reflecting on the preceding discourse: "And that's the testimony that I wanted to avoid before we tried to unring the bell." The judge joins in, reflecting on a longer history of previous discussions: "That makes sense. We've already talked about it." Perhaps the most sophisticated tool is used by Mr. G when he employs reported speech (Volosinov, 1971; Goffman, 1974; Goodwin, 1990) in a proactive, anticipatory fashion: "I will whisper in her ear and say, 'Don't mention anything about what somebody else said, and don't mention what he was wearing.'"

In the other five sidebars displaying a transition to cooperation, similar tools were used. Excerpt #3 provides another example of the effective use of personalization.

Excerpt #3

Mr. S: (...) I could be wrong, Bob [addressing Mr. G], and if you have something.

The judge: All right. I am going to allow you to cross on this and if you are correct you'll look fine. If you are not correct....

Mr. S: I'll look silly.

The judge: Then you wouldn't look fine.

In a similar vein, excerpt #4 demonstrates the use of familiarization.

Excerpt #4

Mr. G: My thinking is that, in the first 5, 10, 15 minutes that they [the jury] are in there, we can quickly consider those items and get them into them —

The judge: Sure.

Mr. G: — while they are still talking about the C's [name of the local baseball team].

Attempts at Reflective Communication

In one of the sidebars, there is a piece of discourse that seems to differ qualitatively from both authoritative silencing and cooperation.

Excerpt #5

[Held in the judge's chambers without the presence of the jury]

The judge: All right. I am going to allow him. But this is the other side of a problem that Mr. S experienced. And you can now — both of you can — so that — the problems it causes, when new figures come in, and by making somebody available the night before at 5:15pm really doesn't comply with what I have in mind in terms of the "spirit of cooperation." It might have been the only time that he was available or the time that you were available, but, really, when I — if I make this kind of ruling in the future — what I mean by that, to both counsel, is that you set up a time that's convenient for the other person and really break your backs to get that information.

In this excerpt, the judge is teaching or reminding the attorneys to follow the rules of cooperation. In that sense, both the script itself and the interaction of the participants become the foci of attention. These are hallmarks of reflective communication (recall Figure 4). Yet there is something peculiarly non-communicative in the discourse. The judge is in effect presenting a monologue to which the attorneys do not respond in any noticeable way. The content is reflective communication; the form is non-communication.

When the judge refers to the "spirit of cooperation," he is not just talking about a general principle. He is referring to the contents of an issues conference, a special meeting he had with the attorneys immediately before the trial. This meeting is actually a tool with which this judge attempts to achieve reflective communication between himself and the parties of the trial.

The delay reduction program officially adopted by the court requires that a mandatory *disposition conference* be held in good time before the trial. The *issues conference*, however, is the judge's own invention. In his interview, he characterized the two types of pre-trial conferences as follows.

The judge: The delay reduction program really is generated by the control of the case from the very first time that it's filed and answered, with mandatory deadlines for certain things to happen. And about two months before trial, the final thing before trial is the disposition conference. And they have to prepare a joint document, both sides or all sides, listing all their witnesses, all the issues they say are still unresolved, instructions, things that were unheard of to do ahead of time. Back when I still was practicing, you never knew who the other side's witnesses even were, and now you know two months ahead of time.

Interviewer: Did you have a disposition conference in this case?

The judge: No, because I had the case managed so that I told them to file their witness list and things, they did it on an informal basis.

Interviewer: So you didn't have to have it all at once in writing?

The judge: Exactly. And they were working well enough together so I didn't require them to file this formal disposition conference document that requires both their signatures. But that funnel-shaped item is a reduction with dates and fines, money fines, sanctions, if you don't live up to them. Very negative.

Interviewer: Now the issues conference, that is really your own tool. How is that related to the disposition conference?

The judge: That disposition conference, that's a formal document. And I take the disposition conference report, and I say, okay, this is what you've said, but now we're right down to trial, and what is the reality of this?

Interviewer: So the issues conference is really about the trial in actual practice?

The judge: Right, exactly. And we are going to trial on this. They've been sent out — Every case, two months ahead of time, files a disposition report, conference report. But not every case goes down to trial. And these people actually are, they show up at my door step, supposedly ready for trial. Now, because I'm usually in trial, I'm not ready for 'em that day. So I'll have an issues conference for them, which says, now you've said you're ready for trial, but let's make sure we are.

(...)

The judge: I mean, we talked over some potential things. It gets timelines set up and gets when people expect things to happen, and gets 'em in the frame of mind that I want them in when they try a case here. (...)

Interviewer: Did you invent that or did you learn it from somebody else?

The judge: No, I invented it because I found that I was talking about the same things with these people in front of me, the same time, so I just started keeping a list and then I'd add something. Then I made the list, then I typed it out. Then I put, y'know, it just grew, just one of those things that grew. But it's helpful.

The list to which the judge is referring is an artifact he created to sustain and consolidate the innovation. It is his standard agenda for an issues conference. It contains 17 items. The last item on it is simply "Work together." According to the judge, one of the aims of the issues conference is to make sure the parties will focus on the essential questions in the case, not confusing the jury by diverting attention to insignificant details. Another aim is to reduce the anxiety of the parties, to get them to collaborate and interact self-consciously. These aims speak of the judge's intention to reach reflective communication in the process of complex litigation.

We tape recorded the two-hour issues conference preceding the case. The contents of the conference corresponded to the agenda.

On the quality of interaction:

The judge: Ah, so, I just want you to understand that I don't, I don't want me, er, to sound like I'm lecturing you but that is a real important thing, as I sit here, that I wasn't as sensitive to, ah, when I was sitting where you are. So I am now, and that will be a lot of my, my feeling as to keep the jury, ah, respectful of the process. It's real important. Now, with that in mind, it's the philosophy I want between you two, and I say two because of the size, I don't know who will be trying the case, is that I want you to assist each other in putting your cases on. The time for gamesmanship, or trial by ambush or, ah, tactics that make the other attorney look bad, ah, are over, as far as I'm concerned. So, when - when Mr. G, when your witnesses are going on, on Monday afternoon, or Tuesday, ah, I want you to tell Mr. S who they are going to be, and about how long they'll take. I'll direct, Mr. S, I want you to do exactly the same thing. Everything in this court-

room applies both ways, so, eh, when your case is on, I want you to cooperate with each other.

On the mutual definition of the object:

The judge: (...) Ah, take a look at his verdict form. The only reason that I want, and I want you, if there's something dreadfully wrong with it or if it doesn't, or if it isn't this case that we're trying, then I want you to prepare a verdict form that you think reflects the case. The reason is simple. PM [name of another judge] was talking about this early, about a year and a half ago when I first started. And I thought it was ludicrous until I had about 20 trials where at the last day of trial nobody could agree on the verdict form because they had been trying, essentially, a different case. They said, "Well, gee, we, we didn't present any evidence on these elements here, you know, because we thought we were trying this case over here." And this is the last day of trial. Then what will I do? Well I've learned if, if you at least show each other the verdict form early in the case, ah, if there's a great deal of difference then, ah, let me know. I mean, I'll look at them both and it will give me an idea anyway. At least I know that you agree on what elements of each, ah, cause of action. (...) Ah, I don't care if you agree at this point. I just want you to have exchanged one. Or if you're satisfied with the one that's produced, fine. We're trying the same lawsuit. You don't have to agree to individual language. But you know what I'm talking about.

Mr. G: Yes, sir.

The judge effectively uses reported speech, among other means, as a tool to convince the attorneys. Yet there is no interaction except the mandatory "yes, sir" from one of the attorneys. In the issues conference, the attorneys took initiative and talked actively only in matters requiring technical coordination for the trial. In other words, the communicative contents were all but nullified by the non-communicative form of the discussion.

What could be the reason for this? Obviously it may the judge's habitual dominating or lecturing style that precludes interaction. But the attorneys were experienced and not at all timid. They could have responded more actively if they had wanted to.

A more plausible explanation is found in the post-trial interviews of the attorneys. First the plaintiff's side.

Interviewer: He [the judge] also uses what he calls the issues conference just before the trial. We were actually present when that took place on Friday just before the trial. And, I was wondering, did you find it useful? First of all, is it common procedure?

Mr. G: Oh, it's usually that it's a month before the trial. And it is important to do that three weeks to a month, from both parties' point of view. And I was critical of the judge for having and holding that issues conference so soon before trial. Things occurred in trial. Now, it was a very efficiently run trial and it went fast. But there were several sidebars there that occurred that wouldn't have occurred had they been talked about in the issues conference. We also call it a disposition conference, the terms are used interchangeably. And, you talk about the law. Like, what's the law here? [laughs] What are you going to tell the jury the law is? And, let's rule on the admissibility of some of these exhibits before we go and prepare them or blow them up.

Then the defense side.

Interviewer: There is a particular situation where we were actually present. And that was what he [the judge] calls the issues conference, which was just the last Friday before the actual trial. And it seemed to be somewhat of an invention of the judge. He has this list of things that he went through. What did you think about it, was that useful or sensible?

Mr. S: Actually it's very useful and that's one of the new things that our court system has, it's called 'the fast track.' And this is part of the fast track procedures. The idea is that we're gonna have this issues conference, usually that occurs about a month before trial, to sit down and make the attorneys have this case ready for trial a month beforehand. So that when the trial comes, we can get it done a lot more quickly and efficiently. They tell you, you determine what evidence is gonna come in, what witnesses are gonna be there, work out all your problems, come with a list of what the exhibits are, and basically you're ready to go with trial and it's gonna go smoothly on this game plan.

Interviewer: This time you had it just before the trial.

Mr. V: Because the subs [the subcontractors] were still in.

Mr. S: It was all because the subs were still in and he didn't want to have it until he made a decision as to whether or not the subs were gonna get out. Because if the subs were involved, it would have been much more complicated.

Interviewer: Did you feel it was problematic so close to the actual trial date?

Mr. S: We didn't. The plaintiff did.

So both attorneys confuse the issues conference with the disposition conference. This is something the judge explicitly rejected in his interview cited above, emphatically pointing out the crucial difference between the two conferences. Somehow the judge's entire innovation has been misunderstood by the litigating attorneys. This is a prime example of a rupture that effectively prevents an expansive transition from being realized. One wonders what would have happened had the judge prepared the attorneys by simply telling them the same things about the issues conference he told us.

The Invisible Battleground

The data presented above tell about the zone of proximal development in an invisible battleground. Even though the reforms officially introduced in the court are driven by market forces, costs, and the volume of cases, they open up room for inventiveness by the judge and others, providing space for rethinking and re-creating aspects of the activity system. In the ongoing work activity, disturbances occur continuously. Disturbances are dealt with both regressively and expansively. Innovative solutions appear. But innovations may be blocked by ruptures in the intersubjective understanding between the participants of the activity system.

In Figure 1, we presented a tentative picture of the zone of proximal development in the work activity of courts. The judge in the present case was an active proponent of the delay reduction program and the so called "independent calendar" adopted by the court. Both are reforms that might be placed in the individually mastered cost-effective case management represented by field 3 of Figure 1. However, the judge's attempt to reach reflective communication by means of the issues conference is more characteristic of the informal and interactive teamwork represented by field 4 in Figure 1. Perhaps the persistent lecturing style in his approach to the attorneys represents the heavy tradition of field 1.

The expansive transitions found in the sidebars could not have been achieved by the judge alone. To the contrary, excerpt #2 is a good example of a transition in which the innovation emerges through an effort fairly equally distributed between the two attorneys and the judge. What is missing is conscious input from the lay witness, or lay clients more generally. Perhaps this would be going to the far end of the current zone of proximal development in complex litigation work?

References

Conley, J. M., & O'Barr, W. M. (1990). *Rules versus relationships: The ethnography of legal discourse.* Chicago: The University of Chicago Press.

Engeström, Y. (1987). *Learning by expanding: An activity-theoretical approach to developmental research.* Helsinki: Orienta-Konsultit.

Engeström, Y. (in press). Developmental work research: Reconstructing expertise through expansive learning. In M. I. Nurminen, P. Järvinen & G. Weir (Eds.), *Human jobs and computer interfaces.* Amsterdam: North-Holland.

Engeström, Y., Brown, K., Engeström, R., Gregory, J., Haavisto, V., Pihlaja, J., Taylor, R., & Wu, C. C. (1990, November). *The tensions of judging: Handling cases of driving under the influence of alcohol in Finland and California.* Paper presented at the 89th Annual Meeting of the American Anthropological Association, New Orleans, LA.

Fichtner, B. (1984). Co-ordination, co-operation and communication in the formation of theoretical concepts in instruction. In M. Hedegaard, P. Hakkarainen & Y. Engeström (Eds.), *Learning and teaching on a scientific basis: Methodological and epistemological aspects of the activity theory of learning and teaching* (pp. 207-227). Aarhus: Aarhus Universitet, Psykologisk Institut.

Goffman, E. (1959). *The presentation of self in everyday life.* New York: Doubleday.

Goffman, E. (1974). *Frame analysis: An essay on the organization of experience.* Boston: Northeastern University Press.

Goodwin, M. H. (1990). *He-said-she-said: Talk as social organization among Black children.* Bloomington: Indiana University Press.

Heydebrand, W., & Seron, C. (1990). *Rationalizing justice: The political economy of federal district courts.* Albany: State University of New York Press.

Merry, S. E. (1990). *Getting justice and getting even: Legal consciousness among working-class Americans.* Chicago: The University of Chicago Press.

Raeithel, A. (1983). *Tätigkeit, Arbeit und Praxis: Grundbegriffe für eine praktische Psychologie.* Frankfurt am Main: Campus.

Rittenberg, W. (1985). Mary; A patient as emergent symbol on a pediatrics ward: The objectification of meaning in social process. In R. A. Hahn & A. D. Gaines (Eds.), *Physicians of Western medicine* (pp. 141-153). Dordrecht: Reidel.

Volosinov, V. N. (1971). Reported speech. In L. Matejka & K. Pomorska (Eds.), *Readings in Russian poetics: Formalist and structuralist views.* Cambridge: The M.I.T. Press.

Weick, K. E. (1979). *The social psychology of organizing.* New York: Random House.

Toward Transforming Structures of Communication in Work: The Case of Finnish Labor Protection Inspectors

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Labor Protection Inspector's Work

The enforcement of labor protection legislation in Finland is in the hands of 11 district authorities of labor protection. The National Board of Labor Protection supervises the enforcement work. It also issues instructions on working conditions, machinery and equipment, runs labor protection training, and promotes publicity on labor protection.

The main form of activity of the labor protection districts is the inspection of working premises, which is carried out by labor protection inspectors. The object of their work is two-fold: to ensure that labor protection regulations are being observed, and to advise on improvements of working conditions and safety. Inspectors give instructions aimed at eliminating defects and hazards. If necessary, they can order the employer to remedy the defect within a given period under threat of a fine. In extreme cases, an inspector can order a complete halt to operations or demand that work at a specific site with a hazardous machine or method be discontinued. The inspectors typically have college level technical training and/or background as labor protection managers or labor protection delegates in industry.

The Supervision of the Labor Protection Act of 1974 made cooperation in labor protection between employers and employees statutory. The Act obliges the employer to name a labor protection manager responsible for such cooperation. In any workplace with 10 or more employ-

ees, the employees elect a labor protection delegate for a term of two years. A worker who finds a defect or hazard is supposed to get in touch with his foreman, labor protection delegate or labor protection manager. In workplace inspections, the inspectors also evaluate the statutory labor protection cooperation.

In 1979, the National Board of Labor Protection issued a circular which gave the process of "workplace inspection" a rather standardized form and content. The labor protection manager and labor protection delegates are present during the inspection. The inspection begins with an opening discussion. The inspector collects some basic statistical information, controls the organization of labor protection and occupational health arrangements and orients himself to the safety problems of the firm. He often delivers information material, gives advice and explains new legislation. After the initial discussion, the inspector conducts a survey of the working premises. The inspection ends with a discussion of the defects and hazards that the inspector has found and the inspector's instructions. After the inspection, the inspector writes an official protocol of the inspection. The labor protection inspectors themselves see the protocol as an important instrument for influencing conditions of work. To avoid accusations of negligence, inspectors often take up additional minute defects in the protocol. Writing the protocol after the inspection can take more time than the inspection itself because it is an official document which must be both legally and substantially accurate.

Search for New Working Methods

Since the 1980's there has been a growing awareness that by conducting brief on-site surveys the inspectors fail to get an overall diagnostic picture of the safety situation and influence the real causes of defects and hazards. In workplace inspections they observe discrete defects, but even this is not very effective because many defects and hazards can only be observed in exceptional situations. The same, often trivial, defects seem to appear repeatedly in spite of instructions given.
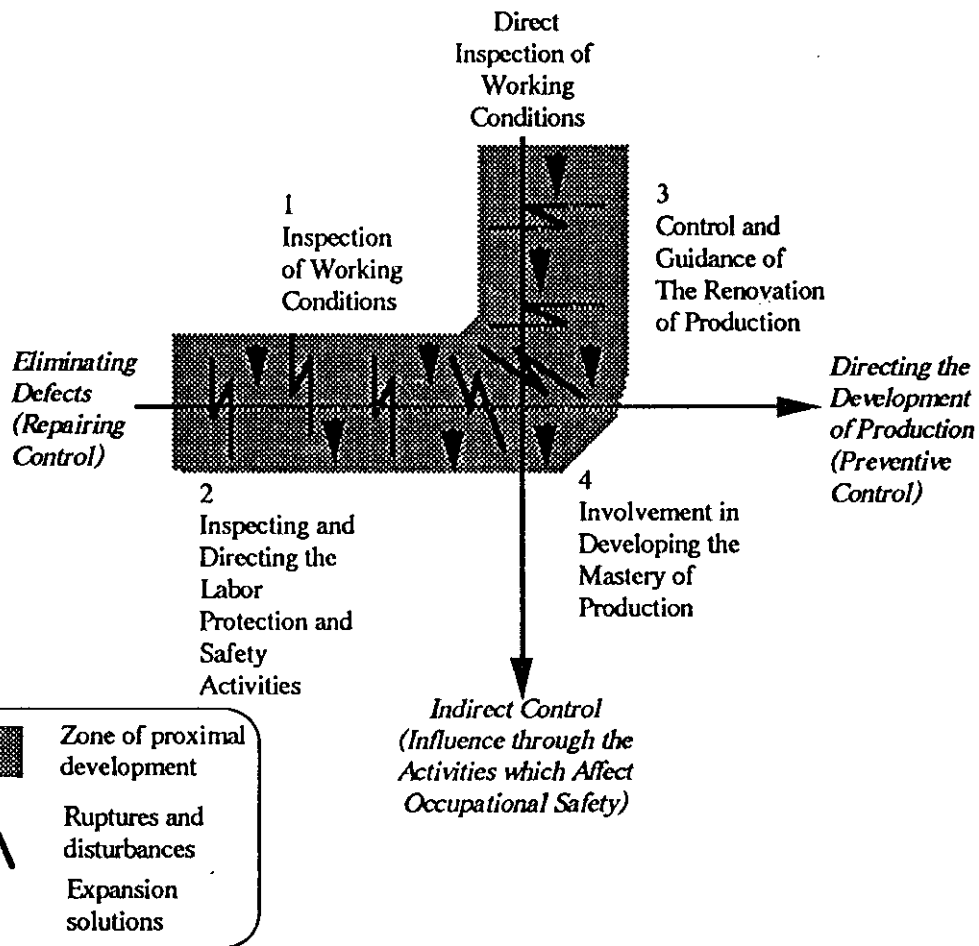
In the early 1980's, the National Board attempted to reform the work of labor protection inspectors. It conducted a broad analysis of labor protection problems and planned a program of national labor protection projects to eliminate common causes of accidents and occupational illnesses. There were, however, difficulties in implementing this new way of planning and executing labor protection work.

The search for new methods has proceeded in three different directions. First, inspectors try to shift their focus from direct surveys of working conditions to furthering and controlling the firms' own safety activities. This direction is crystallized in the fashionable term "system inspection," a term imported from Sweden. Checklists and other methods to evaluate the organization and arrangements of internal safety work are developed. The second direction is epxressed in the term "preventive inspection." Inspectors try to change the focus of their work from repairing defects in working conditions to the prevention of defects by giving expert opinions or advice on the planning of buildings, machinery and methods. The third line of searching for new methods has concentrated on employers' safety motivation and on the expenses caused by unsafe work. There has been a discussion of the possibility of demonstrating the expenses of accidents and of combining safety work with new quality management. These three directions of searching for new methods are depicted in Figure 1 (opposite). A hypothetical zone of proximal development seen from "above" is also depicted in the model. In this zone, interruptions, ruptures and expansions in the normal routine are expected to occur (Virkkunen,1989).

Difficulties in Developing the Actual Work Practice

In spite of motivation and lively professional discussion, very little has actually happened in the daily work of labor inspectors. The traditional workplace inspection seems to persist and resist all attempts at reform. The inspection process seems to have its own logic which rejects or distorts new ideas and proposed changes. Although inspectors devote 50% of their time to inspections, new developments occur primarily outside the workplace inspections, for instance in training and advisory work.

Why are the good intentions and ideas so slowly translated into new forms of work? We videotaped 10 ordinary workplace inspections, each performed by a different inspector. The inspector was interviewed before the inspection. After the inspection the representatives of the workplace were interviewed separately. The videotape was shown to the inspector later and he or she was asked to comment on what happened during the inspection. A verbatim transcript of the discussions during the inspection was made. This empirical material was analyzed at two levels. First, typical work phases or actions, instruments used in these phases as well as ruptures, interruptions and innovations in the overall process were analyzed. Secondly the transcribed discussions were analyzed. In the following, I will first present a condensed

Figure 1: Directions of development in labor protection inspectors' work

The figure contains the following labels:

Direct Inspection of Working Conditions

1 Inspection of Working Conditions

3 Control and Guidance of The Renovation of Production

Eliminating Defects (Repairing Control)

Directing the Development of Production (Preventive Control)

2 Inspecting and Directing the Labor Protection and Safety Activities

4 Involvement in Developing the Mastery of Production

Indirect Control (Influence through the Activities which Affect Occupational Safety)

Zone of proximal development

Ruptures and disturbances

Expansion solutions

description of one inspection. In subsequent sections, I will look into the patterns of discussion during workplace inspections in greater detail.

In an interview before the inspection, an inspector explains the coming inspection as follows. The inspector will inspect a new small firm that produces fiberglass boats. The workplace has not been inspected before. The inspector's central objective is to diminish prejudices against labor protection inspection and to create a constructive cooperative relationship with the owner-manager. The government has issued a new norm concerning the amount of styrene acceptable in air in working premises. During the inspection, the inspector intends to inform the owner and workers about this new norm and to assess the firm's technical readiness to achieve the new objective. He also intends to inform the manager and labor protection delegate about the dangers of chemicals used and proper working methods for using these chemicals.

The inspector says that it is important to listen to the owner and the workers.

This intended emphasis on building a lasting cooperative relationship and on listening to the voices of those engaged in the activity inspected is a deviation from the usual inspection practice. It is also an innovation and expansion compared to the normal one for all inspection routines. It takes time to find safety solutions that are functional and well matched to the overall development of production processes. These solutions can better be found through lasting cooperation than in one inspection.

The inspector begins the actual opening discussion according to his intentions and deviates from the normal procedure. Instead of beginning the discussion by filling out the "workplace information card" with data that is needed for inspection statistics and administration, he asks the owner to talk about the firm and his plans. This

way he invokes voices from within the activity being inspected instead of using the voice of an outside authority. The owner begins to explain how he intends to develop production and the production premises. When the owner explains his plans for a new room arrangement, the inspector takes the floor and gives a miniature lecture about hygienic problems in room arrangements and air conditioning in areas of fiberglass production. During the rest of the inspection, the inspector holds the initiative in the discussion. He explains how exposure to styrene can be reduced by technical arrangements and gives other pieces of advice. The owner answers direct questions and comments on the inspector's proposals. But he only takes the initiative again once during the discussion.

During the discussion, the inspector compensates for his directive mode by empathetic comments about a small firm owner's situation. Nevertheless, the information flow is mainly from the inspector to the owner. This leads to a situation where the inspector gives directions that are not actually needed or which cannot be followed. He simply does not know enough details of the production and the planned changes in technology. For instance, the inspector recommends a new arrangement for manual mixing of chemicals before he learns that a new automatic mixing machine has been bought. He also suggests that the barrels of chemicals should be stored outside the working room. The owner finds this impossible because of the changes of temperature, but the inspector never learns of this constraint.

In spite of the one-sided discussion process, the inspector gains the trust of the owner and they jointly plan steps that are needed to reduce exposure to styrene. Their cooperation is good partly because the situation in the workplace is not very bad and also because the owner wants to reach the government safety standards. After the inspection, the owner gives credit to the inspector for not being as bossy as the one he had dealt with previously. He notes also that he intends to seek the advice of specialists from the Labor Protection District later on.

When viewing the videotape of the inspection, the inspector is a bit surprised and disappointed in that the discussion turns out to be so inspector-centered and that he himself speaks so much. He explains the giving of directives and recommendations as a way to provoke a response from the owner-manager. Like the owner, the inspector thinks that the inspection was, however, a beginning of cooperation as was intended, so he will have opportunities to return to the problems.

As a whole, this inspection exceeds the normal procedure in many ways. The inspector sees the inspection as part of two broader plans. Instead of simply conducting an inspection, he plans to have a long cooperative process and regards the inspection as an initial contact. He also has an idea of collecting information to assess the possibilities of reaching the new objective of reducing styrene exposure. Here he plans the inspection in the broader context of a nationwide project. There is, however, a rupture in the realization of both of these wider intentions. This rupture is caused by the inspector-centered, unilateral mode of communication. The lecturing type of discussion is a barrier to dialogue and cooperation with the representatives of the workplace. It is also a barrier which prevents the inspector from achieving his aim of collecting information about the readiness of the firm to realize the objective of reducing styrene exposure in workplaces. The communication pattern is a barrier even though the inspector manages partly to overcome its defects.

The inspection process described above is schematically summarized in Figure 2 (opposite).

THE CRUCIAL ROLE OF INSTRUMENTS

The dominant pattern of communication prevents the inspector from fully achieving his broader objectives. So why is the inspector not communicating in the way he intends to? The form of communication in this labor protection inspection resembles the model of interaction which Berne (1961) depicts in his transaction analysis as parent-child interaction. Transaction analysis has occasionally been used as a means to analyze the interaction between an inspector and his clients. In the discussions of inspector training, the mode of communication has been seen as a "psychological" problem independent of the substantive content and methods of the inspection. Consequently, the remedy would be to analyze each inspectors' habitual interaction style and to give psychological training in adult-adult interaction. Practical results of this kind of purely psychological training have, however, been meager.

The cultural-historical approach would instead direct attention to the culturally developed instruments which mediate the work (Leontiev, 1978; Vygotsky, 1978). There are two reasons to seek the causes of the communication pattern from cultural artifacts rather than from the individuals' psychological makeup. First, the communication patterns are so universal that it is not probable that most of the inspectors would be of the same psychological type. Secondly, the communication patterns are inti-
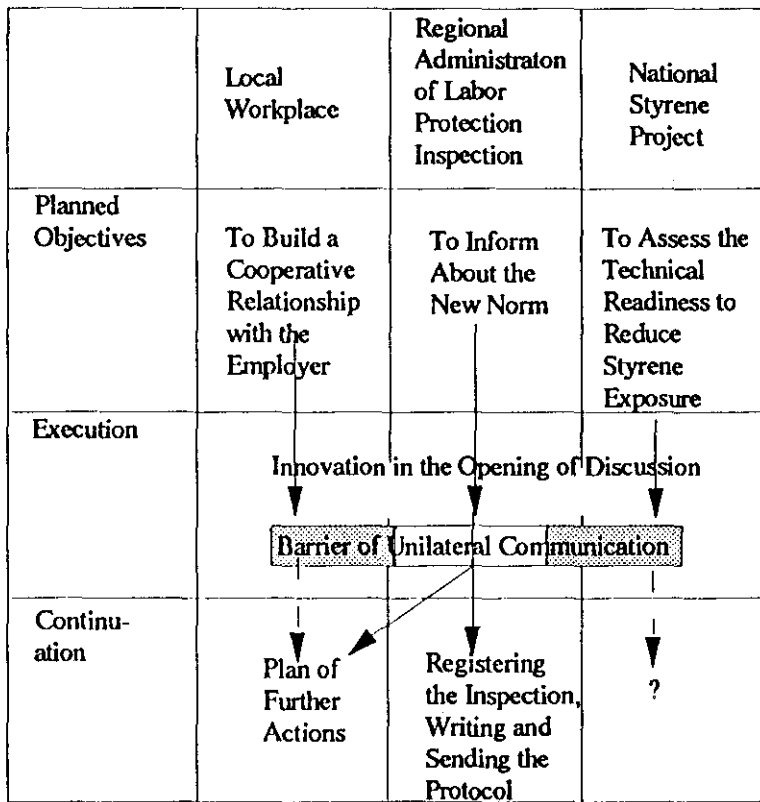
	Local Workplace	Regional Administraton of Labor Protection Inspection	National Styrene Project
Planned Objectives	To Build a Cooperative Relationship with the Employer	To Inform About the New Norm	To Assess the Technical Readiness to Reduce Styrene Exposure
Execution	Innovation in the Opening of Discussion		
	Barrier of Unilateral Communication		
Continu-ation	Plan of Further Actions	Registering the Inspection, Writing and Sending the Protocol	?

Figure 2: The inspection of a small fiberglass boat factory

mately connected to the content of the communication and its objectives, which are embedded in the institutional context of the work. ·

Safety inspectors' most important specific instruments are safety norms and checklists, prepared to find and eliminate discrete hazards and defects. Also, the working rules of safety inspectors focus attention toward discrete, well-defined "safety problems." The number of workplaces overseen by one inspector has always been high, but in recent years rapid technical and organizational changes have increased the diversity of safety problems and arrangements. Psychological stress in work is a good example of the new occupational safety problems which cannot be dealt with by means of traditional norms and checklists. Safety problems are also more intimately connected to the overall management of production. Inspectors' traditional instruments do not allow them to analyze safety problems in the context of the whole activity. The isolated safety viewpoint prevents inspectors from integrating safety into the normal activity routines of the workplace. The traditional instruments don't allow inspectors to see the threats to, and possibilities for, labor

protection that are connected to broader economic and technological decisions and arrangements in the firms. These specific instruments are subordinated to a general instrument: the standard procedure for carrying out an inspection. There is a contradiction between the standard procedure and the ever greater diversity of workplaces and occupational safety problems. In the rather administrative form of work of the inspector, it is not always clear what is an instrument and what is a rule. Some inspectors regard the standard procedure as a binding rule, others take it more as an instrument that can be modified in use.

The analysis summarized above was discussed between the researchers and the practitioners. In these discussions, the idea of a new "object-sensitive" mode of working was developed. The main idea is to work out new planning instruments and methods so that the inspectors will know more about the workplace before an intervention. A repertoire of different intervention methods for different kinds of workplaces and situations will be developed. The subject of this new activity will not be an individual inspector but a pair or a team of inspectors. Inspections will be seen as one special form of interven-

tion, not the sole form of influencing the workplace. The focus will be on a project which covers several similar workplaces at a time or on a broad problem in one setting.

Discussion as a Central Part of the Work

Several different activities or "positions" can be represented in the inspection meeting. A labor protection problem can be discussed in the context of general management, managing the production process, statutory labor protection cooperation, performing the shop floor work, enforcing the labor protection legislation, understanding and solving safety problems, and so on. Even if these diverse activities are not explicitly represented in an inspection meeting, the problems that are dealt with are connected to many different activities or different aspects and positions within an activity. Each activity has a special point of view and its own rationality. Each activity also has its own cultural legacy of concepts, ideas, instruments, etc.

Following Mishler (1984) and Engeström (1990) we have called these historically developed points of view

voices. The voices found in the discussions are depicted in Figure 3.

The discussions were coded according to the voices and topics of discussion depicted in Figure 3. A new phase of discussion begins when the subject of discussion or the voice changes.

Four basic patterns of interaction were found. They can be characterized as follows:

1. Questioning pattern
   The inspector asks, the employer or employer's representative answers and explains. The inspector then asks a clarifying additional question, gives an instruction or recommendation, and changes the subject.

2. Observing pattern
   The inspector makes an observation either about the documents or about the actual working premises. The inspector then either asks a specific question and gets an explanation from the employer, gives an evaluation, or gives an instruction or recommendation and then changes the subject.
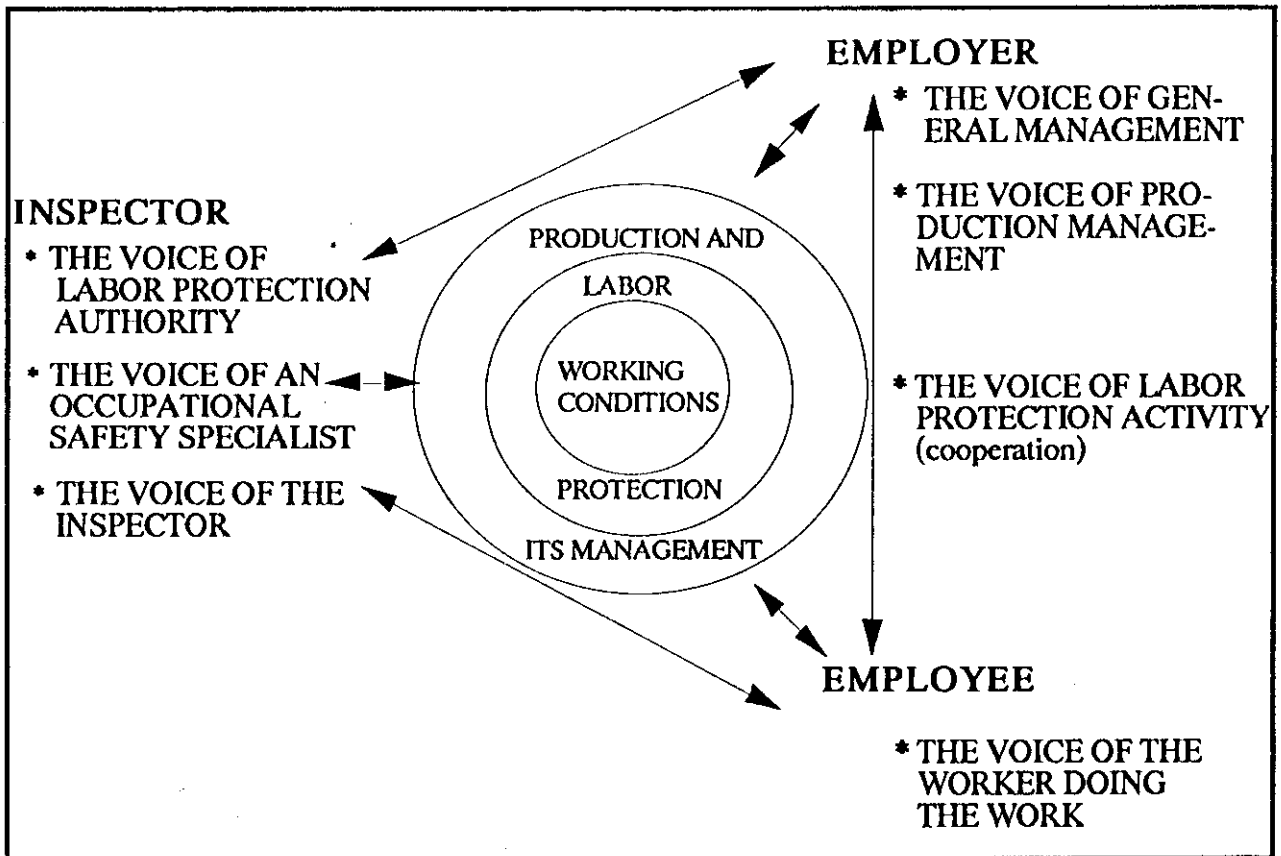

Figure 3: Voices in a labor protection inspection discussion

3. Advising pattern

The inspector gives an order, describes a preferable solution, or explains a general principle, norm or idea. The inspector then occasionally asks questions about the situation in the workplace.

A special version of this advising pattern begins with a question which is used as a bridge to giving a piece of general advice. Instead of focusing on the answer given, the inspector begins his or her "lecture."

4. Explanation pattern

The inspector poses an open question and the employer begins to explain the production methods, premises of work, etc. Or the employer takes the floor spontaneously and explains matters in which he thinks the inspector might be interested.

The first three patterns of communication can be characterized as inspector-centered. The inspector controls the interaction and the representatives of the workplace are passive. The fourth pattern is interesting. The representatives of the workplace take an active role in the discussion, either provoked to this by the inspector or spontaneously. This activity causes problems for the

inspector and disturbances in the process. Even though the representatives of the workplace are active, the inspectors follow nearly the same pattern of communication as in the three inspector-centered patterns of communication.

In the 10 videotaped inspections, 81% of all discussion initiatives were made by the inspector. Most of the interaction went according to the inspector-centered patterns described above.

To explain why inspectors in a variety of situations in different parts of the country behave in similar ways, we have to look again at inspectors' instruments. As stated earlier, inspectors' primary specific instruments are checklists and norms. The questioning and observing pattern of interaction is connected to the use of a checklist. The advising pattern of interaction is connected to norms and general recommendations which the inspector uses as instruments. These dominant patterns of discussion and the corresponding instruments are illustrated in Figure 4.

Following Mishler's analysis (1984, pp. 140-145), there are three interrelated problems in controlling interaction. Each act in the interaction is intended (1) to sustain a specific role constellation and division of labor in the
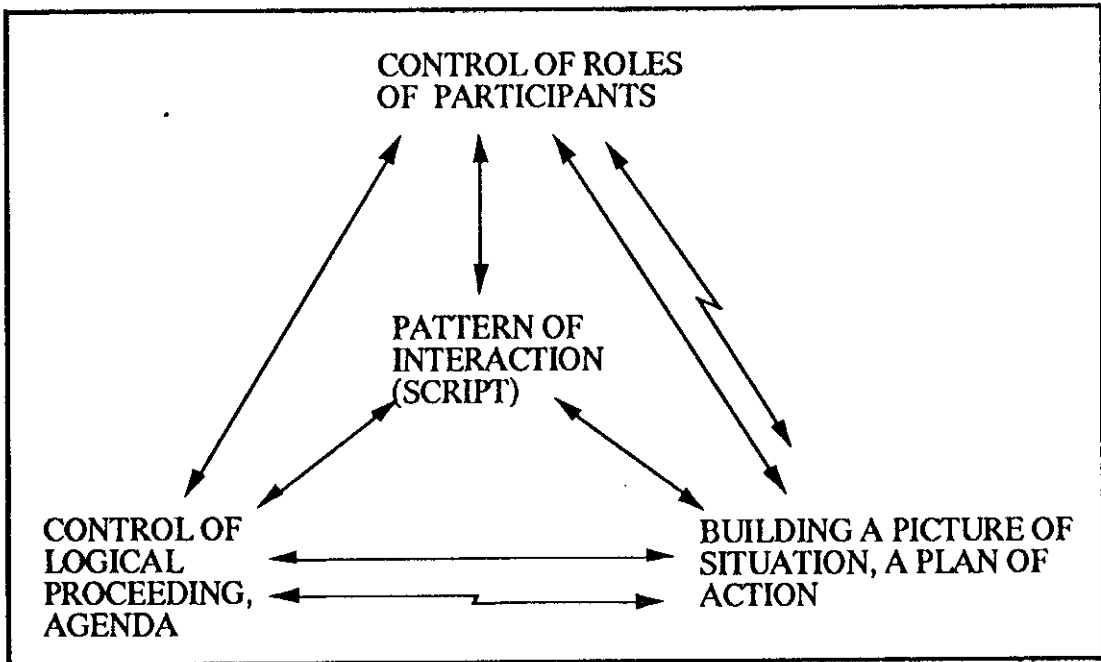

Figure 4: The pattern of interaction as a solution to the three problems of controlling interaction

interaction, (2) to realize a plan of logical, coherent procedure and (3) to build a shared picture of the object of discussion and an action plan (Figure 5).

A typical pattern of interaction solves all three problems at the same time in a certain way. The solution is a trade-off among these three objectives of interaction. In the interaction patterns of the labor protection inspector, the control of the situation and a logical proceeding are bought for the price of a narrow, distorted picture of the

situation and a defective plan of action (thus the two lightning-shaped arrows in Figure 5). To control the procedure of the inspection according to his or her checklist and advisory plan, the inspector holds the initiative. Discussion initiatives of the representatives of the workplace would inevitably distort the inspector's plan and change the roles of participants. There are two typical ruptures in the interaction process. First, the inspector often omits discussion initiatives made from the point of view of the worker or the manager. Secondly, the inspector gives unnecessary advice and instructions not needed or suited to the situation in a particular workplace.

DEVIATIONS AS INDICATORS OF THE ZONE OF PROXIMAL DEVELOPMENT

There are some interesting deviations from the typical patterns of interaction. These may be exemplified with the help of the following excerpts from another inspection conducted in a chemical factory.

The labor protection manager: We have a new operation laboratory, we can control closely the quality of raw materials and the quality of finished products. We can make the analyses needed.
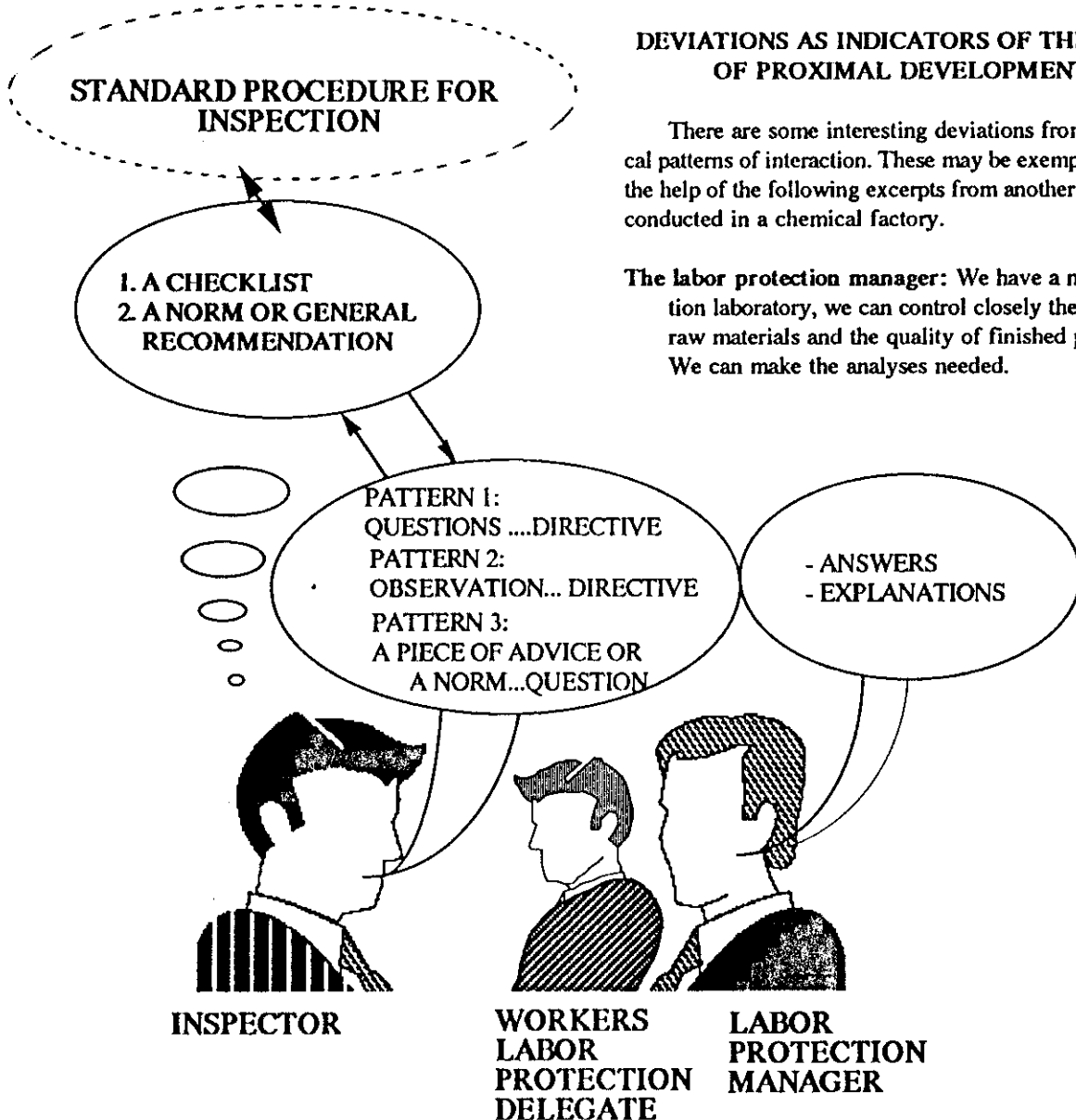

Figure 5: Dominant patterns of discussion in workplace inspections

The inspector: That is a great relief for you.

The labor protection manager: And then we have a new building for experimental work, we test new materials.

The inspector: So

The labor protection manager: We also test abroad. They have a building where the air conditioning room is as big as our whole building.

The inspector: Is the product development done abroad?

The labor protection manager: Yes, we get ready instructions and recipes, but we have to test them.

The labor protection manager: We are quite well informed in our factory. We have been to courses, Iikka has just finished the courses and a new boy is going to attend.

The inspector: You are Iikka, the workers labor protection delegate?

Introduction of workers' representatives follows.

Later on in the discussion the production manager is summing up:

The production manager: Those are the problems that we have attended to. We have put warning posters about open fire and smoking. The lorry drivers who come to take the products often smoke. It is because of ignorance, but these signs are clear.

The inspector: You are the production manager, you are new here?

The production manager: Yes.

The inspector: Are there other changes in the management?

The labor protection manager: Yes, the general manager is new, too.

The inspector: Has that had an effect on labor protection?

The labor protection manager: The new general manager gives good support to improvements. Since he arrived we have even renovated the social area.

The inspector arrived a bit late because she had the wrong address. Because of this, the labor protection manager began the discussion hastily without introducing the participants. The inspector needs to know the names and roles of the participants for the official record. We see in the discussion two abrupt changes of topic. The representatives of the firm are explaining their labor protection activities when the inspector turns the discussion abruptly to an introduction of persons. In the interaction there are two competing agendas and the parties are interrupting the proceeding of each other's agendas. No discussion of a common agenda occurs. Discoordinations like these may

be interpreted as indicators of a need for a meta-level discussion of what the agenda should actually be. This implies a need for instruments of shared pre-planning of such meetings.

In some cases the discussion proceeds as shared analysis and planning. The following episode is from a third inspection conducted in a woodwork factory.

The inspector: That unhappy accident happened there. Do you still need to work there?

The manager: There, yes.

The inspector: There behind that sawing machine?

The manager: Yes.

The labor protection delegate: It was broadened, a side shield was mounted. We cannot really do more, you have to handle the board ...

The manager: We broadened the shield here to reach the end ...

The labor protection delegate: Here, where the shield is, we painted all shields red.

The inspector: That shield does not necessarily prevent the hand from getting in the machine.

The labor protection delegate and the manager: No, it does not.

The inspector: In that respect it is not enough.

The manager: Agreed..

The labor protection delegate: You have to lift that from the bottom.

The inspector: Is that still manual?

The labor protection delegate: Yes, you lift with one hand and with your other hand you keep the board. You need both your hands.

The inspector: Are the boards always the same thickness?

The labor protection delegate: It varies.

The manager: For one customer you have one, for the other a different thickness.

The labor protection delegate: This is 27 millimeters and that is 24, you have to ...

The manager: ... and 30 is the third type we saw.

The inspector: Anyway if the slit between the sawing table and the upper shield is 35 millimeters, the board has enough room to go.

The manager: Yes.

The inspector: So this slit is too big, you should make it smaller.

The labor protection delegate: That could be done.

The manager: And the blade so that it does not catch from above.

The inspector: Yes.

The labor protection delegate: Or if you put it to the side

so that there is a slit.

The manager: Yes, to the side.

The labor protection delegate: So the board could there....

The inspector: In the same ways, if the slit is broader than 35 mm, you need a broader shield so that ...

The labor protection delegate and the manager: You do not reach ...

The inspector: The fingers do not reach the blade.

The labor protection delegate: The shortest we saw is half a meter.

The manager: Yes.

The inspector: In that case there is enough room .

The labor protection delegate: Sometimes we take one-third of a meter.

The inspector: It does not prevent from building here...

The labor protection delegate: Yes, it can be broadened

The manager: And you could drop this a bit lower

The inspector: As low as possible ...

The labor protection delegate: So that the piece still has enough room to go.

In this episode the discussion proceeds through proposals and evaluations. The logical procedure of the discussion is not safeguarded by the inspector's agenda, but by a common problem and a common object, visible to all. Because of this, there is no need for a directive,

unilateral control of discussion and the roles of the participants are rather symmetrical. All participants are cooperatively planning a solution to the protection problem and evaluating the proposed solutions. Several episodes of this kind of cooperative interaction were found. In these episodes there was always a visible common object present, a plan, a model, a picture or some statistics that were analyzed together. In these episodes the interaction is mediated either by a common visible object of discussion or by a representation of the object. These representations of common objects function as shared instruments of orientation in analysis of safety problems (Figure 6).

These episodes can be interpreted as indicators of the zone of proximal development of this work activity "from below." They point to an explanation and to a solution of some of the problems in labor protection inspectors' communication. The unilateral modes of communication persist in spite of good intentions because the inspector has no other instruments to direct the process than checklists and norms. The representatives of the firm in turn have no access to these instruments and thus cannot know "what is going to happen next." Each question the inspector poses to them is a surprise and they have difficulties following the inspector's logic. They can either accommodate themselves to the directive role of the inspector - which means that their point of view is not
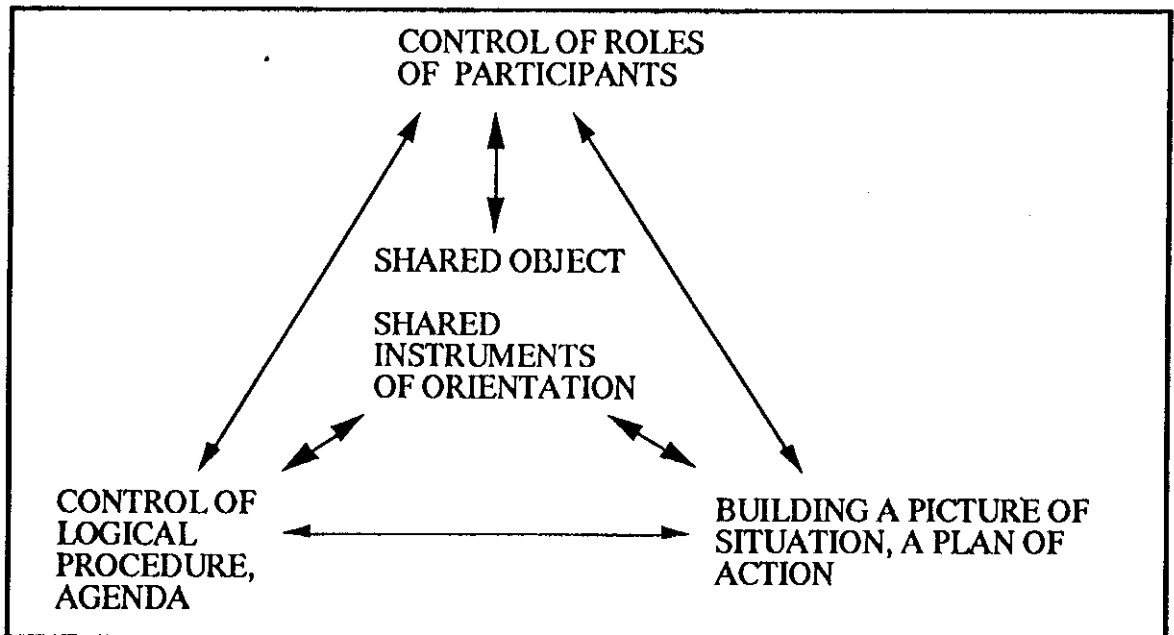
Figure 6: Interaction mediated by common object or instrument of orientation

heard - or they can try to direct the discussion, and by so doing disturb the inspector's plan. A discussion of a common agenda would be a step forward. But it would not overcome the substantive difficulties created by the different points of view. A common instrument of orientation to the actual problems could lead to a reframing of these problems (Schön 1983) and thus to expansive solutions.

In labor protection inspections, common instruments of orientation could be conceptual models of causes and possible remedies of typical labor protection problems. A common instrument for orientation in styrene exposure problems, for example, could be a general model depicting and explaining sources of styrene, the spreading of styrene in working premises, the elimination of styrene and optional possibilities to control the risks. Instead of asking questions about these one by one, the inspector could explain the instrument of orientation to the representatives of the firm and then use the model as a mediational tool in analyzing the situation cooperatively with them. Such an instrument of orientation is currently being developed by the practitioners and researchers together.

References

Berne, E. (1961). *Transactional analysis in psychotherapy.* New York: Grove Press, Inc.

Engeström, Y. (1990). Developmental work research as activity theory in practice: Analyzing the work of general practitioners. In Y. Engeström, *Learning, working, imagining.* Helsinki: Orienta-Konsultit Oy.

Leontiev, A. N. (1978). *Activity, consciousness and personality.* Englewood Cliffs: Prentice Hall.

Mishler, E. (1984). *The discourse of medicine: Dialectics of medical interviews.* Norwood, NJ: Ablex.

Schön, D. (1983). *The reflective practitioner: How professionals think in action.* London: Temple Smith.

Virkkunen, J. (1989). *Suojelumääräysten valvonnasta tuotannon hallinnan ongelmien ratkaisemiseen.*(From enforcing labour protection legislation to solving problems of mastering the production.) TSH Selvityksiä 11/89. Tampere.

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes.* Cambridge: Harvard University Press.

CUMULATIVE INDEX

ARTICLES PUBLISHED IN THE *LCHC NEWSLETTER FROM JANUARY 1986 THROUGH OCTOBER 1991*
(CODE: Author/Date/Title/Issue and Pages

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Belyaeva, A. V., Koshelyuk, M. E., Kharitonov, A. N., Griffin, P., Cole, M., Scott, A. P., & Smeaton, R. (1989, July). The hueristic function of metaphor and issues in the use of the electronic Wizard, *11*(3), 78-95.

Brandt, Mary E. (1986, October). When can we believe our data on children? The importance of being there. *8*(4), 131-136.

Brandt, Mary E. (1990, April). Getting social about critical thinking: Power and constraints of apprenticeship, *12*(2), 56-64.

Brockmeier, Jens. (1991, April). The construction of time, language, and self, *13*(2), 42-52.

Brown, Terrance. (1988, October) Why Vygotsky? The role of social interaction in constructing knowledge, *10* (4), 111-117.

Bryant, P. E. (1989, January/April). Unevenness in mathematical and cognitive development: A discussion of the five papers, *11*(1&2), 34-38.

Capon, Noel, Kuhn, Deanna, & Carretero, Mario. (1987, October). Shopping styles and skills: Everyday cognition in a "noncognitive" task, *9*(4), 102b-114b.

Carraher, Terezinha, & DeLemos Meira, Luciano. (1989, January/April). Learning computer languages and concepts, *11*(1&2), 1-8.

Chadsey, Terry. (1986, October). Mixed ability grouping for reading instruction: An alternative to traditional practice, *8*(4), 136-139.

Cintron, Ralph. (1991, January). Reading and writing graffiti: A reading, *13*(1), 21-24.

Delgado-Gaitan, Concha. (1991, January). Discussants' comments on preceeding papers, *13*(1), 25-26.

Díaz, Rafael M. (1986, July). The union of thought and language in children's private speech, *8*(3), 90-97.

Di Bello, Lia, & Orlich, Felice. (1987, July). How Vygotsky's notion of "scientific concept" may inform contemporary studies of theory development, *9*(3), 96a-99a.

Duranti, Alessandro. (1986, April). Framing discourse in a new medium: Openings in electronic mail, *8*(2), 64-71.

Eckensberger, Lutz. (1990, January). From cross-cultural psychology to cultural psychology, *12*(1), 37-52.

Edwards, Derek, & Middleton, David. (1986, July). Conversation with Bartlett, *8*(3), 79-89.

Edwards, Derek. (1987, January). Educational knowledge and collective memory, *9*(1), 38-48.

Edwards, Derek. (1989, January/April). The pleasure and pain of mathematics: On Walkerdine's The Mastery of Reason, *11*(1&2), 38-41.

Edwards, Derek. (1989, July). Phase transformations as discursively occasioned phenomena, *11*(3), 95-104.

Engeström, Yrjö. (1986, January). The zone of proximal development as the basic category of educational psychology, *8*(1), 23-42.

Engeström, Yrjö. (1988, January). Reconstructing work as an object of research, *10*(1), 21-27.

Engeström, Yrjö. (1988, April). Introduction. How to do research activity? *10*(2), 30-31.

Engeström, Yrjö, Brown, Katherine, Christopher, Carol, & Gregory, Judith. (1991, October). Coordination, cooperation and communication in the courts: Expansive transitions in legal work, *13*(4), 88-97.

Engeström, Yrjö, & Kallinen, Timo. (1988, April). Theatre as a model system for learning to create, *10*(2), 54-67.

Farrell, Edwin. (1988, January). The formal thinkers among us, *10*(1), 7-11.

Gaskins, Suzanne, & Göncü, Artin. (1988, October). Children's play as representation and imagination: The case of Piaget and Vygotsky, *10*(4), 104-107.

Gauvain, Mary, & De Ment, Terri. (1991, July). The role of shared social history in parent-child cognitive activity, *13*(3), 58-66.

Ginsburg, Herbert P. (1989, January/April). The role of the personal in intellectual development, *11*(1&2), 8-15.

Glassman, Michael. (1990, October). Self, other and society: A Vygotskian view of creativity, *12*(4), 141-146.

Goody, Esther. (1987, April). Why must might be right? Observations on sexual herrschaft, *9*(2), 55-76.

Guerra, Juan C. (1991, January). The role of ethnography in the reconceptualization of literacy, *13*(1), 3-9.

Hakkarainen, Pentti. (1991, October). Joint construction of the object of educational work in kindergarten, *13*(4), 80-88.

Hall, William S., & Cole, Michael. (1987, October). Introduction, *9*(4), 94a.

Hanson, Vicki L., & Padden, Carol A. (1988, July). The use of videodisc interactive technology for bilingual instruction in American Sign Language and English, *10*(3), 92-95.

Hatano, Giyoo. (1988, January). Introduction, *10*(1), 2-3.

Hatano, Giyoo. (1989, January/April). Two microworlds of computation: How are they related?, *11*(1&2), 15-19.

Hatano, Giyoo, & Inagaki, Kayoko. (1987, October). Everyday biology and school biology: How do they interact?, *9*(4), 120b-128b.

Heap, James L. (1986, July). Achieving displays of computer literacy: Unfolding Cunningham and Paris' findings, *8*(3), 105-108.

Hedegaard, Mariane. (1986, April). Two approaches to thinking and knowledge acquisition, *8*(2), 58-63.

Humphries, Tom. (1986, April). Planning and evaluating culturally sensitive post-secondary educational programs for deaf people, *8*(2), 71-75.

Hundeide, Karsten. (1988, July). Metacontracts for situational definitions and for presentation of cognitive skills, *10*(3), 85-91.

Hutchins, Edwin. (1986, April). Mediation and automatization, *8*(2), 47-58.

Inagaki, Kayoko. (1989, October). Questioning and acquisition of knowledge in Japan, *11*(4), 142-145.

Jacobs, Suzanne E. (1990, April). Scaffolding children's consciousness as thinkers, *12*(2), 70-75.

Jardine, David W., & Morgan, Griffith, A.V. (1987, October). Analogical thinking in young children and the use of logico-mathematical knowledge as a paradigm in Jean Piaget's genetic epistemology, *9*(4), 95b-101b.

Jensen, Minna Skafte. (1986, January). Types and versions in ballad tradition: The oral poet's use of the potentialities of variation, *8*(1), 18-23.

Kawatoko, Yasuko. (1988, July). The role of communication during classroom lessons in cognitive development, *10*(3), 76-85.

Klingler, Cynthia. (1986, October). The self-regulatory speech of children in an additive bilingual situation, *8*(4), 125-131.

Krewer, Bernd. (1990, January). Psyche and culture - Can a culture-free psychology take into account the essential features of the species "homo sapiens"?, *12*(1), 24-37.

Krewer, Bernd, & Jahoda, Gustav. (1990, January). On the scope of Lazarus and Steinthal's "Volkerpsychologie" as reflected in the Zeitschrift fur Volkerpsychologie und Sprachwissenschaft (1860-1890), *12*(1), 4-12.

Landolfi, Liliana. (1989, October). Explanation as joint activity, *11*(4), 136-141.

Larsen, Mogens Trolle. (1986, January). Writing on clay: From pictograph to alphabet, *8*(1), 3-9.

Levin, Paula F. (1990, April). Culturally contextualized apprenticeship: Teaching and learning through helping in Hawaiian families, *12*(2), 80-86.

Levy, Elena. (1987, July). A Vygotskian perspective on discourse: From complex to concept, *9*(3), 100a-105a.

Litowitz, Bonnie E. (1990, October). Just say no: Responsibility and resistance, *12*(4), 135-141.

Lucy, John A. (1988, October). The role of language in the development of representation: A comparison of the views of Piaget and Vygotsky, *10*(4), 99-103.

McDermott, R. P. (1985, January). Wisdom from the periphery: Talk, thought and politics in the ethnographic theater of John Millington Synge, *7*(1), 1-6.

McLane, Joan B., & Wertsch, James V. (1986, July). Child-child and adult-child interaction: A Vygotskian study of dyadic problem systems, *8*(3), 98-105.

Middleton, David. (1987, January). Some issues and approaches, *9*(1), 2-5.

Middleton, David. (1987, January). Dance to the music: Conversational remembering and joint activity in learning an English Morris dance, *9*(1), 23-38.

Minick, Norris. (1986, October). The early history of the Vygotskian school: The relationship between mind and activity, *8*(4), 119-125.

Mordkowitz, Elliott R., & Ginsburg, Herbert P. (1987, April). Early academic socialization of successful Asian-American college students, *9*(2), 85-90.

Mortensen, Aksel. (1990, October). Culture and micro-cosmos of individuals: The idiosyncratic room of the person, *12*(4), 146-152.

Nelson, Katherine. (1987, July). Discussion, *9* (3), 116a-117a.

Nicoloupoulou, Ageliki. (1989, October). The invention of writing and the development of numerical concepts in Sumeria: Some implications for developmental psychology, *11*(4), 114-124.

Pease-Alvarez, Lucinda. (1991, January). Oral contexts for literacy development in a Mexican immigrant community, *13*(1), 9-13.

Pulos, Steven, & Fisher, Sarah. (1988, January). The child's understanding of computers, *10*(1), 17-21.

Punamäki, Raija-Leena. (1987, April). Psychological stress responses of Palestinian mothers and their children in conditions of military occupation and political violence, *9*(2), 76-84.

Roter, Armonit. (1987, July). The concept of consciousness: Vygotsky's contribution, *9*(3), 105a-111a.

Rutland, Adam. (1991, April). The zone of proximal development: A mutual construction of meaning between adults and children with a learning difficulty, *13*(2), 38-42.

Saxe, Geoffrey B. (1989, January/April). Selling candy: A study of cognition in context, *11*(1&2), 19-22.

Schliemann, Analúcia Dias. (1988, January). Understanding the combinatorial system: Development, school learning, and everyday experience, *10*(1), 3-7.

Schousboe, Karen. (1986, January). Panis et circensen—Orality and visuality in medieval Denmark, *8* (1), 10-17.

Schudson, Michael. (1987, January). Preservation of the past in mental life, *9*(1), 5-11.

Scribner, Sylvia. (1987, July). On reading Vygotsky, *9* (3), 94a-96a.

Scribner, Sylvia. (1990, April). Reflections on a model, *12*(2), 90-95.

Seifert, Colleen, Hutchins, Edwin L. (1989, October). Learning within a distributed system, *11*(4), 108-114.

Serpell, Robert. (1990, July). Audience, culture and psychological explanation. A reformulation of the emic-etic problems in cross-cultural psychology, *12*(3), 99-132.

Shotter, John. (1987, January). Remembering and forgetting as social institutions, *9*(1), 11-19.

Stern, Erich. (1990, January). Problems of cultural psychology, *12*(1), 12-24.

Still, Arthur, & Costall, Alan. (1989, October) Mutual elimination of dualism in Vygotsky and Gibson, *11*(4) 131-136.

Sutter, Berthel, & Grensjo, Bengt. (1988, April). Explorative learning in the school? Experiences of local historical research by pupils, *10*(2), 39-54.

Totsuka, Takito, & Miyake, Naomi. (1988, January). Computer as a tool for children's exploration of nature, *10* (1), 12-17.

Vasquez, Olga A. (1991, January). Reading the world in a multicultural setting: A Mexicano perspective, *13*(1), 13-15.

Verdonik, Frederick, Flapan, Valerie, Schmit, Cynthia, & Weinstock, Jill. (1988, July). The role of power relationships in children's cognition: Its significance for research on cognitive development, *10* (3), 80-84.

Vergnaud, Gerard. (1989, January/April). A content-oriented approach to research on the learning of mathe-matics and natural language, *11*(1&2), 22-27.

Virkkunen, Jaakko. (1991, October). Toward transforming structures of communication in work: The case of Finnish labor protection inspectors, *13*(4), 97-107.

Voigt, Jorg. (1989, January/April). The social constitution of the mathematics province—A microethnographical study in classroom interaction, *11*(1&2), 27-34.

Waller, Marguerite. (1987, January). Commemoration: Making family history as a family event, *9*(1), 48-50.

Watson-Gegeo, Karen Ann. (1990, April). The social transfer of cognitive skills in Kwara'ae, *12*(2), 86-90.

Wertsch, James V. (1987, January). Collective memory: Issues from a sociohistorical perspective, *9*(1), 19-22.

White, Sheila J. (1987, July). Lost for words: A Vygotskian perspective on the developing use of words by hearing-impaired children, *9*(3), 111a-115a.

Wolters, Miriam, Fischer, Coen, & Zuidema, Johan. (1987, October). Balanced measurement of cognitive development. A discussion on methodological problems with the balance scale, *9*(4), 114b-120b.

ANNOTATED BIBLIOGRAPHIES PUBLISHED IN THE *LCHC NEWSLETTER* FROM JANUARY 1986 THROUGH OCTOBER 1991
(Code: Author/Review Date/Title/Reviewer/Issue and Pages)

Cameron, C.A. (1986, July). Grandmothers, teachers and little girls, *8*(3), 111-115.

Davydov, V. V. (1990, October). Problems of developmental teaching: The experience of theoretical and experimental psychological research. (Mariane Hedegaard & Seth Chaiklin), 12 (4), 153-154.

Holland, D., & Quinn, N. (Eds.). (1988, January). Cultural models in language and thought. (Michael Cole), *10*(1), 27-28.

Moll, L. C. (Ed.). (1991, July). Vygotsky and education. (Yrjö Engeström, Steven A. Gelb, & Roger Säljö), *13*(3), 66-71.

Street, Brian. (1986, July). Literacy in theory and practice. (Alison Fuller), *8*(3), 108-111.

ARTICLES PUBLISHED IN THE WORK-IN-PROGRESS SECTION OF THE *LCHC NEWSLETTER* FROM JANUARY 1986 THROUGH OCTOBER 1991
(Code: Author/Review Date/Title/Issue and Pages)

Cole, Michael. (1991, July). H. Drummon's *The ascent of man.* *13*(3), 73-74.

Cole, Michael, Gardner, Howard, Sayeki, Yutaka. (1987, July). Conference report: Arts and cognition, *9*(3), 119-124.

Middleton, David & Edwards, Derek. (1987, July). Facing the future in development: Reflections on the zone of proximal development, *9*(3), 117a-119a.

Stanton-Salazar, Ricardo D. (1991, January). The impact of social and information networks on the schooling experiences and life-chances of Mexican-origin high school youth, *13*(1), 27-28.

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